

Bolero 3.3

Next Generation Wireless

User Manual





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Bolero 3.3 User Manual

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This device complies with Part 15 of the FCC Rules and with Industry Canada licence-exempt RSS standard(s). 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.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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 his own expense.

Changes or modifications made to this equipment not expressly approved by Riedel may void the FCC authorization to operate this equipment.

Radiofrequency radiation exposure Information (for the Beltpack):

For body worn operation, this equipment has been tested and meets the FCC RF exposure guidelines when used with the Riedel accessories supplied or designated for this product. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

Radiofrequency radiation exposure Information (for the Antenna):

This equipment complies with FCC and IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps. Ce transmetteur ne doit pas être placé au même endroit ou utilisé simultanément avec un autre transmetteur ou antenne.

This device is granted pursuant to the Japanese Radio Law (電波法) and the Japanese Telecommunications Business Law (電気通信事業法). This device should not be modified (otherwise the granted designation number will become invalid).

Beltpack: Este produto está homologado pela Anatel, de acordo com os procedimentos regulamentados pela Resolução nº. 242/2000 e atende aos requisitos técnicos aplicados, incluindo os limites de exposição da Taxa de Absorção Específica referente a campos elétricos, magnéticos e eletromagnéticos de radiofrequência de acordo com as Resoluções nº. 303/2002 e 533/2009.

Taiwan NCC Warning Statement

交通部電信總局低功率電波輻射性電機管理辦法 (930322) 根據交通部低功率管理辦法規定第十二條，經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。第十四條，低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

China

使用微功率短距离无线电发射设备应当符合国家无线电管理有关规定
不得擅自更改发射频率、加大发射功率(包括额外加装射频功率放大器)，不得擅自外接天线或改用其它发射天线
使用时不得对各种合法的无线电通信业务产生有害干扰；一旦发现有害干扰现象时，应立即停止使用，并采取有效措施消除干扰后方可继续使用
使用微功率无线电设备，必须忍受各种无线电业务的干扰或工业、科学及医疗应用设备的辐射干扰
不得在飞机和机场附近使用。

South Korea

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Additional statement for 2.4 GHz devices only:

해당 무선설비는 전파혼신 가능성이 있으므로 인명안전과 관련된 서비스는 할 수 없음



The device conforms to the following EU guidelines as attested by the CE mark.

- EMV (EMC) 2014/30/EU
- NSR (LVD) 2014/35/EU
- RTTE (RED) 2014/53/EU

- Standards
- EN 300 328 V1.9.1 / ETSI EN 300 328 V2.0.20
 - EN 300 330 V1.8.1 / ETSI EN 300 330 V2.1.0
 - EN 301 406 V2.2.1
 - EN 301 489-1/-3/-6/-17, EN 55022, EN 55024
 - IEC/EN 60950-1, IEC 62368-1
 - ARIB STD-T66
 - ARIB STD-T101



Bolero complies with India BIS standards
BIS License R-41259373
Charger BL-CHG-1005-R and BL-EPS-1005-00 comply
to standard IS 13252(Part 1): 2010 / IEC 60950-1: 2005
www.bis.gov.in



- YFJANT101019
(Bolero DECT Antenna / BL-ANT-1010-19)
- YFJBPK100619
(Bolero DECT Beltpack / BL-BPK-1006-19)
- YFJANT100824
(Bolero 2.4GHz Antenna / BL-ANT-1008-24)
- YFJBPK100624
(Bolero 2.4GHz Beltpack / BL-BPK-1006-24)
- YFJBPK100424
(Bolero 2.4GHz Beltpack / BL-BPK-1004-24)

- Industry
- 8706A-ANT101019
(Bolero DECT Antenna / BL-ANT-1010-19)
 - 8706A-BPK100619
(Bolero DECT Beltpack / BL-BPK-1006-19)
 - 8706A-ANT100824
(Bolero 2.4GHz Antenna / BL-ANT-1008-24)
 - 8706A-BPK100624
(Bolero 2.4GHz Beltpack / BL-BPK-1006-24)
 - 8706A-BPK100424
(Bolero 2.4GHz Beltpack / BL-BPK-1004-24)

Australia Any device that connects to the data ports must comply with the clause 4.7 of AS/NZS 60950.1

Singapore Complies with
IMDA Standards
DB105184

Taiwan Complies with
BSMI Standards

Nigeria Connection and use of this communications equipment is permitted by the Nigerian Communications Commission

Warning: This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

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1 Preface

Thank you for choosing a Riedel product.

This PDF document provides detailed information about the Bolero system, pin outs, mechanical and electrical data.

For further information, please refer to the [Riedel Website](#) or contact your local distributor or the Riedel headquarters in Wuppertal.

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1.1 Information

Symbols

The following tables are used to indicate hazards and provide cautionary information in relation to the handling and use of the equipment.

Danger	
	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
	The highlighted line indicates the activity to prevent the danger.

Warning	
	Indicates a potentially hazardous situation which, if not avoided, may result in moderate to serious injury.
	The highlighted line indicates the activity to prevent the danger.

Caution	
	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.
	The highlighted line indicates the activity to prevent the danger.

	This text is for generally information. It indicates the activity for ease of work or for better understanding.
---	---

Service

- All service has to be undertaken ONLY by qualified service personnel.
- Do not plug in, turn on or attempt to operate an obviously damaged device.
- Never attempt to modify the equipment components for any reason.

Caution	
	All adjustments have been done at the factory before the shipment of the devices. No maintenance is required and no user serviceable parts are inside the module.

Voltage

- The power cable should only be connected to a properly grounded source.
- Do not use any adapters.
- Never bypass a ground contact.

Danger	
	To reduce the risk of electric shock do not remove cover or expose the products to rain or moisture.

Warning	
	• Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan. • Apparatet må tilkoples jordet stikkontakt. • Apparaten skall anslutas till jordat uttag. • Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.

Battery Safety

The Bolero-Beltpacks are operated with the following battery type: Lithium-Ion, 3.6V, 4.8Ah, 17.3Wh, 1ICP7/39/65-2, with integrated electronics. For best performance charge the battery fully before initial use or reusing it after being stored for a long period. Charge the battery at least every six months to avoid deep discharge, which could damage the battery. It is recommended to dispose of lithium-ion batteries after 5 years and replace them with a new battery to avoid the risk of malfunction. In order to ensure air transport safety, the Bolero Battery Pack is tested according to UN 38.3 – Transport of dangerous goods.

Warning	
	There is a risk of fire and burns if the battery pack is handled improperly. • Do not short-circuit. • Do not dismantle, open, crush, heat above 60°C (140°F) or incinerate. • Recycle or dispose of property. • Charge before initial use. • Use the specified Riedel Bolero Charger only or charge the battery via the Beltpack. • Do not charge using any other equipment from either side. • Do not connect the contacts to any other equipment. Further recommendations: • Avoid storage in direct sunlight. • Do not subject batteries to mechanical shock. • In the event of a cell leaking, do not allow the liquid to come into contact with the skin or eyes. If contact has been made, wash the affected area with copious amounts of water and seek medical advice. • Do not use batteries which are not designed for use with the Beltpack. • Keep batteries out of the reach of children. • Keep batteries clean and dry. • Wipe the battery terminals with a clean dry cloth if they become dirty. • Use the battery only in the application for which it was intended. • When possible, remove the battery from the Beltpack when not in use.

Environment

- Never place the devices in an area of high dust particles or humidity.
- Never expose the device to any liquids.
- If the devices have been exposed to a cold environment and transferred to a warm environment, condensation may form inside the housing. Wait at least 2 hours before applying any power to the devices.

Disposal

Disposal of old Electrical & Electric Equipment (Applicable throughout the European Union and other European countries with separate collection programs)



This symbol, found on your product or on its packaging, indicates that this product should not be treated as household waste when you wish to dispose of it. Instead, it should be handed over to an applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences to the environment and human health, which could otherwise be caused by inappropriate disposal of this product. The recycling of materials will help to conserve natural resources. For more detailed information about the recycling of this product please contact your local city office.

1.2 Change History

New in 3.3 This user manual contains following changes:

Belpack Priorities

Belpacks can now be prioritized in the whole Network Space by giving them a default priority. Furthermore, each Belpack can have special priorities on individual Bolero Antennas. These priorities can be configured in the Belpack (⇒ [Edit \(Belpacks\) > Priority](#)) and Profile configuration views as well as in the Antenna configuration view (⇒ [Edit \(Network Devices\) > Priority](#)).

Higher priority Belpacks will forcefully disconnect lower priority Belpacks if there is no free space on an Antenna, thus helping higher priority Belpacks to maintain a connection to the network in peak load situations.

Belpack Priorities can be enabled and disabled for the whole Network Space in the Network Space settings view in the Web Interface.

(⇒ [Action-Button \(Network Devices\) > Edit Network Space > General Settings > Belpack Priority](#))

Note that the maximum number of Belpacks on 2.4G Antennas is reduced from 8 to 7 when the Belpack Priority is enabled.

Note that a Belpack Priority license (part of the **Pro 2 License** (P2) bundle) is needed to use Belpack priorities.

Individual Radio Power Settings

In addition to setting the network-wide default radio power for DECT and 2.4G Antennas in the Network Space settings, the radio power of individual antennas can now be changed separately in the Antenna configuration view (⇒ [Edit \(Network Devices\) > General](#)).

With this feature it becomes possible to install multiple antennas with reduced radio power close together to cover areas with a high Belpack density (e.g. in a central control area or in the cafeteria) while having antennas with high radio power in less denser areas covering a larger range (e.g. along a race track), all in the same Network Space.

Note that an Individual Radio Power license (part of the **Pro 2 License** (P2) bundle) is needed to use individual radio power settings.

PunQtum Support

'PunQtum Q210 P Speaker Stations' can now be used to integrate a PunQtum system into a Standalone mode Bolero Network Space similar to 'NSA-002A' devices. (⇒ [IO Devices](#))

Up to six bidirectional audio connections as well as six input and six output controls can be shared between the PunQtum system and the Bolero Network Space.

The Bolero Audio Channel and Trigger setup of an integrated PunQtum system is derived automatically from the System Interconnection Patch settings of the running PunQtum configuration when the PunQtum Speaker Station connects to a Bolero antenna for the first time. No manual Trigger or Audio Channel creation is necessary on Bolero side.

Once the Audio Channels and Triggers are automatically created, they can be configured and used with intercom functions the same way as 'NSA-002A' Audio Channels and other Triggers, e.g. by configuring an On-VOX "Talk - Always Listen" function with a Bolero Partyline as destination on a PunQtum Partyline channel to merge both Partylines into one.

As with the 'NSA-002A' devices, no IP configuration is necessary to connect a 'PunQtum Q210 P Speaker Station' to a Bolero antenna as long as both are in the same local Ethernet network. A maximum of two devices (e.g. one 'NSA-002A' and one 'PunQtum Q210 P Speaker Station') can be connected to a single Bolero antenna at the same time. More Bolero Antennas allow for more devices being connected simultaneously.

Note that a PunQtum [License](#) (PQ) is needed to integrate a PunQtum system into Bolero.

(⇒ [Bolero punQtum Integration](#))

Pair Two Bluetooth Headsets

Two Bluetooth headsets can now be paired to a single Belpack. Only one of the two can be actively connected at any point in time, but if the connected headset disconnects (e.g. because the headset battery ran out), the second paired headset will connect automatically if it is turned on.

(⇒ [Bluetooth](#))

Mute Microphone Key Function

The new Mute Microphone key function allows the Belpack user to mute the Belpack microphone (headset, internal or Bluetooth) temporarily without changing the activated intercom functions, also known as "cough button". This function is available in Standalone mode only at this time.

(⇒ [Edit \(Belpacks\) > Keys](#))

Beltpack Automatic Switch-Off Timer

A new Beltpack switch-off timer can be configured in the Beltpack (⇒ [Edit \(Beltpacks\) > General](#)) and Profile configuration views. This timer will only become active when the Beltpack is not connected to an antenna. It will automatically turn off the Beltpack to prevent the battery from being drained if the Beltpack user forgot to turn off the Beltpack manually. The default timeout is 60 minutes.

'Sidetone' Rotary Option

The sidetone volume can now be selected on a rotary in the Beltpack or Profile Rotaries configuration instead of the main volume, similar to specific key volumes, Bluetooth volume or Line Input volume.

(⇒ [Edit \(Beltpacks\) > Rotaries](#))

'PTP TimeTransmitter Priorität 1' Setting

The PTP TimeTransmitter Priority 1 setting of a Bolero Antenna can now be changed the same way as the PTP TimeTransmitter Priority 2 setting which was also accessible in previous versions. The default value is 128. Caution: Changing the PTP TimeTransmitter Priority 1 is not necessary and not recommended under most circumstances, the default value is sufficient for most applications. The PTP TimeTransmitter Priority 2 setting should be used to determine the PTP TimeTransmitter in a usual Bolero Network Space. Only specialized setups containing e.g. an external PTP Grandmaster may require the PTP TimeTransmitter Priority 1 to be changed.

(⇒ [Edit \(Network Devices\) > General](#))

Web Interface Improvements

Some minor bugs were solved, translations updated, improvements made and some new features were implemented in the Web Interface. These are the most important changes:

- **Beltpack Signal Strength:**

The current Beltpack signal strength is shown in the Beltpack list, with the same icon as in the top right corner of the Beltpack screen. (⇒ [Beltpacks](#))

- **Direct Edit Microphone Level:**

The headset or internal microphone level can now be adjusted directly in the Beltpack list. (⇒ [Beltpacks](#))

An icon shows which microphone is currently active. (⇒ [Beltpacks](#))

- **Charger Status View:**

Some new information was added to the Charger status view, including the battery serial number, firmware version and current state (e.g. charging, updating, etc.) of all Beltpacks in the Charger.

(⇒ [Info \(Network Devices\) > Chargers](#))

- **Verify Admin Pin:**

When changing the admin pin or creating a new Network Space, the new admin pin now has to be verified by entering it twice. This will prevent locking oneself out of the Network Space in case of a typo in the admin pin.

(⇒ [Action-Button \(Network Devices\) > Edit Network Space > General](#))

1.3 Package Version

This manual refers to Package version **3.3.x** of the Bolero system.

The "x" indicates the bugfix version which is described in the related release notes.

In order to make an update of the Bolero system comfortable, all required firmwares of the different Bolero devices are combined in one file called '**Package**'. Thus, only one package file must be used for an update.

Checking the Package Version

The package version can be checked in the Beltpacks, Antennas and in the web interface:

Beltpack

- Press and hold the Menu key (>3s).
- Navigate with a rotary encoder and the key-4 to the menu: **Service > Information > Beltpack**.

The upper line shows the Beltpack's **Package Version**.

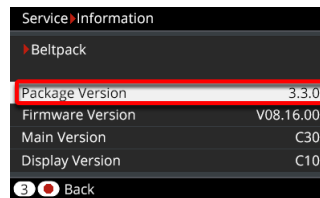


figure 1: package version (Beltpack)

Antenna

- Push any key to open the menu.
- Navigate with the cursor keys to the menu: **Information > System Info**.

The fourth line shows the Antenna's **Package** version.

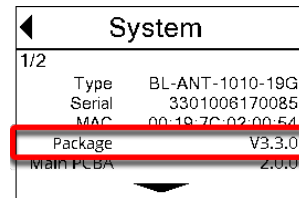


figure 2: package version (Antenna)

Web Interface

- Enter the IP address of a Bolero Antenna or Charger into a web browser.
- Click on the right side on the settings symbol.
- Choose **Firmware Manager** in the opened dialog.
- Enter the '**Admin PIN**' of the Net.

The right column shows the **Firmware Package** of all Bolero devices present in this Net.

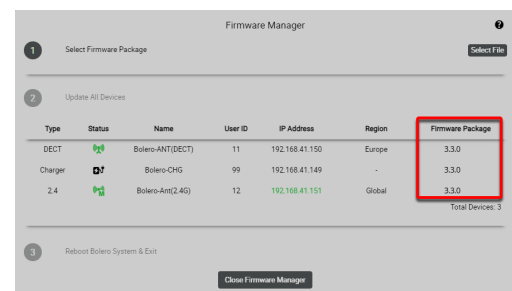


figure 3: package version (web interface)

1.4 About Bolero

Bolero Wireless Intercom

The Riedel Bolero Wireless Intercom system is a digital, easy to use full-duplex communications solution for broadcast, security, industrial and theater applications as well as for sports and cultural events. It is an all-new wireless intercom system capable of supporting up to 10 Beltpacks per Antenna and up to 100 Antennas in a single deployment. Bolero redefines the wireless intercom category with features such as ADR (Advanced DECT Receiver) with multiple-diversity and RF anti-reflection technology for greater RF robustness.

Bolero DECT devices utilize the benefits of the Digital Enhanced Cordless Telecommunications (DECT) standard's base layer. Bolero 2.4GHz devices operate in 2.4 GHz range. This provides a license-free, cellular architecture with seamless hand-over between cells, allowing each Bolero Wireless Beltpack to continuously monitor and automatically select the best connection to the Antenna.

Bolero is fully integrated in Riedel's Artist Matrix. Features like "Touch&Go" Beltpack registration, versatile operation as a wireless Beltpack, a wireless keypanel, and – in an industry first – a walkie-talkie pushing it beyond the limits of existing wireless intercom solutions.

Bolero **Integrated** leverages the powerful Artist ecosystem, including SmartPanels and extensive I/O connectivity, and runs over a standards-based SMPTE 2110-30 (AES67) IP network. Decentralized Bolero Antennas connect to AES67-capable switches and to Artist frames equipped with AES67 client cards, providing a fully integrated point-to-point seamless handover intercom ecosystem. With each decentralized Antenna and Beltpack added, coverage and network robustness are increased. Up to 250 Beltpacks per Bolero Net are supported.

Bolero **Standalone Link** provides plug & play simplicity that is ideal for smaller installations, portable deployments, or cases where IP networks are not required. Up to 100 Antennas and 100 Beltpacks can be quickly and easily set up and configured via a web browser, without the need for an Artist Intercom matrix since audio mixing and all control functions are handled by the Antennas. Antennas may be positioned in a redundant ring or daisy chain topology or deployed individually using CAT5 cabling. With the optional EPS-1005 power supply, up to five Antennas can be powered and adding multiple PSUs creates a redundant power ring. Finally, an NSA-002A stream adapter is used to interface Bolero with other intercom systems via analog 4-wire and provide GPIOs for convenient external device handling.

Similarly, Bolero **Standalone AES67 (2110)** lets users establish IP-based Bolero networks without the need for an Artist matrix. The Antennas are distributed over a SMPTE 2110-30 (AES67) IP network and connected via AES67 PoE switches. As in Standalone Link deployments, audio mixing and control functions are handled by the Antennas and 100 Beltpacks can be accommodated per Bolero Net and configured via a web browser. An optional NSA-002A provides analogue interfacing and GPIOs and fiber-connected switches or switch cascades can be used to cover long distances.

The Bolero high-clarity voice codec provides both higher speech intelligibility and more efficient use of RF spectrum supporting a higher number of Beltpacks per Antenna in the same audio bandwidth.

The Riedel-exclusive ADR technology, combines a unique receiver design with multiple diversity elements specifically designed to reduce sensitivity to multipath RF reflections, making Bolero useable in challenging RF environments where other systems have great difficulty.

The Beltpack itself features 6 buttons for 6 intercom channels or point to point communications, plus a separate "Reply" button that easily facilitates a reply to the last person that called. Bolero's sunlight readable and dimmable display can be inverted so that it is readable in any orientation. The Beltpack can be used without a headset like a walkie-talkie radio utilizing an integrated mic and speaker.

Bolero DECT Beltpacks support Bluetooth 4.1, allowing either a Bluetooth headset or a Smartphone to be connected. When a Smartphone is connected, the Beltpack can act like a car's "hands free" setup so the user can receive calls on their phone and talk and listen via their Beltpack headset. User can also inject phone calls directly into the intercom channels, providing new levels of workflow flexibility.

Based on Riedel's extensive rental experience, the Beltpack uses a combination of premium materials, including high-impact plastics and rubber overmolds making it both tough and comfortable to use in any situation.

Light and powerful high-performance lithium rechargeable battery packs are used for the Beltpack. Battery packs are able to charge inside the Beltpack as well as separately in the 5-bay Charger.

What is Bolero?

- A next generation high-performance digital wireless intercom system
- License-free, cellular architecture with seamless hand-over
- Riedel exclusive advanced next generation receiver with multiple-diversity and RF anti-reflection technology for greater RF robustness
- Efficient use of RF spectrum for a hassle-free operation even with high channel count

Riedel Bolero – Key Features

- 10 Beltpacks per DECT-Antenna
- 8 Beltpacks per 2.4GHz-Antenna
- 100 Antennas per system
- Cellular architecture with seamless hand-over
- License free
- No registration headaches! Touch the Beltpack to the Antenna and GO!
- Riedel-exclusive ADR receiver technology
- Up to six full-duplex keys plus convenient REPLY button
- Modern, high-clarity voice codec
- Integrated mic and speaker for headset-free operation
- Can be used as a Beltpack, a portable desktop keypanel, or Walkie-Talkie
- Tough & ergonomic – Beltpack built to survive
- Bluetooth 4.1 (only DECT-Beltpacks)
- Weatherproof
- Bottle opener – just in case

Integrated/Artist

- Seamless comms environments with the full power of Artist, including SmartPanels and extensive I/O connectivity
- Multiple fiber-connected switch cascades for long distances
- Antenna distribution via standards-based, decentralized, SMPTE 2110-30 (AES67) IP network
- Extensive connectivity options including SMPTE 2110-30/31 (AES67), AES3, MADI, Dante and analogue 4-wires
- Configuration via Director, Artist's powerful configuration tool
- 500 conferences and unlimited point-to-point connections
- 250 Beltpacks, 100 Antennas

Standalone/AES67 (2110)

- Antenna distribution via standards-based, decentralized, SMPTE 2110-30 (AES67) IP network
- Multiple fiber-connected switch cascades for long distances
- Analogue 4-wires and GPIOs via optional NSA-002A throwdown box
- Integrated web browser for configuration (Artist is not required)
- Up to 32 Partylines and unlimited point-to-point connections
- 100 Beltpacks, 100 Antennas

Standalone/Link

- Daisy chain or redundant ring Antenna network
- Plug&Play simplicity
- EPS-1005 PSU powers up to five Antennas
- Up to 300m CAT5 cable between Antennas
- Analogue 4-wires and GPIOs via optional NSA-002A throwdown box
- Integrated web browser for configuration (Artist is not required)
- Up to 32 Partylines and unlimited point-to-point connections
- 100 Beltpacks, 100 Antennas

2 Features in Detail

2.1 System Modes

The Bolero system features three modes of operation: [Standalone/AES67 \(2110\)](#), [Standalone/Link](#) and [Integrated/Artist](#).

2.1.1 Standalone/AES67 (2110)

In this mode antennas are connected via an standards-based IP network. This mode enables communication between Bolero Beltpacks or communication via user defined Partylines (⇒ [Partylines](#)) in the Bolero system itself. An Artist system is not required in this mode but one Antenna requires a valid 'Standalone' license to operate in this mode (⇒ [License Manager](#) and [License Installation](#)).

In this operating mode, the antennas are connected via the **AES67/Config** connector to the AES67 infrastructure. Power can be supplied either by individual power supplies or by a 'PoE+' switch. The simultaneous connection of both variants ensures redundant power supply.

A description of how to set up a Bolero system in **Standalone/AES67** mode can be found in the following chapter: ['Standalone/AES67 Setup'](#).

Furthermore, IO Devices (NSA-002A) can be integrated in the Bolero system. You can find a description of this in the chapter: ['NSA-002A Integration'](#).

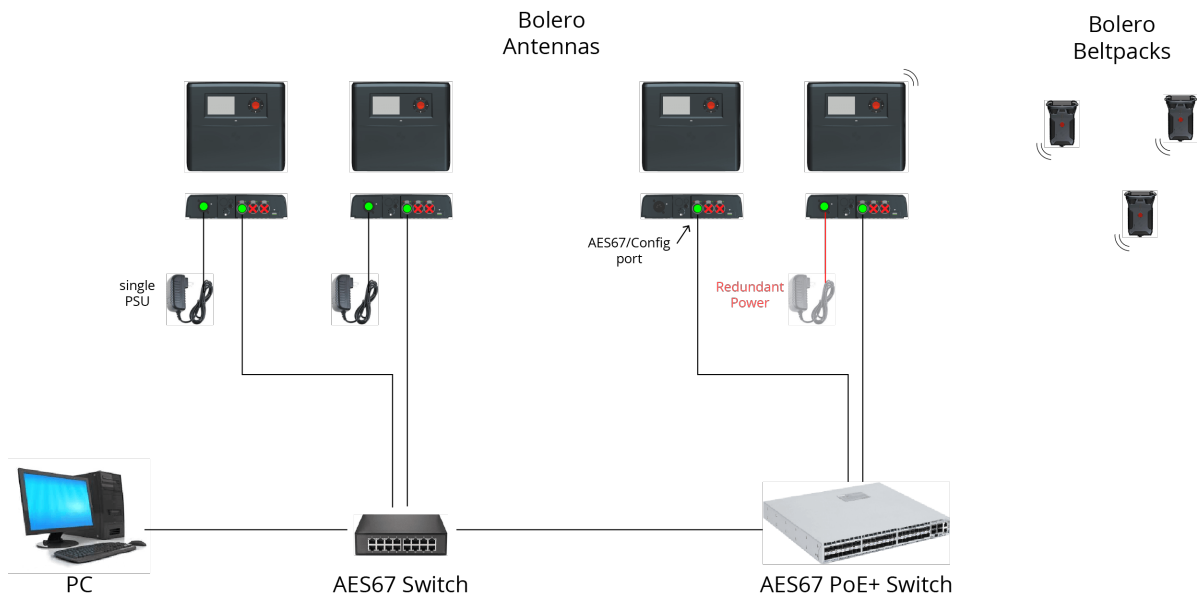


Figure 4: Standalone/AES67 (2110)

2.1.2 Standalone/Link

In this mode Antennas are connected via a simple plug & play, non-IP CAT5 connection. This mode enables communication between Bolero Beltpacks or communication via user defined Partylines (⇒ [Partylines](#)) in the Bolero system itself. An Artist system is not required in this mode but one Antenna requires a valid 'Standalone' license to operate in this mode (⇒ [License Manager](#) and [License Installation](#)).

In this operating mode, the Antennas are connected via the **LINK** connectors of the Antennas. The **LINK-1** connector is always connected to the **LINK-2** connector of the next Antenna (daisy chain).

In addition, a redundant system can be set up by connecting the **LINK-1** connector of the last Antenna to the **LINK-2** connector of the first Antenna (redundant ring).

CAT cables with a maximum length of 300 meters are supported.

The **AES67/Config** port is primarily used as config port, i.e. to provide a connection to the web interface.

With an External Power Supply (EPS-1005), you can power up to 2 Antennas over Link 1 and 2 Antennas over Link 2 (i.e. 5 Antennas in total).

It is not possible to use routers, switches or other standard IP devices.

A description of how to set up a Bolero system in **Standalone/Link** mode can be found in the following chapter: ['Standalone/Link Setup'](#).

Furthermore, IO Devices (NSA-002A) can be integrated in the Bolero system. You can find a description of this in the chapter: ['NSA-002A Integration'](#).

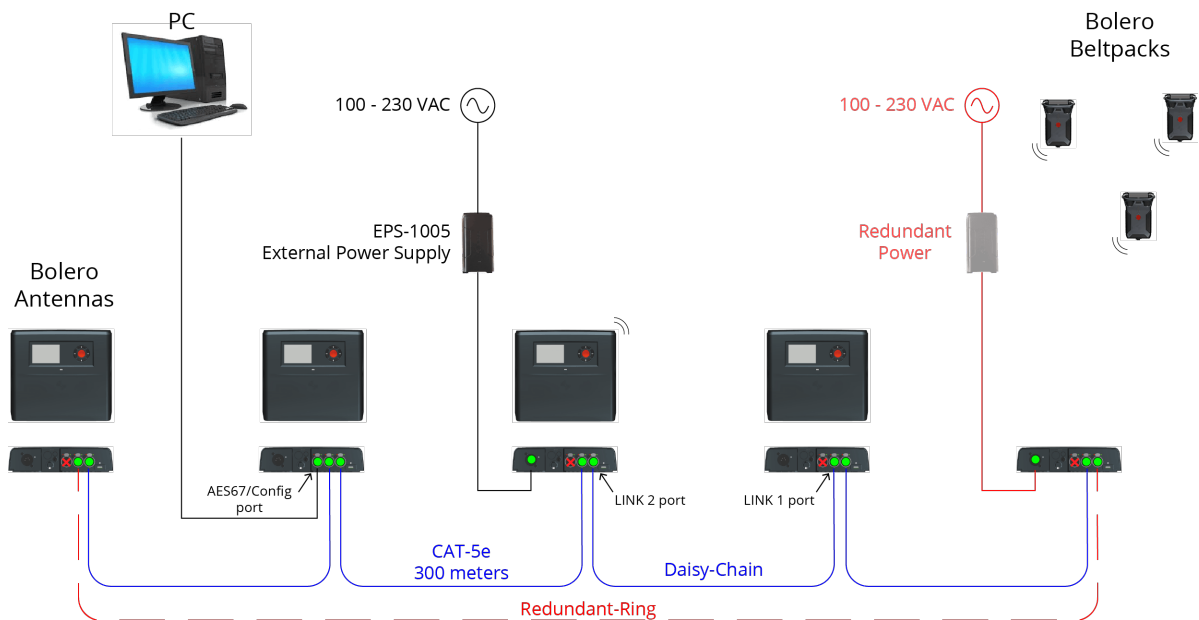


Figure 5: Standalone/Link

2.1.3 Integrated/Artist

In this mode antennas and Artist matrix are connected via a standards-based IP network. The Bolero system is integrated in the Artist system. This enables the communication between Bolero Beltpacks and panels/ports in the Artist system. In this mode the Artist system is mandatory.

The **AES67/Config** port is connected to the IP net which also hosts the Artist-AES67 card. The other two **LINK** ports are not used. If they are connected anyway, an error will be issued and radio transmission will be disabled. Power can be supplied either by individual power supplies or by a 'PoE+' switch. The simultaneous connection of both variants ensures redundant power supply.

A description of steps required to integrate a Bolero-System with an Artist-System can be found in chapter: ['Integrated/Artist Setup'](#).

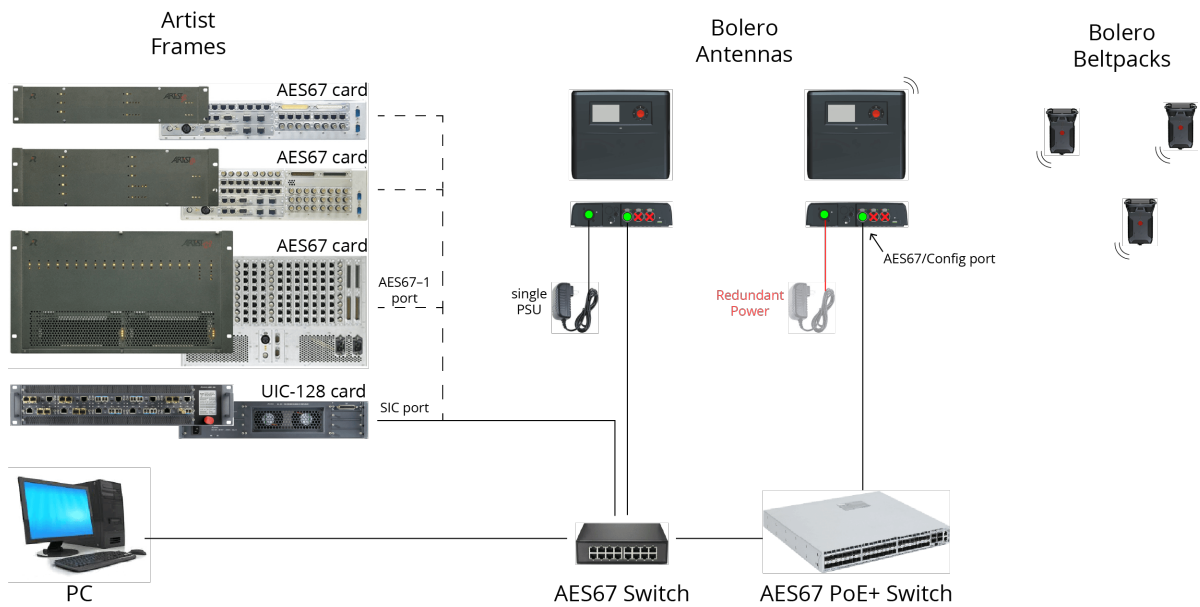


Figure 6: Integrated/Artist

2.2 System Setup

The following chapters describes step-by-step the general setup of the three system modes [Standalone/AES67 \(2110\)](#), [Standalone/Link](#) and [Integrated/Artist](#).

2.2.1 Standalone/AES67 Setup

This chapter describes the required steps to operate a Bolero-System in the **Standalone/AES67** mode. An Artist system is not required in this mode but one Antenna requires a valid 'Standalone' license to operate in this mode (⇒ [License Manager](#) and [License Installation](#)).

The following devices are required:

- ✓ Bolero Antenna (with standalone license)
 - ✓ Bolero Beltpacks
 - ✓ Gbps Network Switch (optionally with PoE+ functionality)
 - ✓ PC
- Connect the PC to the network switch.
 - Connect the Antenna's '**AES67/Config**' port to the network switch.
If a PoE+ switch is used, the Antenna is also supplied with power.
 - Alternatively (or for additional redundancy), attach a separate DC power supply to the Antenna's power connector.
Riedel recommends using the Bolero-Power-Supply 'BL-EPS-1001-00' or 'BL-EPS-1001-01'.
 - Determine the IP address of an antenna with standalone license.

The IP address of the Antenna is shown in the bottom right of the display (e.g. 192.168.41.150). The e-ink display shows the current IP also when the Antenna is not powered.



Figure 7: Antenna Display

Open the web interface of the Antenna to access the configuration:

- Enter the IP address of the Bolero Antenna in the web browser (e.g. 192.168.41.150).

The PC must have an IP address within the same subnet.

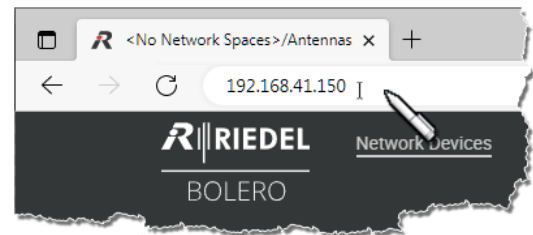


Figure 8: Open the web interface

- Select the unassigned devices by left clicking.

Selected elements will be highlighted.

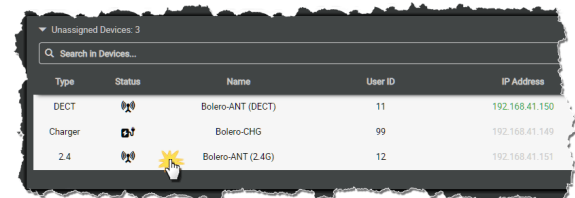


Figure 9: Selected Devices

- Click on the plus symbol and select the entry **Create Network Space**.

A dialog is opened.

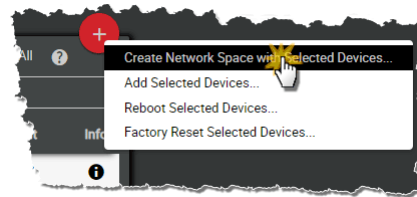


Figure 10: Create Network Space

- Enter a name for the Bolero net in the field **Name** (e.g. Sa/Aes67-Net).
- Select the system mode **Standalone/AES67**.
- Define an **Admin PIN** (4 digits, 0–9).
- Confirm the **Admin PIN**.
- Apply** the entries.

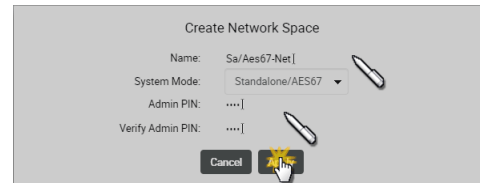


Figure 11: Dialog – Create Network Space

This example shows the new created Network Space called **Sa/Aes67-Net**. In this example, the net consists of two Antennas and one Charger.

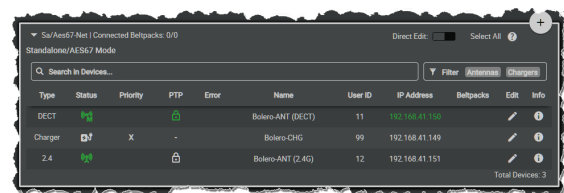


Figure 12: Assigned Antenna

- Click on the plus symbol and select the entry **Registration Mode**.

A dialog is opened to enter the registration options.

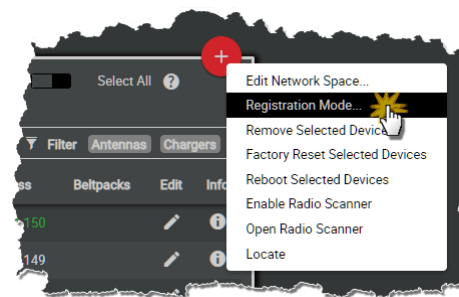


Figure 13: Registration Mode

- Enable the **OTA** and/or **NFC** registration method.
- Apply** the changes.

Beltpacks require a PIN for the OTA registration. By default the **Admin PIN** is used. If the function '**Use Admin PIN for OTA Registration**' is *disabled*, a different **OTA Registration PIN** can be defined for the OTA registration.

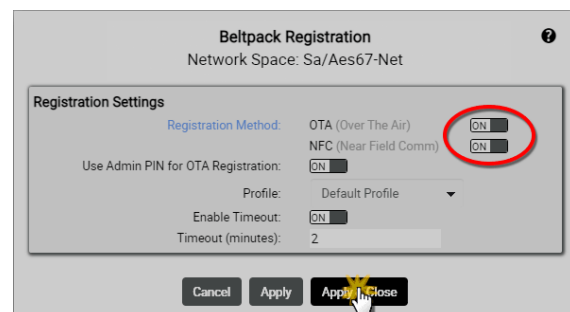


Figure 14: Dialog – Beltpack Registration

Beltpacks are able to register to this net as long as the registration mode is active (⇒ [Bolero Beltpack > Features in Detail > Add Beltpacks](#))

Registration Active (OTA/NFC)

Figure 15: Beltpack Registration active

Registered Beltpacks are listed on the page **Beltpacks**.

- Enable the **Direct Edit** switch.
- Click on the Beltpacks' ID and enter a unique Beltpack ID (0-999).

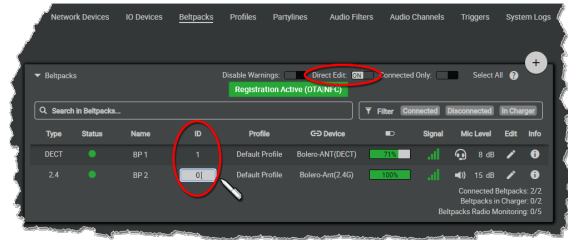


Figure 16: Registered Beltpacks

- Click the  button to configure the individual key functions of the respective Beltpack.

 Use the **Profiles** page to configure all Beltpacks assigned to the profile in one step.
(⇒ [Profiles \(User Rights\)](#))

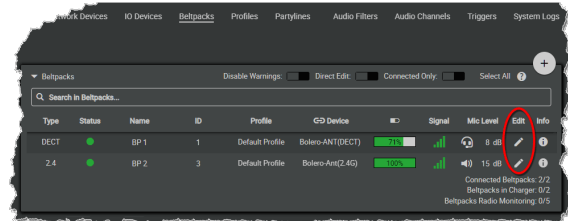


Figure 17: Registered Beltpacks

In the **Keys** section the keys of the Beltpack can be configured and functions can be assigned.

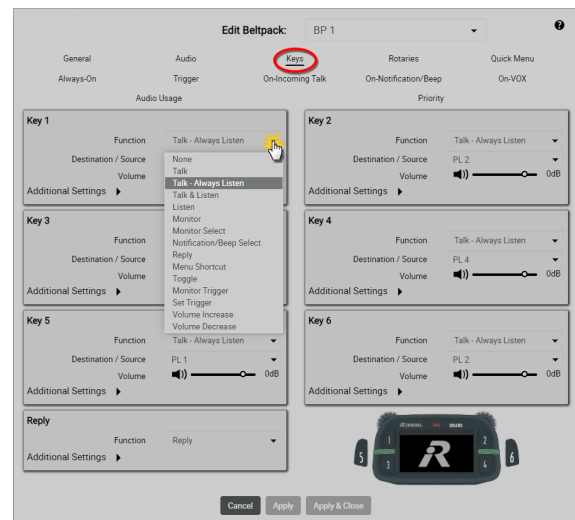


Figure 18: edit Beltpacks – Keys

After configuration, Beltpacks can communicate with each other.

2.2.2 Standalone/Link Setup

This chapter describes the required steps to operate a Bolero-System in the **Standalone/Link** mode. An Artist system is not required in this mode but one Antenna requires a valid 'Standalone' license to operate in this mode (⇒ '[License Manager](#)' and '[License Installation](#)').

The following devices are required:

- ✓ Bolero Antenna (with standalone license)
 - ✓ Bolero Beltpack
 - ✓ PC
- If you are using more than one Antenna, connect the **LINK-1** connector of one antenna to the **LINK-2** connector of the next Antenna (daisy chain).
 - To achieve redundancy, connect the **LINK-1** connector of the last Antenna to the **LINK-2** connector of the first Antenna (redundant ring).
 - Power the Antenna(s) via the separate power supply 'BL-EPS-1005-00' or 'BL-EPS-1001-00' or 'BL-EPS-1001-01'.
 - Connect the Antenna's 'AES67/Config' port to the PC.

The IP address of the Antenna is shown in the bottom right of the display (e.g. 192.168.41.150). The e-ink display shows the current IP also when the Antenna is not powered.

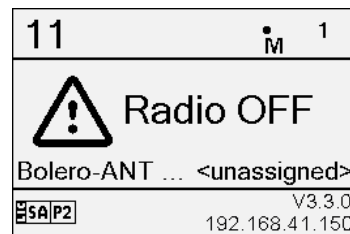


Figure 19: Antenna Display

Open the web interface of the Antenna to access the configuration:

- Enter the IP address of a Bolero Antenna in the web browser (e.g. 192.168.41.150).

The PC must have an IP address within the same subnet.

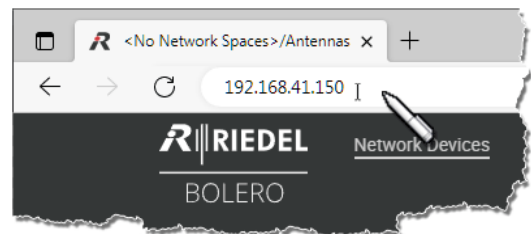


Figure 20: Web interface of the Antenna

- Select the unassigned devices by left clicking.

Selected elements will be highlighted.

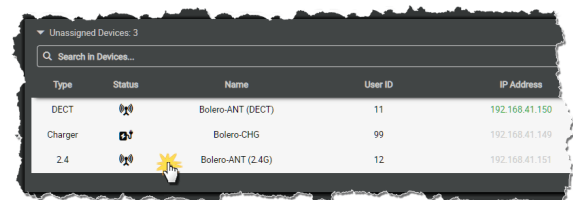


Figure 21: Selected Devices

- Click on the plus symbol and select the entry **Create Network Space with Selected Antennas**.

A dialog is opened.

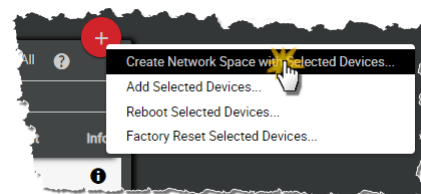


Figure 22: Create Network Space

- Enter a name for the Bolero net in the field **Name** (e.g. SA/Link-Net).
- Select the system mode **Standalone/Link**.
- Define an **Admin PIN** (4 digits, 0–9).
- Confirm the **Admin PIN**.
- **Apply** the entries.

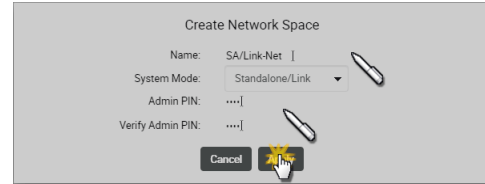


Figure 23: Dialog – Create Network Space

This example shows the new created Network Space called **SA/Link-Net**. In this example, the net consists of two Antennas and one Charger.

If an unassigned Antenna is connected to another Antenna belonging to that net space, the new Antenna will automatically join the net space. This only works in Standalone/Link mode via the LINK interfaces.

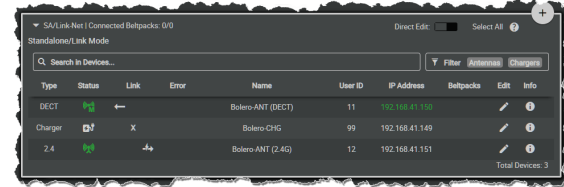


Figure 24: Assigned Antenna

- Click on the plus symbol and select the entry **Registration Mode**.

A dialog is opened to enter the registration options.

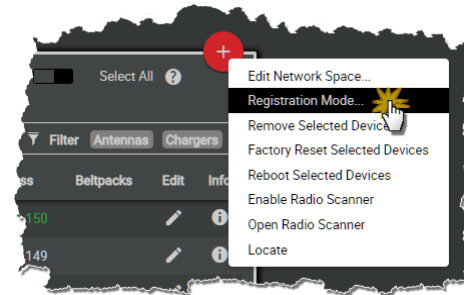


Figure 25: Registration Mode

- Enable the **OTA** and/or **NFC** registration method.
- **Apply** the changes.

Beltpacks require a PIN for the OTA registration. By default the **Admin PIN** is used. If the function 'Use Admin PIN for OTA Registration' is *disabled*, a different **OTA Registration PIN** can be defined for the OTA registration.

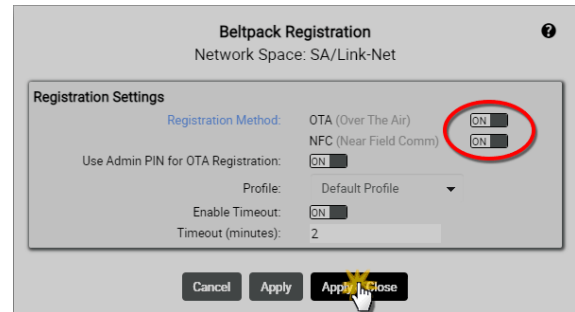


Figure 26: Dialog – Beltpack Registration

Beltpacks are able to register to this net as long as the registration mode is active (⇒ ['Bolero Beltpack > Features in Detail > Add Beltpacks'](#))

Registration Active (OTA/NFC)

Figure 27: Beltpack Registration active

Registered Beltpacks are listed on the page **Beltpacks**.

- Enable the **Direct Edit** switch.
- Click on the Beltpacks' ID and enter a unique Beltpack ID (0–999).

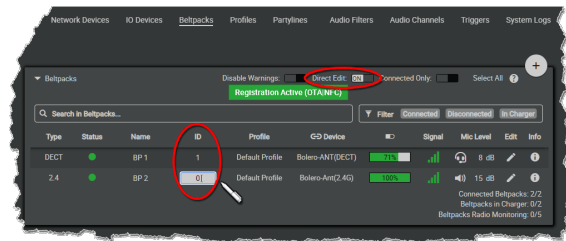


Figure 28: Registered Beltpacks

The page **Beltpacks** allows programming the Beltpacks key functions individually.

- Click the  button to configure the individual key functions of the respective Beltpack.

 Use the **Profiles** page to configure all Beltpacks assigned to the profile in one step.
(⇒ [Profiles \(User Rights\)](#))

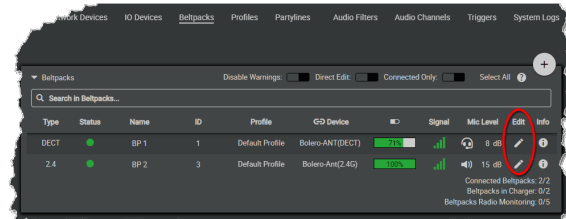


Figure 29: Registered Beltpacks

In the **Keys** section the keys of the Beltpack can be configured and functions can be assigned.

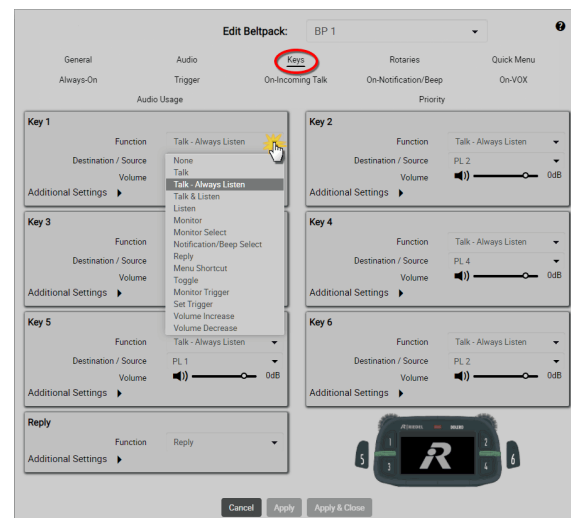


Figure 30: edit Beltpacks – Keys

After this configuration the Beltpacks are able to communicate to other Beltpacks.

2.2.3 Integrated/Artist Setup

This chapter describes the required steps to operate a Bolero-System in the **Integrated/Artist** mode and connect it with an Artist-System.

The following devices are required:

- ✓ Artist-32/64/128 with AES67 client card and/or ARTIST-1024 with UIC-128 Subscriber Interface Card.
- ✓ Bolero Antenna
- ✓ Bolero Beltpack
- ✓ Gbps Network Switch (optionally with PoE+ functionality)
- ✓ PC



AES67 client cards and ARTIST-1024 SICs are not visible in the Bolero Web Interface.

- Connect the 'AES67-1' port of the AES67 client card and/or the 'UIC-128' SIC to the network switch.
- Power up the Artist frame.
- Connect the PC to the network switch.

- Connect the Antenna's 'AES67/Config' port to the network switch. If a PoE+ switch is used, the Antenna is also supplied with power.
- Alternatively, attach a separate DC power supply to the Antenna's power connector. Riedel recommends using the Bolero-Power-Supply 'BL-EPS-1001-00' or 'BL-EPS-1001-01'.

The IP address of the Antenna is shown in the bottom right of the display (e.g. 192.168.41.150). The e-ink display shows the current IP also when the Antenna is not powered.

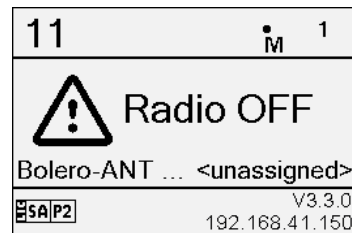


Figure 31: Antenna Display

- Start the Artist configuration software (**Director**) on your PC. For detailed information about Artist configuration and setup please refer to the Artist and Director manual.
- **Artist-32/64/128**: Open the AES67 properties by right-clicking on the corresponding card and selecting "Properties".

or

- **Artist-1024**: Open the SIC properties by right-clicking on the corresponding card and selecting "Properties" and select the tab (**Media 1/2**) that is connected to the Bolero-Net.

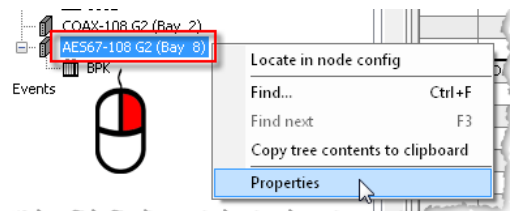


Figure 32: Opening the card properties (e.g. AES67 card)

Bolero traffic can be routed between different subnets. Hence, client cards and Antennas do not have to be in the same subnet.

- Same Subnet/VLAN (Layer2 network):
If necessary, edit the IP address so that it is in the subnet of the Antenna.
- Different Subnets/VLANs (Layer3 network):
Take care that the gateways of the client card and the Antenna (in the web interface of the Antenna, see chapter: '[Antennas > Edit \(Antennas\) > IP Settings](#)') contains the respective subnet. It may be necessary to configure a bridge between the different subnets in the switches used in the setup.
- Transfer changes to the Artist frame.

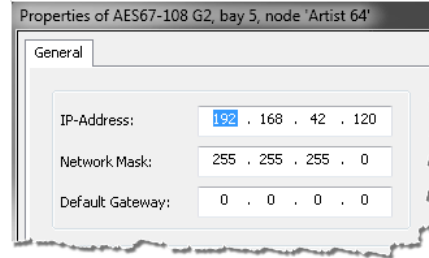


Figure 33: Properties of the card (e.g. AES67 card)

Open the web interface of the Antenna to access the configuration:

- Enter the IP address of a Bolero Antenna in the web browser (e.g. 192.168.41.150).

The PC must have an IP address within the same subnet.

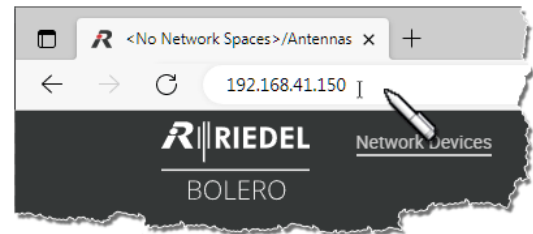


Figure 34: Web interface of the Antenna

- Select the unassigned devices by left clicking.

Selected elements will be highlighted.

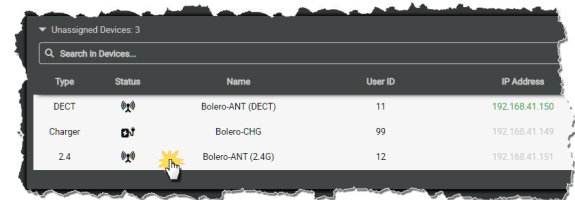


Figure 35: Selected Antennas and AES67 cards

- Click on the plus symbol and select the entry **Create Network Space**.

A dialog is opened.

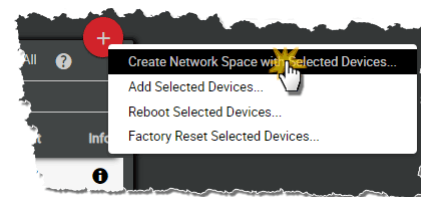


Figure 36: Create Network Space

- Enter a name for the Bolero net in the field **Name** (e.g. I/A-Net).
- Select the system mode **Integrated/Artist**.
- Define an **Admin PIN** (4 digits, 0–9).
- Confirm the **Admin PIN**.
- **Apply** the entries.

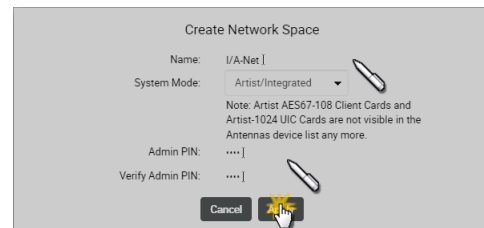


Figure 37: Dialog - Create Network Space

This example shows the new created Network Space called I/A-Net. In this example, the net consists of two Antennas.

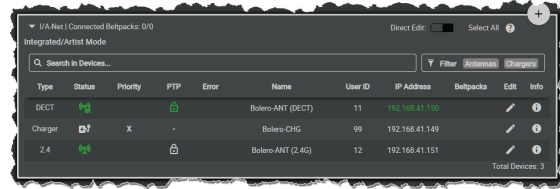


Figure 38: Assigned Antenna and AES67 card

- Click on the plus symbol and select the entry **Registration Mode**.

A dialog is opened to enter the registration options.

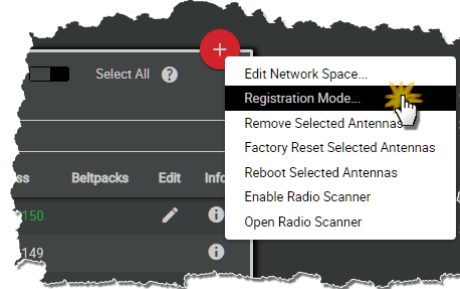


Figure 39: Registration Mode

- Enable the **OTA** and/or **NFC** registration method.
- Apply** the changes.

Beltpacks require a PIN for the OTA registration. By default the **Admin PIN** is used. If the function 'Use Admin PIN for OTA Registration' is *disabled*, a different OTA Registration PIN can be defined for the OTA registration.

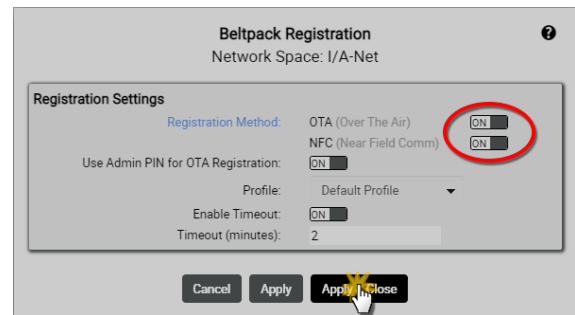


Figure 40: Dialog – Beltpack Registration

Beltpacks are able to register to this net as long as the registration mode is active (⇒ '[Bolero Beltpack > Features in Detail > Add Beltpacks](#)')

Registration Active (OTA/NFC)

Figure 41: Beltpack Registration active

Registered Beltpacks are listed on the page **Beltpacks**.

- Enable the **Direct Edit** switch.
- Click on the Beltpacks' ID and enter a unique Beltpack ID (0–999).

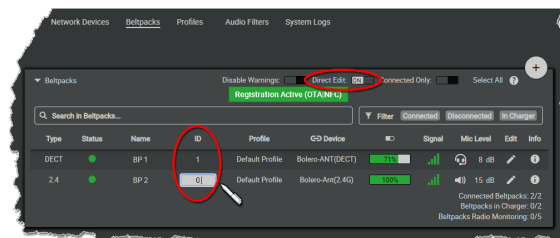


Figure 42: Registered Beltpacks

Now from the Artist configuration software (**Director**):

- Open the Beltpack properties by right clicking on the respective Beltpack and choosing "**Properties**".

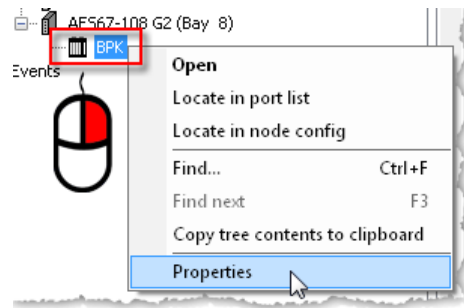


Figure 43: Open the Beltpack properties

- Select the '**Bolero**' tab.
- Enter the same Bolero User ID that you entered in the Antenna's web interface.
- Edit the Multicast address.
A unique Multicast address must be used for each Beltpack in the Director config.
Riedel recommends using the start address '239.255.0.1' for the Beltpacks Multicast addresses.

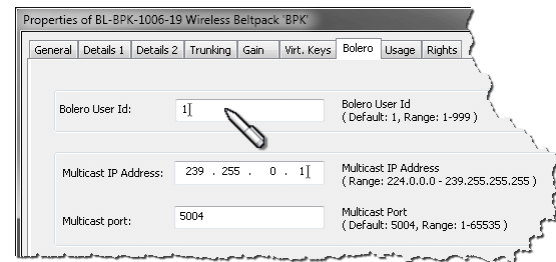


Figure 44: Properties of the Beltpack

The Beltpacks' key functions can be defined now via Director.
The Beltpacks are now able to talk to the Artist system and vice versa.

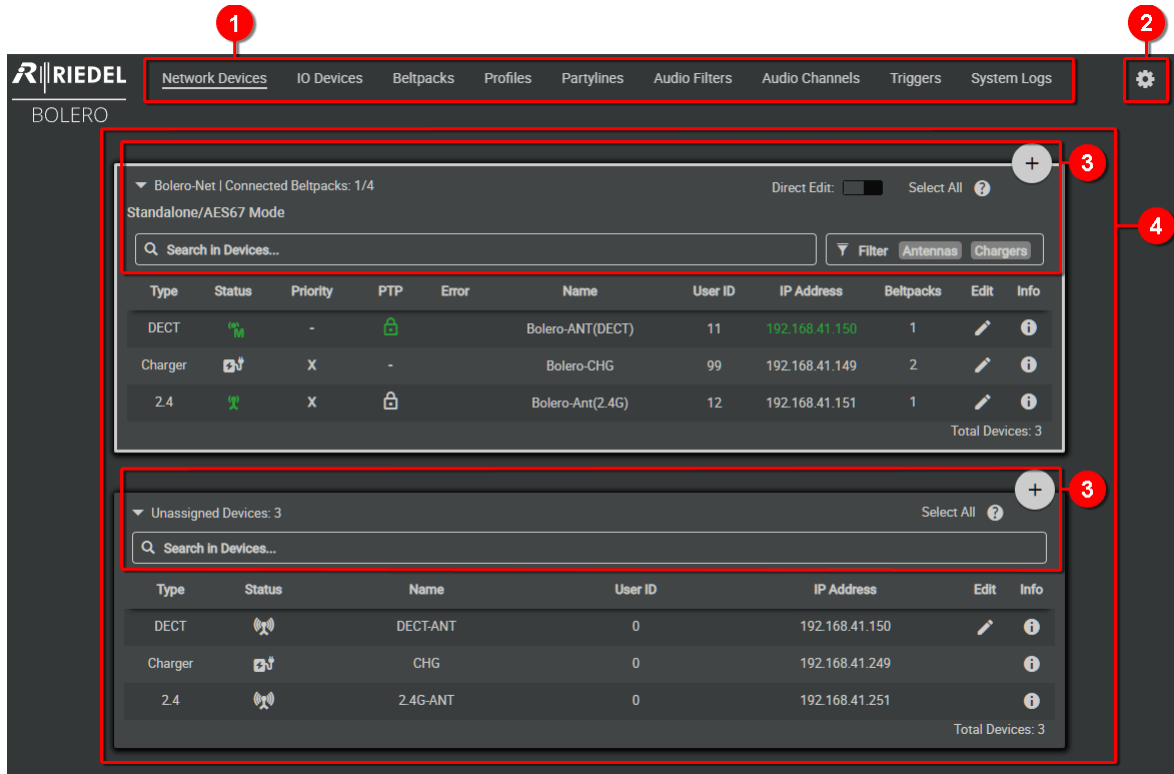
2.3 Web Interface

Basic information is displayed and settings can be modified in the Web Interface.

The web interface is opened by entering the IP address of a Bolero device (e.g. 192.168.41.150).



The user must be logged in the Net to be able to change settings. (⇒ [Login/Logout](#))



Network Devices

Bolero-Net | Connected Beltpacks: 1/4

Standalone/AES67 Mode

Search in Devices...

Type	Status	Priority	PTP	Error	Name	User ID	IP Address	Beltpacks	Edit	Info
DECT		-			Bolero-ANT(DECT)	11	192.168.41.150	1		
Charger		X	-		Bolero-CHG	99	192.168.41.149	2		
2.4		X			Bolero-Ant(2.4G)	12	192.168.41.151	1		

Total Devices: 3

Unassigned Devices

Search in Devices...

Type	Status	Name	User ID	IP Address	Edit	Info
DECT		DECT-ANT	0	192.168.41.150		
Charger		CHG	0	192.168.41.249		
2.4		2.4G-ANT	0	192.168.41.251		

Total Devices: 3

Figure 45: Web Interface (example: Standalone/AES67 mode)

The web interface is divided in following regions:

1

Page Selection

The selected page is underlined.

Network Devices	Basic setup of the Bolero-Net and device settings.	
IO Devices 	Settings of inputs and outputs of NSAs those are included in the Bolero-Net.	
Beltpacks	Settings of Beltpacks.	
Profiles	Definition and maintenance of Beltpack profiles.	
Partylines 	Creation and maintenance of Partylines.	
Audio Filters 	Management of pre-defined and user-defined audio filters that can be assigned to Beltpacks to adjust the audio characteristics of headphones and microphones.	
Audio Channels 	Settings of audio channels of NSAs those are included in the Bolero-Net.	
Triggers 	Settings of GPIs of NSAs those are included in the Bolero-Net.	
System Logs	Listing of system errors and events.	
Settings	The gear wheel opens the menu with the basic settings.	

3

Basic Functions

These functions are identical on all pages, but not available on all pages.

Show Active only ^{*1}	The button can be used to hide deactivated elements.	Show Active Only: ☐
Disable Warnings ^{*2}	The button can be used to hide warnings.	Disable Warnings: ☐
Direct Edit ^{*3}	The button can be used to edit elements directly on the page without opening the Edit dialog.	Direct Edit: ☐
Select All ^{*4}	Selects (deselects) all elements.	Select All ☐
Help button	Opens brief description of the current page.	
Lock-symbol ^{*5}	Clicking this button opens the Login dialog.	
Action button ^{*6}	Clicking the action button offers different features on the current page. The dialog can be closed by pressing the ESC key or by clicking on another region in the window.	
Search	Searches for appropriate content on the current page. (case sensitivity is ignored)	Search...
Filter ^{*3}	The filter can be used to show or hide the entries present on the respective pages.	 Filter

4

Content

In this region the content of the selected page is displayed.

• Entries in the tables can be sorted by clicking on the desired column header.

The order is indicated by symbols () in the respective column.

• Clicking on an entry will select/deselect the respective item.

A selected entry is highlighted.

 if **System Mode** = Standalone/AES67 or Standalone/Link

 if a **Pro 1 License** is available in the network spave

^{*1} only on **Audio Channels** and **Triggers** pages

^{*2} only on **Beltpacks** page

^{*3} only on **Network Devices** and **Beltpacks** pages

^{*4} not on **System Logs** page

^{*5} if *no* user is logged in

^{*6} if a user is logged in

2.3.1 Login/Logout

To be able to modify system settings, the user must be logged into the respective Net.
A big plus symbol is displayed in the top right of a Net if the user is logged in.
If no user is logged in, a lock symbol is displayed instead.

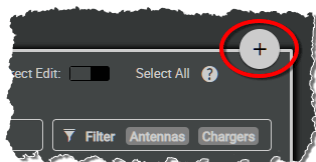


Figure 46: User logged in

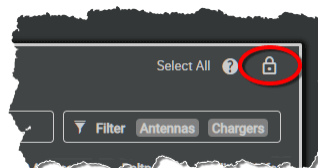


Figure 47: User logged out

Login

Click on the  symbol to log into the system.
A dialog is opened to enter the Net's **Admin-PIN**.

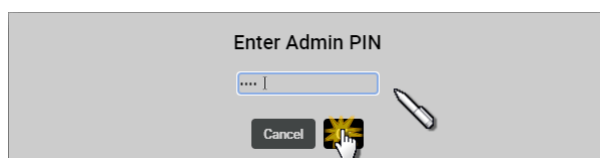


Figure 48: Dialog – Enter Admin PIN

Logout

Click on the  symbol to open a window on the right side. Click on Logout to open the dialog for confirmation. Click on **OK** to log out of the system.

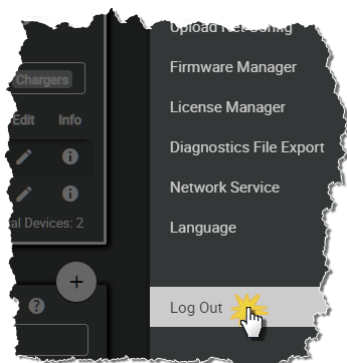


Figure 49: Logout function

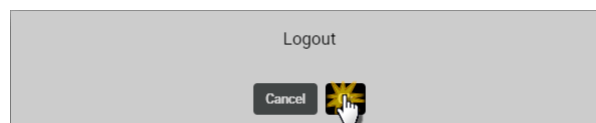


Figure 50: Logout confirmation

2.3.2 Network Devices

The 'Network Devices' window ('Antennas' window before) displays the active Network Space and features following functions:

- Displaying a list of all (currently online) devices belonging to the same net.
- Creating Nets
- Assigning Bolero Antennas and Chargers to Nets
- General settings of Nets
- Defining the registration method of Beltpacks

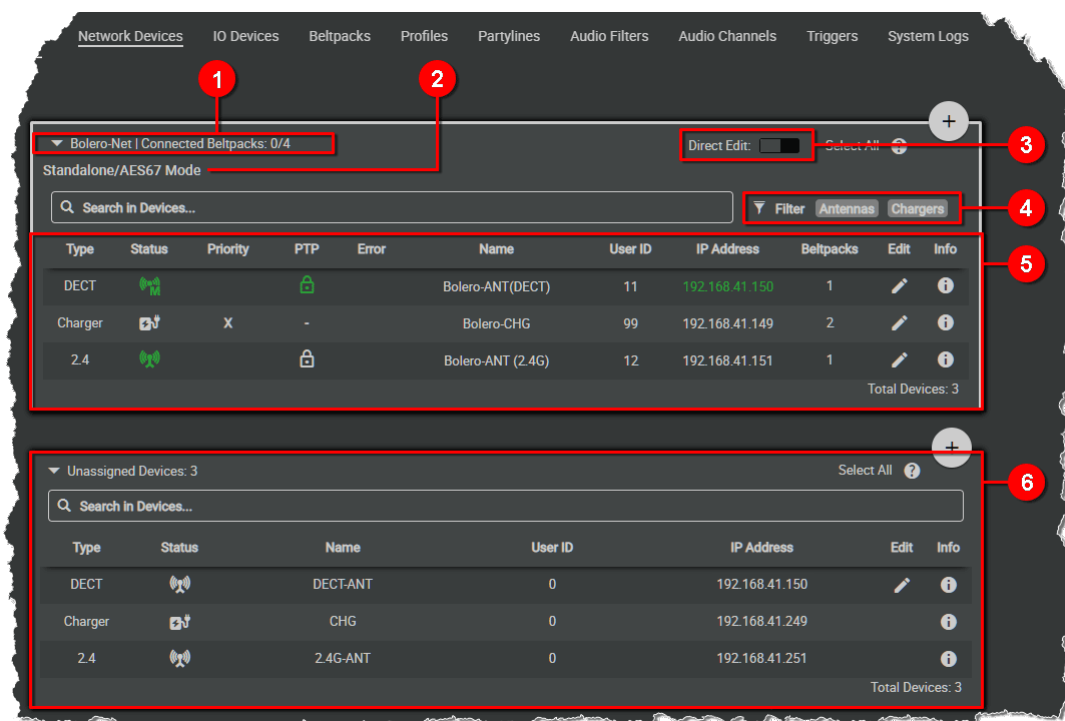


Figure 51: Web Interface – Network Devices

1	• Name of the Network Space • Number of connected Beltpacks • Number of registered Beltpacks
2	Operation Mode Shows the operation mode of the system: Standalone/AES67, Standalone/Link or Integrated/Artist.
3	Direct Edit If the switch is enabled (On), the Name, User-ID and IP-Address of the Bolero devices are directly editable in the Network Devices window by clicking on the desired entry.
4	Filter The filter can be used to separate Antennas and Chargers.

5 Network Space

The network space is a collection of one or more Bolero Antennas and Bolero Chargers. The devices form a bundle to expand coverage or capacity for Beltpacks.

An active network space is the network space to which the web browser is actually connected to. You are able to monitor and configure all devices within this Bolero network space. The IP address in the URL bar of the web browser always belongs to one of the Bolero devices in this Network Space, which can be identified by the green IP address.

If an Artist matrix intercom is integrated into this Network Space, corresponding AES67 client cards are not visible in the **Network Devices** window.

Type	Charger	Charger
	2.4GHz-Antenna (2.403 ... 2.479 GHz)	2.4
	DECT Antenna (1.880 ... 1.930 GHz)	DECT
Status	The icon shows the status of the device. In addition, the Locate function of the corresponding device can be switched on and off by clicking the symbol. This causes the icon in the web interface and the front LED on the device to flash in order to locate the device.	
	The radio is switched off.	
	The radio is switched on.	
	Character 'M' next to the Antenna or Scanner icon indicates that the device is Radio Master.	
	Indicates the Antenna's local RF Strength Level : (Normal, Low, Ultralow)	
	The Antenna is operating as radio scanner.	
	Charger in network space.	
Link ^{*1}	Indicates a connection to a neighboring Antenna connected via Link 1 (left arrow) or Link 2 (right arrow).	
	A remote net is connected and waiting to be merged (by clicking the arrow).	
	The power-icon indicates that the link is providing remote power for other devices.	
	Standalone Mode: In case the Sync Server Priority is changed from its default Normal (N) to any other value, this is shown between the link indication arrows. Integrated/Artist Mode: Shows the priority of the Sync Server.	
Priority ^{*2}	Radio Master Priority of the Antenna: Primary (1), Secondary (2), Normal, (Low (-), None (X))	1 2 - X
PTP ^{*2}	The Antenna receives a valid PTP and is synchronized.	
	The Antenna is PTP TimeTransmitter.	
	The Antenna receives an invalid PTP and is not synchronized.	
Error	Shows device problems.	
Name	Shows the name of the device.	
User ID	Shows the unique ID of the device.	
IP Address	Shows the IP address of the Antenna. A green address indicates the device through which the web interface is accessed.	
Beltpacks	Shows the amount of Beltpacks that are currently connected at the Antenna.	
Edit	Button to edit the Antenna settings.	
Info	Opens a brief information of the respective device.	
Total Devices	Shows the number of total devices within the Net.	

6 Unassigned Devices

Unassigned devices that are not currently part of a Network Space. These can be used to create a new Network Space or added to an existing one.

^{*1} only in 'Standalone/Link' mode

^{*2} not in 'Standalone/Link' mode

2.3.2.1 Action Button (Network Devices)

Clicking the  action button offers different functions depending on the device's assignment state. The dialog can be closed by pressing the ESC key.

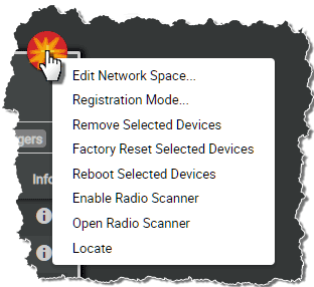


Figure 52: Action Button (Network Devices, assigned devices)

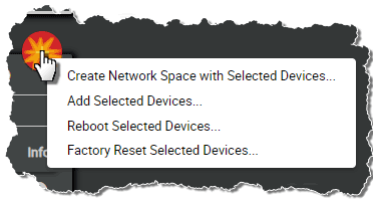


Figure 53: Action Button (Network Devices, unassigned devices)

 Create Network Space with Selected Devices

Function in the **Unassigned Devices** section for creating a new Network Space. The devices that are to be assigned to the Network Space must be selected beforehand.

Figure 54: Create Network Space with Selected Devices

Name	Name of the Bolero Net (Network-Space).
System Mode	Defines at Antennas if the Net is operated standalone (Standalone/AES67 or Standalone/Link) or if the Net is connected to an Artist system (Integrated/Artist). The standalone mode requires a licensed Antenna. (⇒' License Manager ') New in 3.3
Admin PIN	Defines the admin PIN that is required to log into the Network Space. (⇒' Login/Logout ') Verify Admin PIN
	When changing the admin pin or creating a new Network Space, the new admin pin now has to be verified by entering it twice. This will prevent locking oneself out of the Network Space in case of a typo in the admin pin.

+ Add Selected Devices to Network Space

Function in the section **Unassigned Devices** that allows adding devices to an existing new Network Space. The devices to be added must be selected previously.

Figure 55: Add Selected Devices to Network Space

Select Network Space	Selection of an existing Bolero Net. The previously selected devices are added to the Network Space after entering the admin PIN of the Network Space.
-----------------------------	--

+ Edit Network Space

General

Change general settings of the Network Space.

Figure 56: Edit Network Space – General

General Settings

Name	Name of the Bolero Net.
System Mode	Defines if the Net is operated standalone (Standalone/AES67 or Standalone/Link) or if the Net is connected to an Artist system (Integrated/Artist). The standalone mode requires a licensed Antenna (⇒ License Manager)
Admin PIN	Defines the admin PIN (is required to log into the system. (⇒ Login/Logout '))
New in 3.3 Verify Admin PIN	When changing the admin pin or creating a new Network Space, the new admin pin now has to be verified by entering it twice. This will prevent locking oneself out of the Network Space in case of a typo in the admin pin.
DECT / 2.4GHz RF Strength Level	Selection of the DECT/2.4GHz radio power (Normal , Low , Ultralow). The radio power can be adjusted separately for DECT and 2.4GHz Antennas.
Radio Retransmit Level	Defines the maximum number of repetitions (only for Bolero-2.4GHz) when the signal is disturbed. (Very High , High , Medium , Low)
Frequency Hopping Mode	If multiple Bolero systems are operating in the same 2.4GHz radio range and using the same PTP Grandmaster, the frequency hopping mode must be unique for each system so that they do not interfere with each other. (Not relevant for DECT, since a different frequency hopping method is used here.)
Enable Network Space RF	Enabling/Disabling the radio of the Antenna.
New in 3.3 Beltpack Priority	Enabling/Disabling of the Beltpack Priorities for the whole Network Space. Note that the maximum number of Beltpacks on 2.4G Antennas is reduced from 8 to 7 when the Beltpack Priority is enabled.

Network Management

This section allows you to define some IP parameters when Bolero is used in managed networks. Using the DSCP field of IP headers, you can tell routers to prioritize certain messages over others. Thus, their real-time behavior and jitter characteristics might improve considerably. Higher values mean higher priority, 0 means "best effort".

Audio Multicast IP *1	Multicast IP address which is used for Beltpack↔Beltpack communication in Standalone/AES67 mode only. Usually the system finds a suitable address automatically, but it can be manually set as well if needed.
DSCP for PTP	Allows you to define the priority of PTP (Precision Time Protocol) messages. Those messages are needed for synchronization (0 ... 63, default: 46).
DSCP for RTP	Allows you to define the priority of RTP (Real Time Protocol) messages. Those messages contain the AES67 audio streams (0 ... 63, default: 34).
DSCP for Control	Allows you to define the priority of control messages sent between antennas and/or Artist frames (0 ... 63, default: 36).
Multicast Time-To-Live (TTL)	The TTL (Time To Live) setting allows you to specify how many "hops" (e.g., from router to router) a message can make before it is regarded obsolete and dropped. In large IP networks with a deep structure of routers, it might be necessary to increase this setting so that messages can traverse through the entire net (1 ... 255, default: 016).

*1 if **System Mode** = Standalone/AES67

Time Settings

Date Format	Selection of the date format (ddmmyyyy, mmddyyyy, yyyyMMdd).
Time Format	Selection of the time format (12h, 24h).
Time Source	Selection of the system time source (Internal, PTP, NTP).
Internal Time/Date ^{*2}	Field to enter time and date manually.
Sync ^{*2}	Button for adopting the system time of the PC.
NTP Server ^{*3}	Field to enter the IP address of the NTP server.
Offset ^{*3}	Field to change the time zone.

^{*2} if **Time-Source** = Internal

^{*3} if **Time-Source** = NTP

PTP Settings

PTP Domain	Selection of the PTP domain (0 ... 127, default: 0). Connected Artist client cards have to use the same domain.
PTP Hybrid Mode ^{*4}	Allows more efficient PTP communication. Note that all connected Artist client cards and external PTP devices (e.g. the grandmaster) have to be set to the same PTP mode to work correctly.
PTP TimeReceiver Only ^{*4}	Forces the Bolero Net to use an external grandmaster. Note: The system will not work if no external PTP TimeTransmitter is present.

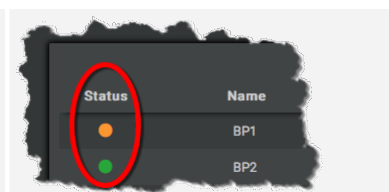
^{*4} not if **System-Mode** = Standalone/Link

Belpack Radio Monitoring

For this function, at least one Antenna in the Net must have the **Pro 1** license (BP1).

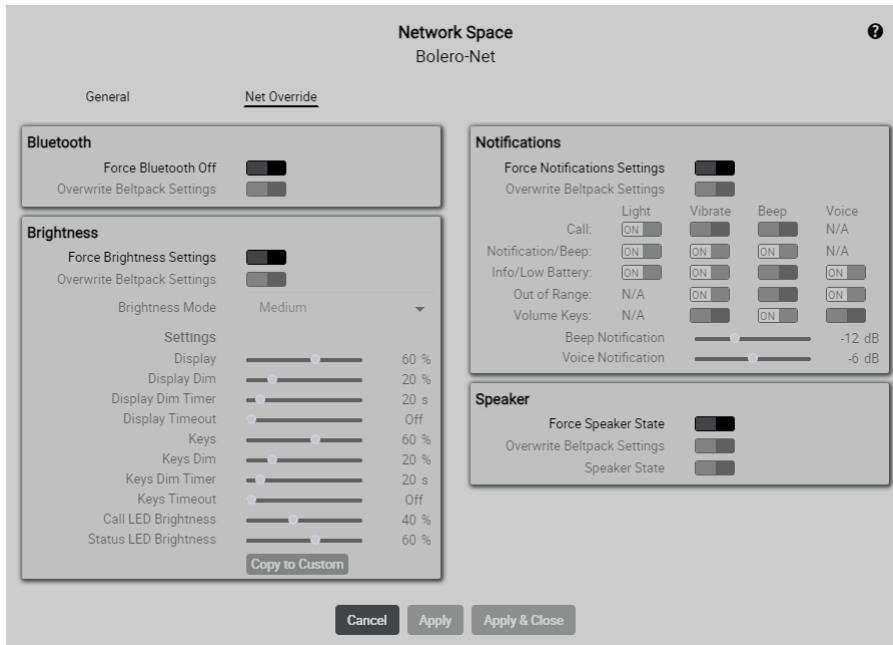
Free Timeslot Warning / Threshold

If the function 'Free Timeslot Warning' is enabled and the number of available timeslots falls below the defined '**Threshold**' value, a warning is displayed in the Belpack list. The Belpacks' status symbols change from green to orange or flash orange.



Net Override

Force Beltpack settings while the Beltpack is connected to the Network Space.



Network Space
Bolero-Net

General **Net Override**

Bluetooth

Force Bluetooth Off ☒

Override Beltpack Settings ☒

Brightness

Force Brightness Settings ☒

Override Beltpack Settings ☒

Brightness Mode Medium ▼

Settings

Display	<input type="range"/>	60 %
Display Dim	<input type="range"/>	20 %
Display Dim Timer	<input type="range"/>	20 s
Display Timeout	<input type="range"/>	Off
Keys	<input type="range"/>	60 %
Keys Dim	<input type="range"/>	20 %
Keys Dim Timer	<input type="range"/>	20 s
Keys Timeout	<input type="range"/>	Off
Call LED Brightness	<input type="range"/>	40 %
Status LED Brightness	<input type="range"/>	60 %

Copy to Custom

Notifications

Force Notifications Settings ☒

Override Beltpack Settings ☒

	Light	Vibrate	Beep	Voice
Call:	☒	☒	☒	N/A
Notification/Beep:	☒	☒	☒	N/A
Info/Low Battery:	☒	☒	☒	☒
Out of Range:	N/A	☒	☒	☒
Volume Keys:	N/A	☒	☒	☒

Beep Notification -12 dB

Voice Notification -6 dB

Speaker

Force Speaker State ☒

Override Beltpack Settings ☒

Speaker State ☒

Cancel Apply Apply & Close

Figure 57: Edit Network Space – Net Override

The parameters correspond to those that are also available in the settings of the Beltpacks.
(⇒ [Features in Detail > Web Interface > Beltpacks > Edit \(Beltpacks\)](#))



Changes in the Net Override settings in the web interface are immediately applied to all Beltpacks logged in this Network Space. Only the changed settings (highlighted in blue) are applied, while all other settings remain unaffected.

+ Registration Mode

In this view the Beltpack registration settings can be changed and activated.

Figure 58: Registration Mode

Registration Method	OTA	If enabled, Beltpacks are allowed to register via radio to this Net.
	NFC	If enabled, Beltpacks are allowed to register via Antenna NFC to this Net.
Use Admin PIN for OTA Registration	If enabled, the <i>Admin PIN</i> must be entered in the Beltpack during the registration procedure. If disabled, another field is visible to define an ' OTA Registration PIN ' that must be entered in the Beltpack during the registration procedure.	
Profile	Selection of the profile to be assigned to a newly registered Beltpack.	
Enable Timeout	If enabled, the registration to this Net will be disabled after a defined timeout.	
Timeout	Timeout in minutes to disable the registration to this Net.	

+ Remove Selected Devices

Execute this command to remove one or more selected Antennas from the network space.
A dialog is opened to confirm the action.

Figure 59: Remove Selected Devices

+ Factory Reset Selected Devices

Reset one or more selected devices to factory default values. To reset also the IP settings, the button '**Clear IP Settings**' must be enabled. Attention: Antennas are removed from the network!
A dialog is opened to confirm the action.
This action requires the "Factory Reset PIN". Please consult the Riedel Service in case of need.

Figure 60: Factory Reset Selected Devices

+ Reboot Selected Devices

Execute this command to reboot one or more selected devices.
A dialog is opened to confirm the action.

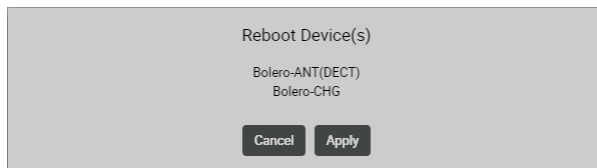


Figure 61: Reboot Selected Devices

+ Enable/Disable Radio Scanner (only with DECT)

To change an DECT-Antenna to scanner mode, select the DECT-Antenna in the Antenna list and select the action button entry '**Enable Radio Scanner**'. In radio scanner mode the Antenna is not available for Beltpacks anymore. All Beltpacks connected before will disconnect and need to find a new Antenna to connect. An active radio scanner displays a blue status icon.

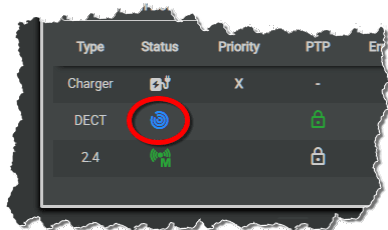


Figure 62: Enable Radio Scanner

+ Open Radio Scanner (only with DECT)

Displays the measured [Radio Scanner](#) data of the selected DECT-Antenna.

+ Locate

Makes the front LED on the corresponding device blink to locate the device.
The active locating function indicates a green/yellow flashing status icon.

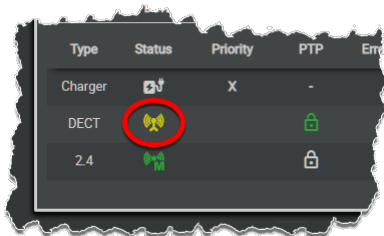


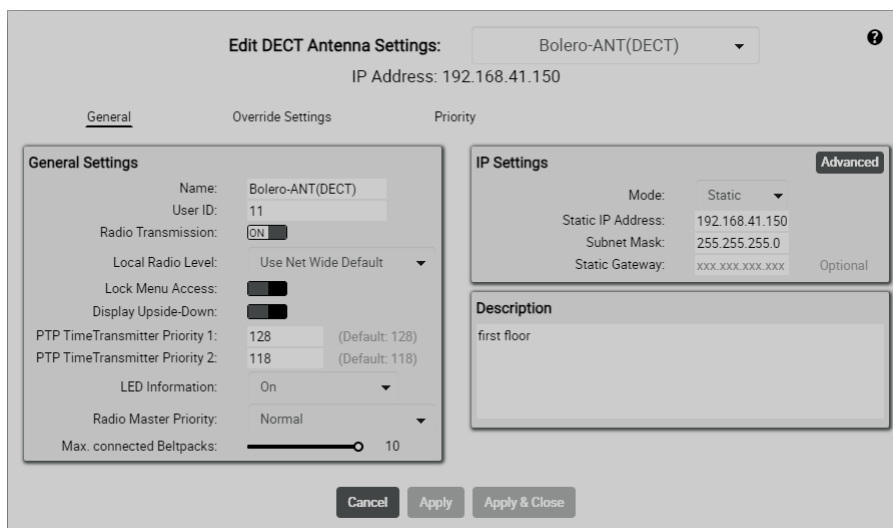
Figure 63: Locate

2.3.2.2 Edit (Network Devices)

Clicking the  Edit symbol opens a dialog to edit Network Device settings. The dialog can be closed by pressing the ESC key without saving any changes. In the drop-down list at the top, it is possible to directly switch to the 'Edit Network Devices' view of another device.

	Opens the online help.
Cancel	Discards all changes.
Apply	Stores all changes.
Apply & Close	Stores all changes and closes the window.

General



The screenshot shows the 'Edit DECT Antenna Settings' dialog box for the device 'Bolero-ANT(DECT)'. The IP Address is 192.168.41.150. The dialog has three tabs: 'General', 'Override Settings', and 'Priority'. The 'General' tab is active, showing various settings for the antenna. The 'General Settings' section includes fields for Name, User ID, Radio Transmission (ON), Local Radio Level (Use Net Wide Default), Lock Menu Access, Display Upside-Down, PTP TimeTransmitter Priority 1 (128), PTP TimeTransmitter Priority 2 (118), LED Information (On), Radio Master Priority (Normal), and Max. connected Beltpacks (10). The 'IP Settings' section includes Mode (Static), Static IP Address (192.168.41.150), Subnet Mask (255.255.255.0), and Static Gateway (xxx.xxx.xxx.xxx). The 'Description' section contains the text 'first floor'. At the bottom, there are buttons for 'Cancel', 'Apply', and 'Apply & Close'.

Figure 64: Edit (Network Devices) – General

General Settings

Name	Name of the Antenna.
User ID	Unique ID of the Antenna.
Radio Transmission * ¹	Enabling/Disabling the radio of the Antenna.
Local Radio Level	Allows to use a special radio strength level for the selected Antenna. This enables a microcell infrastructure to increase the Beltpack capacity. (Normal , Low , Ultra Low , Use Net Wide Default)
Lock Menu Access * ¹	Enabling/disabling of locking the Antenna display to prevent unauthorized access to the Antenna or Network Space settings. If locked, the Web Interface has to be used to change any settings.
Display Upside/Down * ¹	Display upside down.
PTP TimeTransmitter Priority 1 / 2 * ¹	New in 3.3 The PTP TimeTransmitter Priority 1 setting of a Bolero Antenna can now be changed the same way as the PTP TimeTransmitter Priority 2 setting which was also accessible in previous versions. Smaller numeric values indicate higher priority, i.e. the device with the lowest number will become PTP Server. Priority 1 is considered before Priority 2. Caution: Changing the PTP TimeTransmitter Priority 1 is not necessary and not recommended under most circumstances, the default value is sufficient for most applications. The PTP TimeTransmitter Priority 2 setting should be used to determine the PTP TimeTransmitter in a usual Bolero Network Space. Only specialized setups containing e.g. an external PTP Grandmaster may require the PTP TimeTransmitter Priority 1 to be changed. (0...255, default Priority 1: 128 / Priority 2: 118)
LED Information	Activates/deactivates the device LEDs. The DC and PoE+ power LEDs next to the sockets on the bottom remain on.
Radio Master Priority * ¹	Defines the priority of an Antenna becoming Radio Master for the entire system. In Standalone/Link mode, this includes the Radio Master as well as the internal Synchronization Server. In the other modes, this only affects the Radio Master, as the Synchronization Server is determined by means of PTP. Usually, there is no need to make changes to this setting. However, sometimes it might be desired to assign dedicated Antennas as Radio Master. (Primary (1), Secondary (2), Normal, Low (-), None (x)) The Radio Master Priority setting "None (X)" can be used to prevent the Antenna from becoming the Radio Master even if the actual Radio Master Antenna cannot be reached.
Max. connected Beltpacks * ¹	New in 3.3 Allows the maximum permitted number of connected Beltpacks to be reduced.

*¹ only for Antennas

Charger Settings

This view is only available for Chargers.

On Remove - Power On	Determines the state of the Beltpacks when removed from the Charger: on: Beltpacks are switched on. off: Beltpacks remain switched off.
Automatic Beltpack Update	Beltpacks are automatically updated to the charger firmware level when inserted into the charger.
Display Brightness in Charger	Setting the display brightness for Beltpacks when they are in the charger.
Set Beltpack Profile	Beltpacks automatically receive the settings stored in the selected profile.
LED Information	Activates/deactivates the device LEDs. In the 10s Timeout setting, the LEDs only show the status for a short time, e.g. when plugged into the Charger.

IP Settings

IP Address Mode	Selection of the mode for determining the IP address.	
	Auto	Zero Configuration Networking (Zeroconf). Assigns addresses without a DHCP server. IP range: 169.254.xxx.xxx
	DHCP	Dynamic Host Configuration Protocol is a network management protocol that automatically assigns IP addresses to devices connected to the network via a DHCP server. If no DHCP server is found, the system switches to Auto mode to set a valid IP address.
	Static	Set a fixed IP address.
Static IP Address *1	Fixed IP address of the Antenna.	
Subnet Mask *1	Fixed subnet mask of the Antenna.	
Static Gateway *1	Fixed Gateway of the Antenna.	
Advanced Control Multicast IP	Adjustment of the IP multicast group that Bolero uses to exchange control data between the Antennas in a Network Space. The ' Reset ' button resets the setting to the default address (239.202.29.2). Caution: Under normal circumstances, it is not necessary to change this setting. All Antennas in the Network Space must use the same address, otherwise they will not communicate properly and will not be displayed in the Antenna list.	

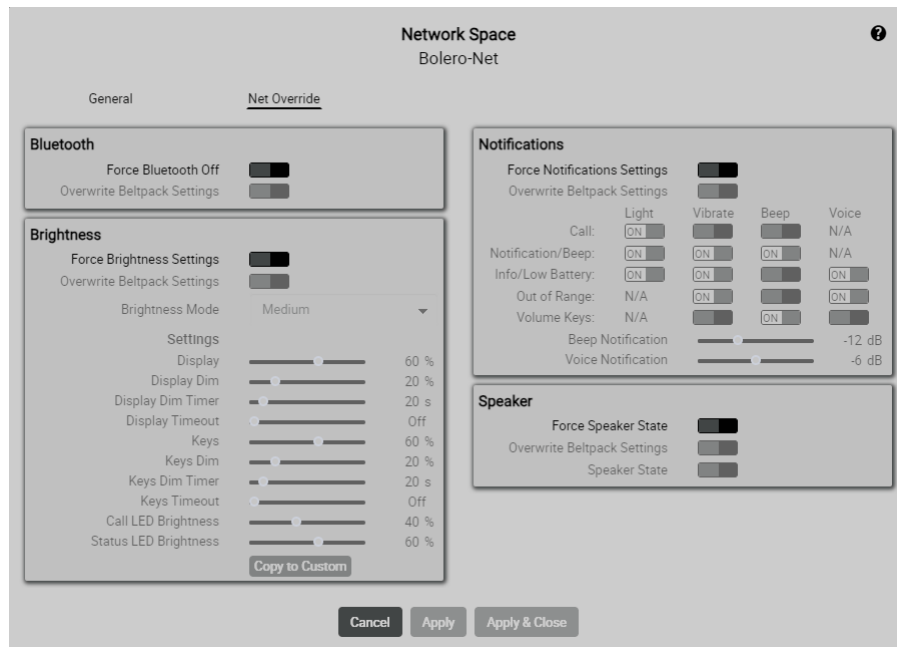
*1 if **IP Address Mode** = Static

Description

You can add a description to the device in this area, e.g. the exact location.

Net Override

Force Beltpack settings while the Beltpack is connected to the Network Space.



Network Space
Bolero-Net

General Net Override

Bluetooth

Force Bluetooth Off ☒

Override Beltpack Settings ☒

Brightness

Force Brightness Settings ☒

Override Beltpack Settings ☒

Brightness Mode Medium

Settings

Display 60 %

Display Dim 20 %

Display Dim Timer 20 s

Display Timeout Off

Keys 60 %

Keys Dim 20 %

Keys Dim Timer 20 s

Keys Timeout Off

Call LED Brightness 40 %

Status LED Brightness 60 %

Copy to Custom

Notifications

Force Notifications Settings ☒

Override Beltpack Settings ☒

	Light	Vibrate	Beep	Voice
Call:	☒	☒	☒	N/A
Notification/Beep:	☒	☒	☒	N/A
Info/Low Battery:	☒	☒	☒	☒
Out of Range:	N/A	☒	☒	☒
Volume Keys:	N/A	☒	☒	☒

Beep Notification -12 dB

Voice Notification -6 dB

Speaker

Force Speaker State ☒

Override Beltpack Settings ☒

Speaker State ☒

Cancel Apply Apply & Close

Figure 65: Edit (Network Devices) – Override

The parameters correspond to those that are also available in the settings of the Beltpacks.

(⇒ [Features in Detail > Web Interface > Beltpacks > Edit \(Beltpacks\)](#))



Changes in the Override settings in the web interface are immediately applied to all Beltpacks logged on this Antenna. Only the changed settings (highlighted in blue) are applied, while all other settings remain unaffected.

Priority

New in 3.3

Belpacks can now be prioritized in the whole Network Space by giving them a default priority. Furthermore, each Belpack can have special priorities on individual Bolero Antennas. These priorities can be configured here as well as in the Belpack ([⇒ Edit \(Belpacks\) > Priority](#)) and Profile configuration view.

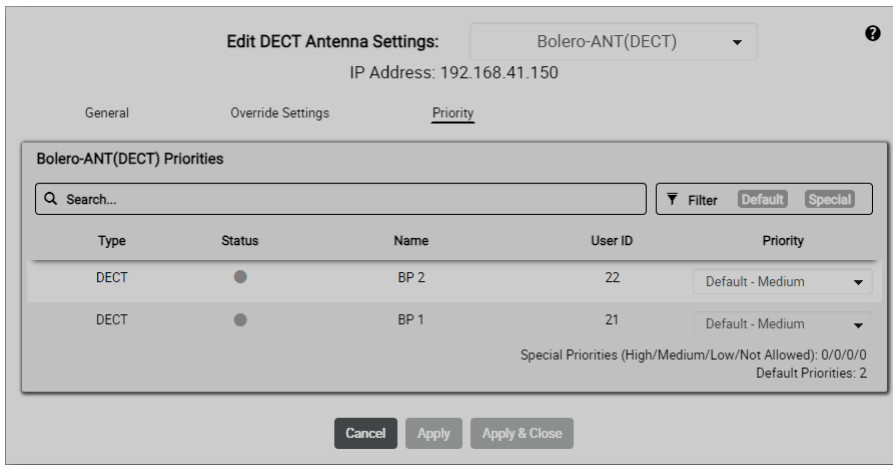
Higher priority Belpacks will forcefully disconnect lower priority Belpacks if there is no free space on an Antenna, thus helping higher priority Belpacks to maintain a connection to the network in peak load situations.

Belpack Priorities can be enabled and disabled for the whole Network Space in the Network Space settings view in the Web Interface.

([⇒ Action-Button \(Network Devices\) > Edit Network Space > General Settings > Belpack Priority](#))

Note that the maximum number of Belpacks on 2.4G Antennas is reduced from 8 to 7 when the Belpack Priority is enabled.

Note that a Belpack Priority license (part of the **Pro 2 License (BP2)** bundle) is needed to use Belpack priorities.



Edit DECT Antenna Settings: Bolero-ANT(DECT) ?

IP Address: 192.168.41.150

General Override Settings **Priority**

Bolero-ANT(DECT) Priorities

Q Search... Filter Default Special

Type	Status	Name	User ID	Priority
DECT	●	BP 2	22	Default - Medium
DECT	●	BP 1	21	Default - Medium

Special Priorities (High/Medium/Low/Not Allowed): 0/0/0/0
Default Priorities: 2

Cancel Apply Apply & Close

Figure 66: Edit (Network Devices) – Priority

The parameters correspond to those that are also available in the settings of the Belpacks.

([⇒ Features in Detail > Web Interface > Belpacks > Edit \(Belpacks\)](#))

2.3.2.3 Info (Network Devices)

Clicking the  Info symbol shows information of the respective device.
The dialog can be closed by pressing the ESC key.

	Opens the online help.
Close	Closes the information.

This side displays general device information (**Device Status** and **Description**) and operating mode specific information (**Standalone/AES67** and **Integrated/Artist** mode: **PTP Status**; **Standalone/Link** Mode: **Standalone Status** and **LINK 1/2**).

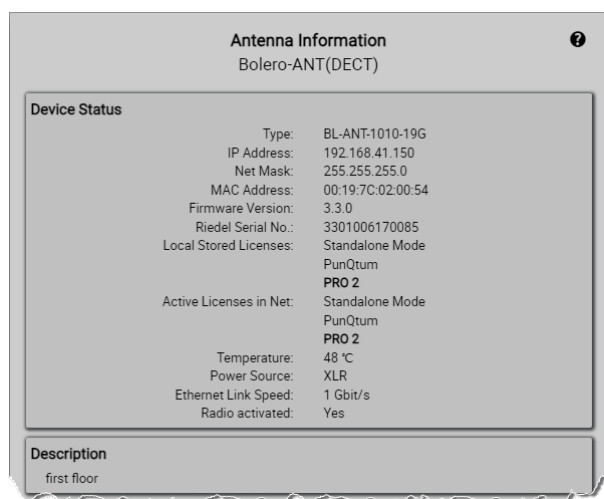


Figure 67: Info (Network Device) – Device Status / Description (e.g. DECT Antenna in Standalone/AES67 mode)

Device Status

Type	Full name of the device type.
IP	IP address of the device.
Net Mask	Fixed subnet mask of the device.
MAC	MAC address of the device.
Package	Firmware and bugfix version of the device.
Riedel Serial	Serial number of the device.
Local Stored Licenses	Licenses, that are stored on the device.
Active Licenses	Licenses that are currently in the network Space and are available for this device.
Temperature	Current temperature inside the device.
Power Source *1	Terminal, that is used to power the device.
Ethernet Link Speed	Bandwidth of the device's network connection.
Radio Activated *1	Shows if the radio operation is enabled.

*1 not for Chargers

Description

This area displays the description of the device, which can be entered in the  **Edit Network Device** view.

Antennas – Standalone/AES67 & Integrated/Artist Mode



Figure 68: Info (Antennas) – PTP Status (e.g. DECT Antenna in Standalone/AES67 mode)

PTP Status

PTP State	Shows the current state of PTP (Off, Unlocked, TimeReceiver, TimeTransmitter).
Lock State	Shows the locking state of PTP (Unlocked, Locking, Locked, Warning, Error). Warning and error are issued when the PTP offset exceeds certain limits.
TimeTransmitter	Shows the MAC address of the PTP TimeTransmitter.
Time Offset	Shows the magnitude of time deviation to the PTP TimeTransmitter in nanoseconds, averaged over the last few minutes.
Frequency Deviation	Shows the magnitude of the frequency deviation to the PTP TimeTransmitter in parts per billion, averaged over the last couple of minutes.
Network Delay	Shows statistics (mean and standard deviation) of the network delay of PTP packages from the last couple of minutes.
Hops	Shows how many hops (i.e. network devices) are between the Antenna and the PTP TimeTransmitter.
Time / Frequency Traceable	If time/frequency is traceable to a primary reference (e.g. GPS), the respective entry is 'TRUE'.
Version	Specifies the version of the used PTP standard.
Own Clock class	Specifies the clock class as defined by the PTP standard. The clock class has a major impact on whether the device is suited to become PTP TimeTransmitter. The lower the clock class, the more accurate the clock.

Antennas – Standalone/Link Mode

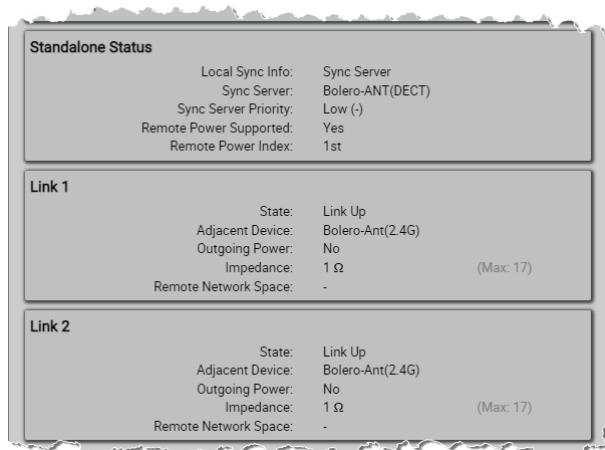


Figure 69: Info (Antennas) – Standalone Status / Link 1/2 (e.g. DECT Antenna in Standalone/Link mode)

Standalone Status

Local Sync Info	Shows if the Antenna is Sync Server or Sync Client. In case of Sync Client, it is also indicated to which of the two links (Link 1/2) the device is synchronized.
Sync Server	The name of the Antenna which currently acts as Sync Server. Notice that the Sync Server can change without affecting the running system.
Sync Server Priority	Shows the configured priority of the current Sync Server.
Remote Power Supported	Indicates whether remote power is supported or not. Notice that old hardware (before G2) does not support remote power.
Remote Power Index	Shows "DC Powered" if the local device is directly powered with an external power supply. Otherwise (if it is powered remotely via Link 1 or Link 2) a value indicates "how far away" from the DC supply the Antenna is.

Link 1/2

State	Indicates the current state of the respective link. The following values are possible:	
	No Connection	No cable is connected or the link is disabled.
	Error (Cabling)	Indicates that the cable connects two similar ports (e.g., Link 1 to Link 1). One must always connect Link 1 to Link 2 and vice versa.
	Error (Authentication)	Indicates that the link cannot be established because authentication was denied.
	Error (Version)	Indicates that the connected Antennas are not operating on the same version and are thus incompatible.
	Pending	Indicates that a link is in the process of being established.
	Pending (Remote Net)	Indicates that a link to an Antenna of another net has been established. The user has to manually join those two nets in the web Interface.
	Link Up	The link is fully established and working.
Adjacent Device	Shows the name of the antenna which is connected to this link.	
Outgoing Power	Shows if the remote power supply is enabled at the respective Link connector to supply the adjacent Antenna.	
Impedance	Shows the link's impedance in Ohms. This value is important if remote power supply is used. Correct operation of a remotely powered Antenna is only guaranteed if the impedance is at most 17 Ohms.	
Remote Network Space	If the link is connected to an Antenna which belongs to another networks space, the remote name is displayed here.	

Chargers

New in 3.3 Some new information was added to the Charger status view, including the battery serial number, firmware version and current state (e.g. charging, updating, etc.) of all Beltpacks in the Charger.

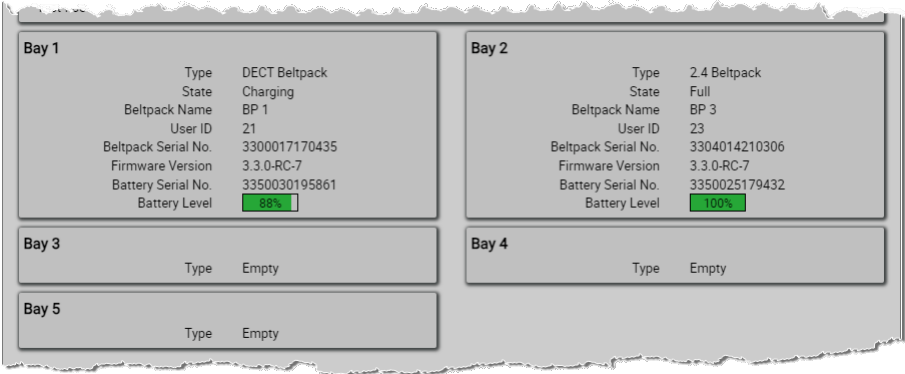


Figure 70: Info (Chargers)

Bay 1 ... 5

Type	Indicates the type of the device. (DECT, DECT-S, 2.4, 2.4-S oder Battery)
State	Shows the current state of the Beltpack or Battery. (e.g. Charging, Full, Updating, etc.)
Beltpack Name	Name of the Beltpack.
User ID	Unique ID of the Beltpack.
Beltpack Serial No.	Serial number of the Beltpack.
Firmware Version	Firmware version of the Beltpack.
Battery Serial No.	Serial number of the Battery.
Battery Level	Shows the current battery level.

2.3.3 IO Devices

The IO Devices window displays NSA-002A devices attached at Bolero Antennas.

New in 3.3

'PunQtum Q210 P Speaker Stations' can now be used to integrate a PunQtum system into a Standalone mode Bolero Network Space similar to 'NSA-002A' devices.

Up to six bidirectional audio connections as well as six input and six output controls can be shared between the PunQtum system and the Bolero Network Space.

The Bolero Audio Channel and Trigger setup of an integrated PunQtum system is derived automatically from the System Interconnection Patch settings of the running PunQtum configuration when the PunQtum Speaker Station connects to a Bolero antenna for the first time. No manual Trigger or Audio Channel creation is necessary on Bolero side.

Once the Audio Channels and Triggers are automatically created, they can be configured and used with intercom functions the same way as 'NSA-002A' Audio Channels and other Triggers, e.g. by configuring an On-VOX "Talk - Always Listen" function with a Bolero Partyline as destination on a PunQtum Partyline channel to merge both Partylines into one.

As with the 'NSA-002A' devices, no IP configuration is necessary to connect a 'PunQtum Q210 P Speaker Station' to a Bolero antenna as long as both are in the same local Ethernet network. A maximum of two devices (e.g. one 'NSA-002A' and one 'PunQtum Q210 P Speaker Station') can be connected to a single Bolero antenna at the same time. More Bolero Antennas allow for more devices being connected simultaneously.

Note that a PunQtum [License \(EPQ\)](#) is needed to integrate a PunQtum system into Bolero.

See also chapter [Bolero punQtum Integration](#).

This view is only available in the system modes 'Standalone/AES67' and 'Standalone/Link'.

The upper panel lists all device configurations for a network space:

Configurations are editable offline and have to be assigned a physical device to take effect.

Once assigned, an Antenna (Standalone/Link mode: the physically connected one) of the local network space connects to the device, sets the configuration and starts the audio stream. Unassigning a configuration will disconnect and stops the stream, removing also deletes it. These commands can be performed via the [Action Button](#) to the top right.

The lower panel shows discovered IO devices:

Upon connecting to an Antenna in the local network space, the entry is removed and the corresponding assigned config dot in the upper panel turns green. If unconnected and assigned to a different net, you can make a device available by selecting the menu item 'Clear Assigned Net'.

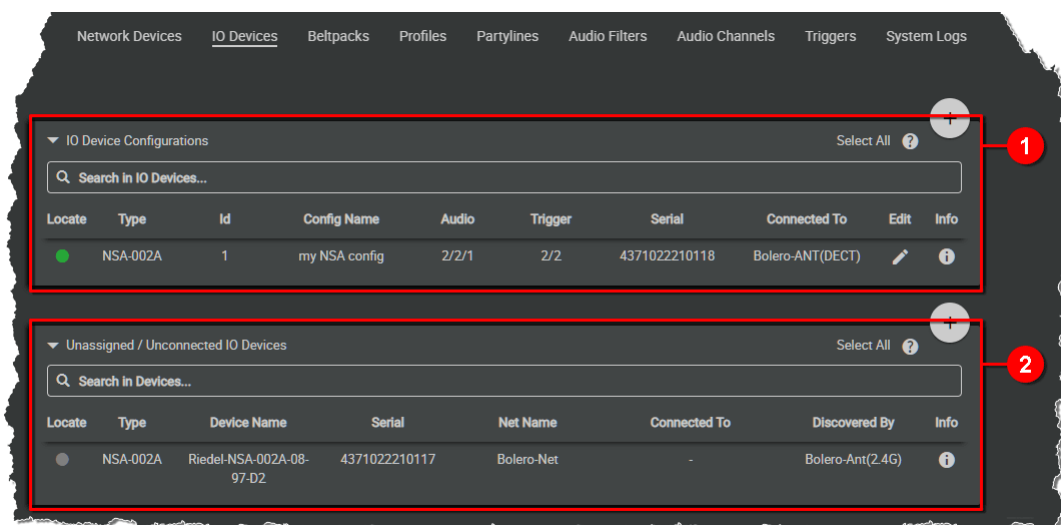


Figure 71: Web Interface – IO Devices

1	IO Device Configurations		
	Table of all IO Device configurations in the Network Space.		
	Locate	Click to flash the front LEDs of the respective IO Device. The dot colors indicate connection status.	unassigned
			not connected
			connected
			connection limit exceeded
			incompatible device type / firmware or configuration failure
			locate active (blinks alternately)
	Type	Name of the device type.	
	Id	Shows the unique ID of the configuration.	
	Name	Shows the configuration name.	
	Audio	Number of audio input/output/4-Wire channels.	
	Trigger	Number of trigger inputs/outputs enabled.	
	Serial	Shows the serial number of the IO Device.	
	Connected To	Shows the Antenna name, the IO device is connected to.	
	Edit	Button to edit the IO Device settings.	
2	Unassigned / Unconnected IO Devices		
	Table of devices that are not assigned to configurations or attached to an Antenna. Some content is identically to the table above.		
	Name	Shows the name of the device.	
	Net Name	Shows the name of the Network Space.	
	Discover By	Shows the name of the device that discovered the IO Device.	

2.3.3.1 Action Button (IO Devices)

Clicking the  action button offers functions to manage IO devices. The dialog can be closed by pressing the ESC key without saving any changes.

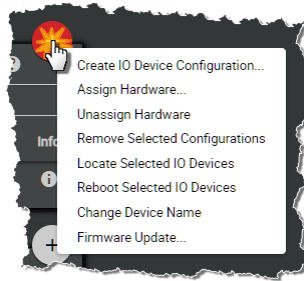


Figure 72: Action Button (IO Device Configurations)

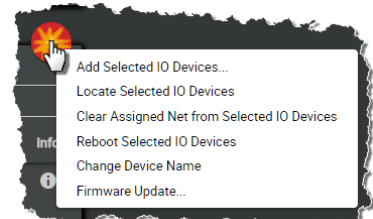


Figure 73: Action Button (Unassigned / Unconnected IO Devices)

Create IO Device Configuration

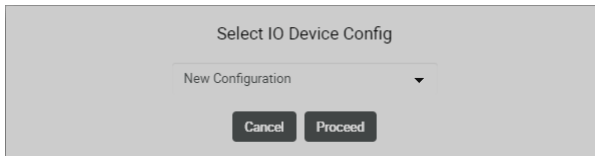
Function in the section **IO Device Configurations** to create a new IO Device configuration.

Figure 74: Create IO Device Configuration

The parameters correspond to those that are also available when editing the settings of input/output devices.
(⇒ [Features in Detail > Web Interface > IO Devices > Edit \(IO Devices\)](#))

+ Add Selected IO Devices

Function in the section **Unassigned / Unconnected IO Devices** that allows adding IO devices. A single IO device must be selected previously.



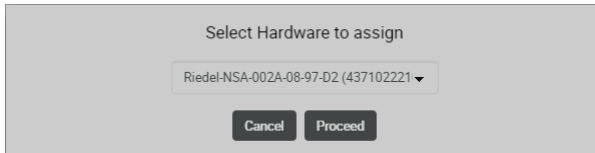
The dialog box is titled "Select IO Device Config". It contains a dropdown menu with "New Configuration" selected. Below the dropdown are two buttons: "Cancel" and "Proceed".

Figure 75: Add Selected IO Devices

Selection of an existing configuration or creation of a new configuration. Creating a new configuration is identical to the feature **Create IO Device Configuration**.

+ Assign Hardware

Function in the section **IO Device Configurations** that assigns IO devices to a device configuration.



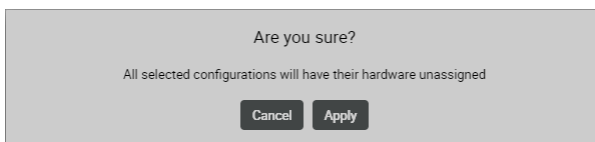
The dialog box is titled "Select Hardware to assign". It contains a dropdown menu with "Riedel-NSA-002A-08-97-D2 (437102221)" selected. Below the dropdown are two buttons: "Cancel" and "Proceed".

Figure 76: Assign Hardware

Selection of an IO device that should be assigned to the previously selected configuration.

+ Unassign Hardware

Function in the section **IO Device Configurations** that removes the assigned IO device from the selected configuration without confirmation.

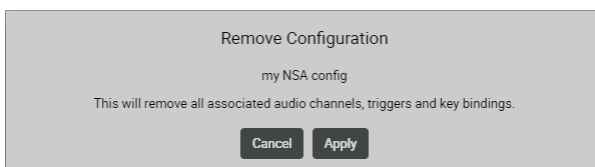


The dialog box is titled "Are you sure?". It contains the text "All selected configurations will have their hardware unassigned". Below the text are two buttons: "Cancel" and "Apply".

Figure 77: Unassign Hardware

+ Remove Selected Configurations

Function in the section **Unassigned / Unconnected IO Devices** that allows removing one or more selected configurations. A dialog is opened to confirm the action. This will remove all associated audio channels, triggers and key bindings.



The dialog box is titled "Remove Configuration". It contains the text "my NSA config" and "This will remove all associated audio channels, triggers and key bindings." Below the text are two buttons: "Cancel" and "Apply".

Figure 78: Remove Selected Configurations

+ Locate Selected IO Devices

Allows identifying the selected IO device visually. The LEDs on the front side of the respective IO device will start flashing for about 15 seconds.

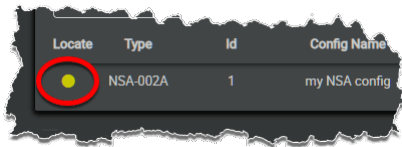


Figure 79: Locate Selected IO Devices

+ Reboot Selected IO Devices

Function that allows rebooting one or more selected IO devices. A dialog is opened to confirm the action.

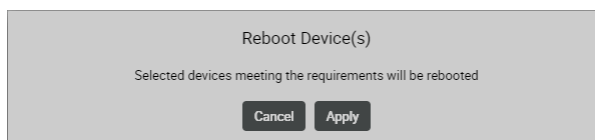


Figure 80: Reboot Selected IO Devices

+ Change Device Name

Function that allows changing the name of IO devices.

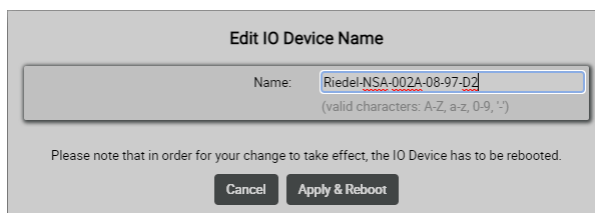


Figure 81: Change Device Name

+ Clear Assigned Net from Selected IO Devices

Function in the section **Unassigned / Unconnected IO Devices** only.

Unconnected and existing IO devices in other network spaces can be made available by this feature.

The respective IO device must be selected previously. This action requires the "Admin PIN" of the current assigned Network Space.

 Firmware Update

It is possible to update NSA-002A IO devices using the Bolero web interface.
Select the devices to update in the 'IO Device Configurations' or 'Unassigned / Unconnected IO Devices' list, click this action menu item 'Firmware update...' and select the update file.



Figure 82: Firmware Update

The update will start immediately and will be completed with an IO Device reset automatically.



NSA-002A can only be updated if they belong to the current Network Space or are unassigned.

Different firmware versions are required for the G1 and G2 hardware versions of the NSA-002A. The firmware update is only possible when the corresponding valid version is selected.

NSA-002A Hardware	NSA-002A Firmware
G1*	1.2.0-2ea62f6#68
G2	2.0.9-8e2b4b7#64

* The existing firmware version must be 1.1.0-e90d84a#54 or higher to be updated through the Bolero web interface. Otherwise, the device must be updated through its own web interface.

2.3.3.2 Edit (IO Devices)

Clicking the  Edit symbol opens a dialog to edit IO device settings. The dialog can be closed by pressing the ESC key without saving any changes. In the drop-down list at the top, it is possible to directly switch to the 'Edit IO Devices' view of another device.

	Opens the online help.
Cancel	Discards all changes.
Apply	Stores all changes.
Apply & Close	Stores all changes and closes the window.

Edit IO Device Config:my NSA config?

General

Id:

1

Type:

NSA-002A

Name:

my NSA config

Audio Multicast IP:

239.129.161.236

Description

first floor

Triggers

Input Pin 1

Pin Mode

Off

Input Pin 2

Pin Mode

Normal

Trigger Name

TI 1/2

Invert Pin

ON

Input Pin 3

Pin Mode

Latching

Trigger Name

TI 1/3

Invert Pin

Output Pin 1

Pin Mode

Toggle

Trigger Name

TO 1/1

Invert Pin

Output Pin 2

Pin Mode

Auto

Trigger Name

TO 1/2

Invert Pin

Output Pin 3

Pin Mode

Off

Invert Pin

Audio Channels

Input 1 / Out 1

Type

Unused

Input 2 / Out 2

Type

4-Wire split

Input Name

In Cfg 1/Ch 2

Output Name

Out Cfg 1/Ch 2

Input 3 / Out 3

Type

4-Wire

4-Wire Name

4-Wire Cfg 1/Ch 3

Input 4 / Out 4

Type

Input Only

Input Name

In Cfg 1/Ch 4

Input 5 / Out 5

Type

Output Only

Output Name

Out Cfg 1/Ch 5

Input 6 / Out 6

Type

Unused

Cancel

Apply

Apply & Close

Figure 83: Edit (IO Devices)

General

ID	Auto generated consecutive ID of the configuration.
Type	Shows the hardware type of the IO device.
Name	Field to enter the configuration name. (Not to be confused with the device name, pertaining to a specific hardware device.)
Multicast IP	Defines the multicast IP of the audio stream to be transmitted. Unique to each configuration and device, which relate 1:1. No duplicates are allowed.

Description

You can add a description to the device in this area.

Triggers

Input Pin 1 ... 3 / Output Pin 1 ... 3

Pin Mode	Off	Disabled interfaces are not shown in drop-down menus.
	Normal	Momentary action.
	Latching	Activation on first rising edge, release on second falling edge.
	Toggle	Like above but release on second starting edge.
	Auto	Short (< 500 ms) high states act like Latching, longer ones like Normal mode (for e.g. speak while holding).
Trigger Name	Field to enter the name of the trigger. Default: config id/trigger index.	
Invert PIN	This inverts the above modes.	

For disconnected devices, both In- and Output triggers are always low. For Output triggers, the **Invert** setting applies even if the trigger is disabled in the config or on the trigger itself under the triggers tab. The web interface shows the state *after* Modes/Invert applied for Input triggers and state *before* Modes/Invert applied for Output triggers.

Audio Channels

Input / Out 1 ... 6	Unused	Disabled interfaces are not shown in drop-down menus.
	4-Wire split	Input and Output separately routable.
	4-Wire	Input and Output treated as a unit, used for e.g. mix-minus one.
	Input only	Output disabled.
	Output only	Input disabled.
Name	Field to enter the name of the audio channel.	

2.3.3.3 Info (IO Devices)

Clicking the  Info symbol shows information of the respective device or configuration. The dialog can be closed by pressing the ESC key.

	Opens the online help.
Close	Closes the information.

IO Device Information

Status

Hardware Name:

Riedel-NSA-002A-08-97-D2

Connection Status:

Connected

Connected To:

Bolero-Ant(2.4G)

Assigned Net:

Bolero-Net

Serial Number:

4371022210118

IP Address:

169.254.211.151

MAC Address:

00:19:7C:08:97:D2

Firmware Version:

2.0.9-8e2b4b7#64

Hardware Version:

G2

Description

first floor

Configuration

Name:

my NSA config

PTP Status

Port State:

TimeReceiver

Time Offset:

1k-5k ns

TimeTransmitter:

00:19:7C:02:00:54 (FFFE)

Audio Streams

Receiver State:

Receiving Multicast

Sender State:

Transmitting Multicast

Close

Figure 84: Info (IO-Device Configurations)

Status

Hardware Name	Shows the name of the IO Device.
Connection Status	Shows the state of the connection.
Connected To	Shows the name of the Antenna to which the IO device is connected.
Assigned Net	Shows the name of the Net to which the IO device is assigned.
Serial Number	Shows the serial number of the IO Device.
IP Address	Shows the IP address of the IO Device.
MAC Address	Shows the MAC address of the IO Device.
Firmware Version	Shows the Package version of the IO Device.
Hardware Version	Shows the hardware version of the IO Device.

Description

This area displays the description of the device, which can be entered in the  Edit IO Devices view.

Configuration

Only in the region IO Device Configurations:

Name	Shows the name if the configuration which is assigned to the IO Device.
------	---

PTP Status

Only in the region **IO Device Configurations**:

Port State	Shows the current state of PTP (Off, Unlocked, TimeReceiver, TimeTransmitter).
Time Offset	Shows the magnitude of time deviation to the PTP TimeTransmitter in nanoseconds, averaged over the last few minutes.
TimeTransmitter	Shows the MAC address of the PTP TimeTransmitter.

Audio Streams

Only in the region **IO Device Configurations**:

Receiver State	Shows the state of receiving direction.
Sender State	Shows the state of transmitting.

2.3.4 Beltpacks

The 'Beltpacks' window lists all Beltpacks registered in the active network space and provides the following functions, among others:

- Listing of all registered Beltpacks in the Net.
- Changing of Beltpack settings
- Changing of assigned Profiles
- Removing Beltpacks from Nets
- Enable Beltpack registrations
- Locating Beltpacks

Beltpacks are listed even if they are not connected (out of range, turned off). Once a Beltpack is registered, after powering up it will instantly connect and become operational.

The registered Beltpack list shows the Beltpack status information with remaining battery capacity.

The icon in the 'Status' column displays the type and status of the Beltpack.

When you are logged in as admin user, it is possible to edit Beltpack settings by clicking the edit icon.

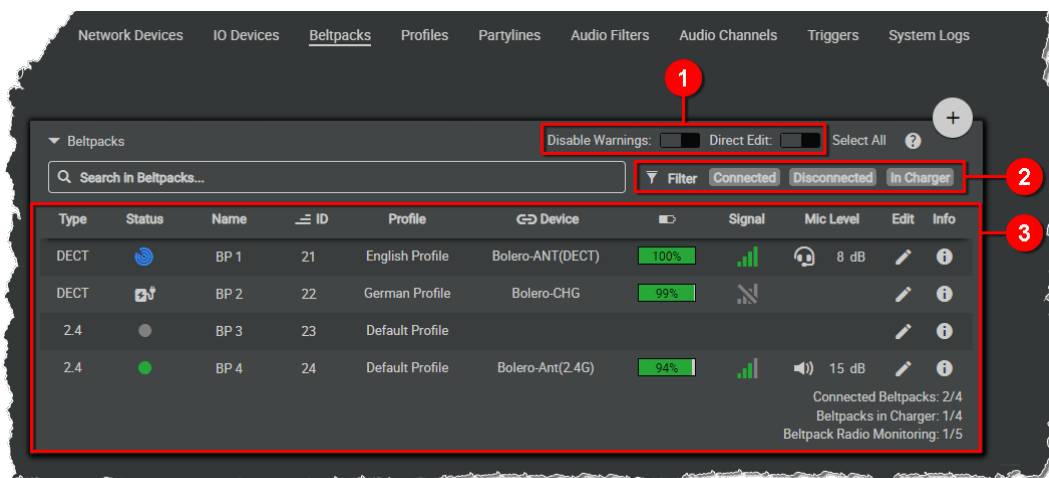


Figure 85: Web Interface – Beltpacks

1	Disable Warnings ^{*1}	If the Beltpack Radio Monitoring is switched on and the number of available timeslots falls below the defined Threshold , the status symbols change from green to orange or flash orange. If this function 'Free Timeslot Warning' is activated, the status symbols remain green. This function does the same as the ' Free Timeslot Warning ' function in the ' Edit Network Space ' view.	
	Direct Edit	If the switch is enabled (On), the Name , ID and Profile of a Beltpack are directly editable in the Beltpacks window by clicking on the desired entry. New in 3.3 The level of the headset or the internal microphone can now also be set directly.	
2	Filter	The filter allows you to specify whether Beltpacks that are Connected , Disconnected , and/or In Charger are displayed.	
3	Beltpacks	Table with all Beltpacks in the Network Space.	
	Type	Displays the type of Beltpack (DECT or 2.4GHz).	DECT 2.4
	Status	Shows the state of the Beltpack. (Bolero S-Beltpacks are marked with an S in the symbol.)	
		The Beltpack is online (connected to the Network Space).	
		The Beltpack is offline.	
		The symbol can be used to identify a specific Beltpack visually. When this icon is clicked, the icon flashes alternately green/yellow (for about 10 seconds); the status line and the status LED of the respective Beltpack flash yellow until any button of the Beltpack is pressed.	 
		The threshold of free timeslots is reached. ^{*3} This threshold can be adjusted in the ' Antennas ' view with the Action Button ' Edit Network Space ' (⇒ Action Button (Antennas) > Edit Network Space).	
		No free timeslots found. ^{*3}	 
		The Beltpack Radio Monitoring is active / enabled. ^{*3}	
		The Beltpack is located in the Charger.	
	Name ^{*2}	Name of the Beltpack.	
	ID ^{*2}	Unique ID of the Beltpack.	
	Profile ^{*2}	Name of the assigned Profile.	
	Device	Name of the Antenna (or Charger) to which the Beltpack is connected (or in which it is charged).	
	Battery	State of charge of the Beltpack.	
	New in 3.3 Signal	Shows the radio reception level of the Beltpack at the connected Antenna.	
	New in 3.3 Mic Level	Shows the microphone gain of the currently active microphone.	
		The headset microphone is active.	
		The internal Beltpack microphone is active.	
	Edit	Button to edit the Beltpack settings.	
	Info	Opens a brief information of the respective device.	

^{*1} not for 2.4GHz-Beltpacks

^{*2} direct editable if the switch **Direct Edit** is enabled

^{*3} Pro 1 license necessary 

2.3.4.1 Action Button (Beltpacks)

Clicking the  action button offers functions to manage Beltpacks.
The dialog can be closed by pressing the ESC key.

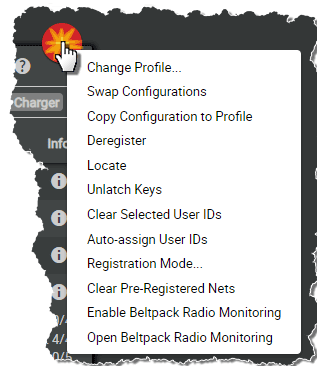


Figure 86: Action Button (Beltpacks)

Change Profile

Allows assigning a profile to the selected Beltpacks. Profiles are a collection of Beltpack parameters that can be applied to multiple Beltpacks without setting the parameters manually in each Beltpack.

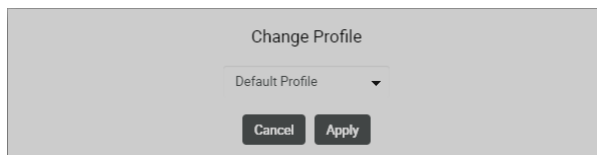


Figure 87: Change Profile

Swap Configurations

Allows swapping the Beltpack configuration of two selected Beltpacks.

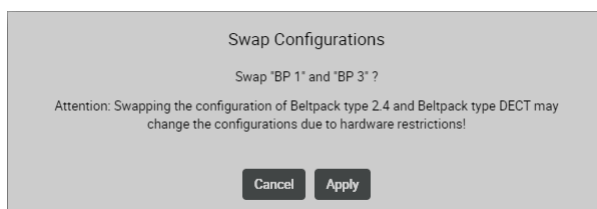


Figure 88: Swap Configurations

Copy Configuration to Profile

With this function the current Beltpack configuration can be saved as a profile.
An already existing profile can be overwritten, but also a new profile can be created.

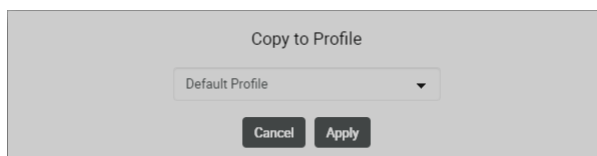


Figure 89: Copy Configuration to Profile

+ Deregister

This function deregisters the selected Beltpacks from the active network space. The Beltpacks are removed from the list.

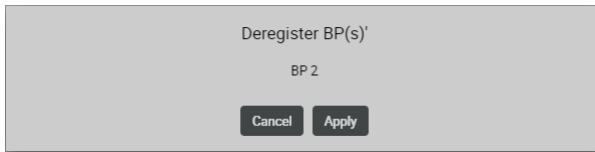


Figure 90: Deregister

+ Locate

Allows identifying the selected Beltpack visually. The Status-LED and the Status-Bar of the respective Beltpacks will start flashing yellow until a Beltpack key is pressed.

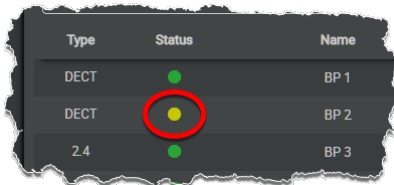


Figure 91: Locate

+ Unlatch Keys

This function will unlatch all keys on the selected Beltpacks. All latched keys and even (momentary) keys currently pressed are deactivated, they have to be released and pressed again to activate them again.

+ Clear Selected User IDs

Clears the User IDs of the selected Beltpacks. The User ID is set to zero ("0").

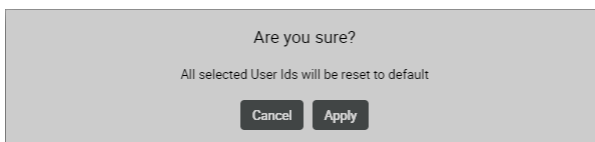


Figure 92: Clear Selected User IDs

+ Auto-assign User IDs

Automatically assign unique and available user IDs to Beltpacks with empty ID field. The initial value is one ("1").

+ Registration Mode

Opens the Beltpack registration settings.

(⇒ 'Bolero Antenna > Web Interface > Net/Antenna > [Menu – Registration Mode](#)'.)

Clear Pre-Registered Nets

Deletes all pre-registered nets in the selected Beltpacks. A dialog is opened to confirm the action.

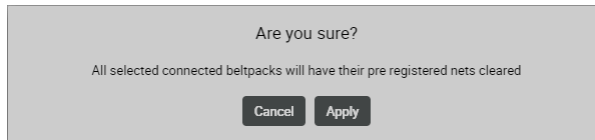
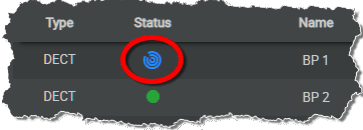


Figure 93: Clear Pre-Registered Nets

Enable/Disable Beltpack Radio Monitoring (only with DECT)

To change a Beltpack to the detailed monitoring mode, select the Beltpack in the list and select the action button entry 'Enable Beltpack Radio Monitoring'. In this mode the Beltpack is in full operation, the detailed monitoring happens in the background. An active Beltpack Radio Monitoring is indicated by a blue status icon.



Type	Status	Name
DECT		BP 1
DECT		BP 2

Figure 94: Enable Beltpack Radio Monitoring

Open Beltpack Radio Monitoring (only with DECT)

Displays the measured '[Radio Monitoring](#)' data of the selected DECT-Beltpack.

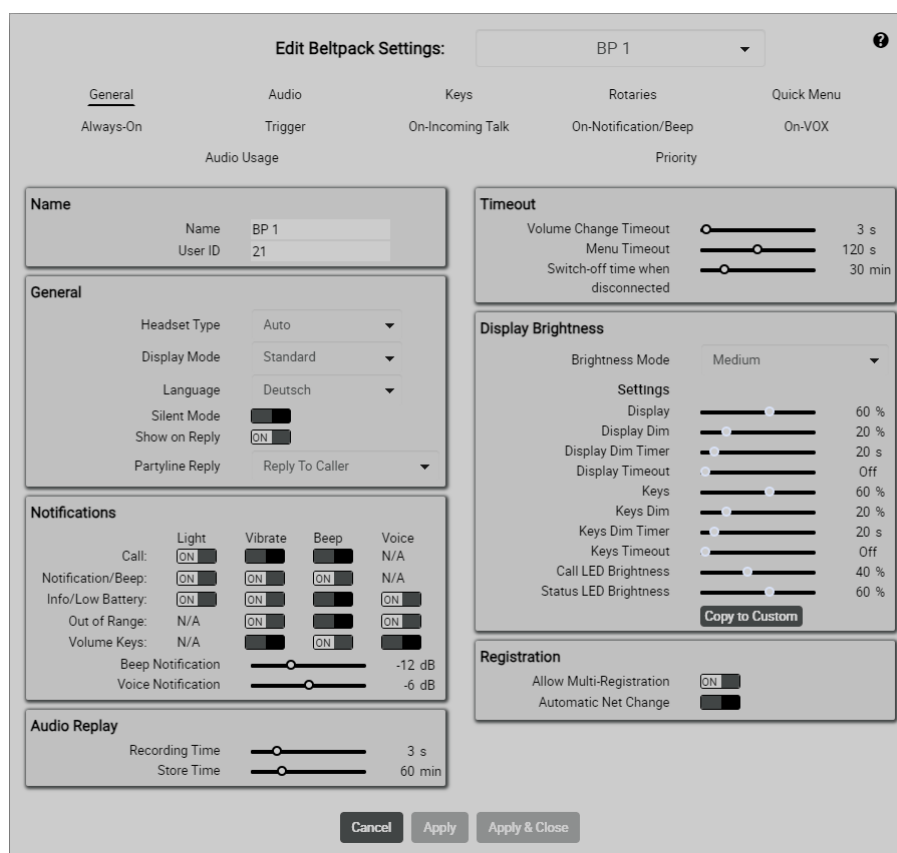
2.3.4.2 Edit (Beltpacks)

Clicking the  Edit symbol opens a dialog to edit Beltpack settings on several pages. The selected page is underlined. The dialog can be closed by pressing the ESC key without saving any changes. In the drop-down list at the top, it is possible to directly switch to the 'Edit Beltpacks' view of another Beltpack.

	Opens the online help.
Cancel	Discards all changes.
Apply	Stores all changes.
Apply & Close	Stores all changes and closes the window.

General

This view is used for editing general Beltpack settings.



Edit Beltpack Settings: BP 1

General | Audio | Keys | Rotaries | Quick Menu

Always-On | Trigger | On-Incoming Talk | On-Notification/Beep | On-VOX

Audio Usage | Priority

Name

Name: BP 1

User ID: 21

General

Headset Type: Auto

Display Mode: Standard

Language: Deutsch

Silent Mode: ☐

Show on Reply: ☒

Partylane Reply: Reply To Caller

Notifications

	Light	Vibrate	Beep	Voice
Call:	☒	☐	☐	N/A
Notification/Beep:	☒	☒	☒	N/A
Info/Low Battery:	☒	☒	☒	☒
Out of Range:	N/A	☒	☐	☒
Volume Keys:	N/A	☐	☒	☐
Beep Notification	<input type="range"/>			-12 dB
Voice Notification	<input type="range"/>			-6 dB

Audio Replay

Recording Time: 3 s

Store Time: 60 min

Timeout

Volume Change Timeout: 3 s

Menu Timeout: 120 s

Switch-off time when disconnected: 30 min

Display Brightness

Brightness Mode: Medium

Settings

Display	<input type="range"/>	60 %
Display Dim	<input type="range"/>	20 %
Display Dim Timer	<input type="range"/>	20 s
Display Timeout	<input type="range"/>	Off
Keys	<input type="range"/>	60 %
Keys Dim	<input type="range"/>	20 %
Keys Dim Timer	<input type="range"/>	20 s
Keys Timeout	<input type="range"/>	Off
Call LED Brightness	<input type="range"/>	40 %
Status LED Brightness	<input type="range"/>	60 %

Copy to Custom

Registration

Allow Multi-Registration: ☒

Automatic Net Change: ☐

Buttons: Cancel, Apply, Apply & Close

Figure 95: Edit (Beltpacks) – General

Name

Name	Name of the Beltpack.
User ID	Unique ID of the Beltpack.

General

Headset Type	<i>Auto</i> , Dynamic Detect, Electret Detect, Dynamic, Electret. (⇒ ' Headset Type ')
Display Mode	Selection of the display mode. (⇒ ' Display Mode ') <i>Standard</i> , Alternative, Standard Flip, Alternative Flip
Language	Selection of a pre-programmed Beltpack language English and German. Besides German and English, a Chinese translation of all Beltpack menus is available.
Silent Mode	If the Silent Mode is activated, speaker and vibration are disabled.
Show on Reply *1	No Partyline Reply: Regardless of the Show on Reply switch, the Reply functionality is disabled. Reply to Caller: When the Reply key is pressed, the Beltpack speaks specifically only to the Beltpack that last spoke into the Partyline. Shown on Reply: Off ○ The Beltpack will be <u>ignored</u> as a reply target for other Beltpacks in this Partyline. This means that this Beltpack will not be addressed when pressing the Reply key of another Beltpack, even if it has spoken last. Shown on Reply: On ○ The Beltpack will <u>not</u> be ignored as a reply target for other Beltpacks in this Partyline. This means that this Beltpack is addressed when pressing the Reply key of another Beltpack if it has spoken last. Reply to Partyline: Regardless of the Show on Reply switch, when the Reply key is pressed, the Beltpack speaks into the Partyline that spoke last.
Partyline Reply *1	

*1 only in system mode 'Standalone/AES67' and 'Standalone/Link'

Notification

Call	Switch to enable the respective signalization:
Notification/Beep	• Light • Vibrate • Beep • Voice (not for: Call, Notification/Beep)
Info/Low Battery	
Out Of Range	
Volume Keys	
Beep Notification	Slider to adjust the tone signalization volume.
Voice Notification	Slider to adjust the voice signalization volume.

Audio Replay

The Replay function allows repeated listening to the last call. Recordings are VOX controlled. Thus, no silence is recorded.

Recording Time	Defines the duration of recordings.
Store Time	Defines the time, how long the recording is stored.

Timeout

Volume Change Timeout	Slider to adjust the volume change timeout (how long the volume adjustment is opened without activity).
Menu Timeout	Slider to adjust the menu timeout (how long a menu is opened without activity).
New in 3.3 Switch-off time when disconnected	This timer will only become active when the Beltpack is not connected to an antenna. It will automatically turn off the Beltpack to prevent the battery from being drained if the Beltpack user forgot to turn off the Beltpack manually.

Display Brightness

This view is used for setting the Beltpacks display brightness.

Brightness mode	Selection between one user defined and three pre-defined brightness definitions: Off, Low, <i>Medium</i> , High, Custom (see Beltpack Brightness Mode)	
Settings	Display	Normal brightness level of the display.
	Display Dim	Dimmed brightness level of the display.
	Display Dim Timer	Time of inactivity until the display illumination is dimmed.
	Display Timeout	Time of inactivity until the display illumination is switched off.
	Keys	Normal brightness level of the keys.
	Keys Dim	Dimmed brightness level of the keys.
	Keys Dim Timer	Time of inactivity until the key illumination is dimmed.
	Keys Timeout	Time of inactivity until the key illumination is switched off.
	Call LED Brightness	Brightness level of the Call LED.
	Status LED Brightness	Brightness level of the Status LED.
Copy to Custom	The displayed brightness values of all predefined brightness modes can be taken over (and then adjusted) as user-defined values with this function.	

Registration

Allow Multi-Registration *1	<u>On</u>: (automatically enabled if Automatic net change is active) The Beltpack can be registered in up to 10 Nets. If the Beltpack is registered in another new Net, the 'oldest' Net from the list will be automatically deleted. <u>Off</u>: The Beltpack can be registered in a single Net. All Nets except the connected or last pre-registered Net will be deleted if the Beltpack is switched off. If the Beltpack is registered in another Net, the previous Net is replaced.
Automatic Net Change	<u>Off</u>: The Beltpack will only connect to the last connected Net. <u>On</u>: The Beltpack will search and change to another Net when starting up or losing connection.

*1 automatically enabled if **Automatic net change** is enabled

Audio

This view is used for editing the Beltpacks audio settings.



Figure 96: Edit (Beltpacks) – Audio

Levels

Headset	Adjustment of the headset volume.
Sidetone	Adjustment of the sidetone volume.
Headset Microphone	Adjustment of the gain of the headset microphone.
Internal Microphone	Adjustment of the gain of the internal microphone.
Line Input	Adjustment of the gain of the line input.
Priority Dim	Adjustment of the dim level for priority calls.

Limits

Headset Lower Volume Limit	Slider to adjust the lowest headset volume.
Speaker Lower Volume Limit	Slider to adjust the lowest speaker volume.
Microphone Limiter	Slider to adjust the threshold level of the microphone limiter.
Headset Limiter	Slider to adjust the threshold level of the headset limiter.

Audio Enhancements

Headset Microphone Filter	Activate a low-cut filter or improve the microphone intelligibility of a Riedel headset. (low-cut 60/120Hz, filter for AIR/PRO/MAX/RUN headsets dynamic and electret)	The audio filters can be customized in the web interface. (⇒ Audio Filters)
Headset Speaker Filter	Activate a low-cut filter, improve the headphone sound of a Riedel headset or increase the intelligibility (plus). (low-cut 80/150Hz, filter for AIR/PRO/MAX/RUN headsets standard and plus)	
Headset Echo Suppression	Switch to prevents/reduces acoustic echo distortions to improve voice quality of the headset. Echo suppression is always on in Speaker mode.	

Speaker

Enable	Switch to enable the internal Beltpack speaker and microphone.
Volume	Slider to adjust the speaker volume.
Plug - Activate Headset	Switch to enable automatically activating the headset mode if a headset is connected at the XLR connector. (⇒ Speaker)
Unplug - Activate Speaker	Switch to enable automatically activating the speaker mode if a headset is disconnected from the XLR connector.

Microphone VOX

The 'Microphone VOX' is a switch that operates when a sound is detected at the microphone and exceeds the defined threshold.

This view is only available in the system modes **Standalone/AES67** and **Standalone/Link**.

VOX Mode	Off: The VOX functionality is turned off. The audio signal is always going through. Standard: The VOX functionality is turned on. The audio signal is switched through depending on the configurable parameters Threshold , Hold Time and Release Time . Adaptive: The adaptive VOX functionality is switched on and the threshold is continuously adapted to the current background noise. The audio signal is switched through depending on the configurable parameters Delta , Hold Time and Release Time .
Threshold ^{*1}	Slider to define the audio level that triggers the VOX. The Off threshold is fix 3dB below this adjusted threshold.
Delta ^{*2}	Slider to define the delta audio level between the background noise level and the audio level that triggers the VOX.
Hold Time	Slider to define the amount of time the VOX remains engaged during brief speech pauses. This also means the last several seconds of each audio transmission is always silence.
Release Time	Slider to set the time period for the microphone to change from open to fully closed.
Noise Gate	The audio is only <u>forwarded</u> to the system when the VOX is active.

^{*1} if VOX Mode = **Standard**

^{*2} if VOX Mode = **Adaptive**

BT/Line Input VOX Dim (only with DECT Beltpacks)

The 'BT/Line Input VOX Dim' is a switch that operates when a someone is talking to the Beltpack via the intercom network. If the voice is detected and exceeds the defined threshold the Bluetooth and Line Input audio is dimmed.

VOX Mode	Off: The VOX functionality is turned off. Bluetooth and Line In signals are never dimmed. Standard: The VOX functionality is turned on. Bluetooth and Line In signals are dimmed depending on the configurable parameters Threshold , Hold Time and Release Time and if audio is sent from the Antenna to the Beltpack. Adaptive: The adaptive VOX functionality is switched on and the threshold is continuously adapted to the current background noise. Bluetooth and Line In signals are dimmed depending on the configurable parameters Delta , Hold Time , Release Time . and Dim Level and if audio is sent from the Antenna to the Beltpack.
Threshold ^{*1}	Slider to define the audio level that triggers the VOX. The Off threshold is fix 3dB below this adjusted threshold.
Delta ^{*2}	Slider to define the delta audio level between the background noise level and the audio level that triggers the VOX.
Hold Time	Slider to define the amount of time the VOX remains engaged during brief speech pauses. This also means the last several seconds of each audio transmission is always silence.
Dim Level	Slider to define the Dim level.

^{*1} if VOX Mode = **Standard**

^{*2} if VOX Mode = **Adaptive**

Bluetooth (only with DECT Beltpacks)

BT State	Activates the Bluetooth functionality: <i>Off</i> , Connect to Headset, Connect to Mobile/PC
Microphone Gain ^{*1}	Slider to adjust the Bluetooth microphone amplification.
Share to net ^{*2}	Allows to listen to the audio signal of a paired device locally (Local) or to include it into the intercom (Public).
Mobile/PC Volume ^{*2}	Slider to adjust the Bluetooth gain.

^{*1} if BT State = **Connect to Headset**

^{*2} if BT State = **Connect to Mobile/PC**

Keys

This view is used for defining the functions of the Beltpack keys 1 to 6 and Reply key.
This view is only available in the system modes **Standalone/AES67** and **Standalone/Link**. In this mode, the keys are configured using the **Director** configuration software.

Edit Beltpack Settings:
BP 1

General

Audio

Keys

Rotaries

Quick Menu

Always-On

Trigger

On-Incoming Talk

On-Notification/Beep

On-VOX

Audio Usage

Priority

Key 1

Function: Talk - Always Listen

Destination / Source: PL 1

Volume: 0 dB

Additional Settings

Mode: Auto

Priority: Standard

Key Group: Off

Action - Muted Key Pressed: Unmute

Key 2

Function: Talk

Destination: PL 2

Volume: 0 dB

Additional Settings

Mode: Auto

Priority: Standard

Key Group: Off

Action - Muted Key Pressed: Unmute

Key 3

Function: Talk & Listen

Destination / Source: PL 3

Volume: 0 dB

Additional Settings

Key 4

Function: Listen

Source: PL 4

Volume: 0 dB

Additional Settings

Key 5

Function: None

Key 6

Function: None

Reply Key

Function: Reply Function

Additional Settings

Cancel
Apply
Apply & Close

Figure 97: Edit (Beltpacks) – Keys

Key 1 ... 6, Reply

Function	Selection of the function of the respective Beltpack key:	
	None	No function.
	Talk	Beltpack talks to the destination when the key is active.
	Talk - Always Listen	Beltpack talks to the destination when the key is active and listens always to it.
	Talk & Listen	Beltpack talks to the destination and listens to the source when the key is active.
	Listen	The Beltpack will force the selected source microphone open and listens to the source audio if Beltpack key is active; can only be configured in the Web Interface.
	Monitor	The monitor function will only listen to the selected source if the selected source activates its own microphone.
	Monitor Select	Enable monitoring on any Talk key destination.
	Notification / Beep Select	Press and hold this key, then activate a Talk key to initiate a Notification/Beep indication on the Talk key destination (Beltpack, Partyline, Audio Channel).
	Reply Function	Beltpack talks to the source of the most recent incoming call (Beltpack or Audio Channel) when the key is active; only Point-to-Point calls are considered as reply destinations.
	Menu Shortcut	Jump to a specific entry in the Beltpack menu when pressing the key (e.g. Walk Test Pro, Lock Keys, etc.); same as a Quick Menu entry.
	Toggle	Toggle a setting when pressing the respective Beltpack key. Echo Suppression, Speaker, Brightness Mode, Silent Mode, Display Mode, BT: Connect/Disconnect, BT: Local/Public
	Monitor Trigger	Show the state of the Trigger on the Beltpack screen (active: thick white line, inactive: thin gray line).
	Set Trigger	Trigger is active as long as the key is active; Trigger may be active even if the key is released when there is another source activating the Trigger (other key, etc.).
	Volume Increase / Volume Decrease	Increase/decrease the selected volume(s); same as turning a rotary to the right/left.
	New in 3.3 Mute Microphone	The new Mute Microphone key function allows the Beltpack user to mute the Beltpack microphone (headset, internal or Bluetooth) temporarily without changing the activated intercom functions, also known as "cough button". This function is available in Standalone mode only at this time.

Destination ^{*1}	Defines the destination depending on the selected function:	
	Talk	Defines the destination of calls: • Partylines • Beltpacks • Audio Channel (Output, 4-Wire)
	Menu Shortcut	Opens the selected menu by pressing the respective Beltpack key.
	Monitor Trigger	Defines the (physically/virtual) GPIO-input/output to be monitored: • Define Input/Output/Virtual Trigger • Create Virtual Trigger
	Set Trigger	Defines (physically/virtual) GPIO-outputs to be switched: • Define Output/Virtual Trigger • Create Virtual Trigger Create Virtual Trigger allows creating a new virtual trigger in the network space. This trigger can be used to trigger events from all devices registered in this network space. Each trigger has a unique ID. The trigger can be toggled normally or forced to a fixed condition (1/0).

^{*1} if Function = Talk, Menu Shortcut, Set/Monitor Trigger

Destination/ Source ^{*2}	Defines the destination and the source depending on the selected function:	
	Talk - Always Listen	Defines the destination and source of calls: • Partylines
Source ^{*3}	Defines the source depending on the selected function:	
	Listen	Defines the source of calls: • Partylines
	Monitor	• Beltpacks • Audio Channel (Output, 4-Wire)
Additional Settings	Further settings can be expanded by clicking the arrow:	
	Mode ^{*4}	Defines if the key press is latching, momentary or set automatically (short press: latching, long press: momentary).
	Priority ^{*5}	• If a channel is set to 'High Prio', all <u>other</u> audio signals to the sink with lower priority (standard or low) are dimmed when the high priority audio signal is active. • If a channel is set to 'Low Prio', <u>this</u> audio signal is dimmed when the sink receives a higher priority (standard or high) active audio signal. Note that "sink" is the destination in case of a Talk function and the own Beltpack in case of a Listen function. The dim level can be adjusted in the Audio Settings > Levels > Priority Dim for each Beltpack.
	Key Group	In Standalone mode, Key Groups can be used to make sure that some keys on a Beltpack are mutually exclusive. At most one key of a Key Group can be active at the same time. If an additional key of the same Key Group is pressed, the previously active key is deactivated automatically. Five different Key Groups can be used per Beltpack. Key Groups are local to a Beltpack, i.e. keys on different Beltpacks are not affected even if they have the same Key Group number.
	Action - Muted Key Pressed	When activating a key with a muted audio signal on it, the Beltpack can now react differently, according to this Standalone mode key setting: (⇒ Quick Mute) • Keep Mute State: No changes, the incoming audio signal stays muted. • Unmute: The incoming audio signal is immediately unmuted when the key is activated. • Momentary Unmute: The incoming audio signal is immediately unmuted when the key is activated and automatically muted when the key is deactivated again.

^{*2} if Function = Talk - Always Listen

^{*3} if Function = Listen, Monitor

^{*4} if Function = Talk, Talk - Always Listen, Listen, Monitor, Reply, Set Trigger

^{*5} if Function = Talk, Talk - Always Listen, Listen, Monitor

Rotaries

This view is used for defining the function of the rotary encoders.



Figure 98: Edit (Beltpacks) – Rotaries

Rotary 1,2

Main	Switch for selecting the respective audio channel whose volume is to be changed using rotary 1 or 2.
Key 1 ... 6	
Reply Key	
Bluetooth Mobile/PC ^{*1}	
Line Input	
Sidetone	

^{*1} not for 2.4GHz-Beltpacks

New in 3.3

The sidetone volume can now be selected on a rotary in the Beltpack or Profile Rotaries configuration instead of the main volume, similar to specific key volumes, Bluetooth volume or Line Input volume.

External Key 1,2

This function requires the PTT (Push To Talk) accessory.

Mode	Defines if the key press mode: Momentary , Latching , Auto , On only , Off only
Key 1 ... 6	Switch for selecting the respective audio channel whose volume is to be changed using external PTT button 1 or 2.
Reply	

Quick Menu

This view is used for defining up to 16 entries that are present in the Beltpacks quick menu.

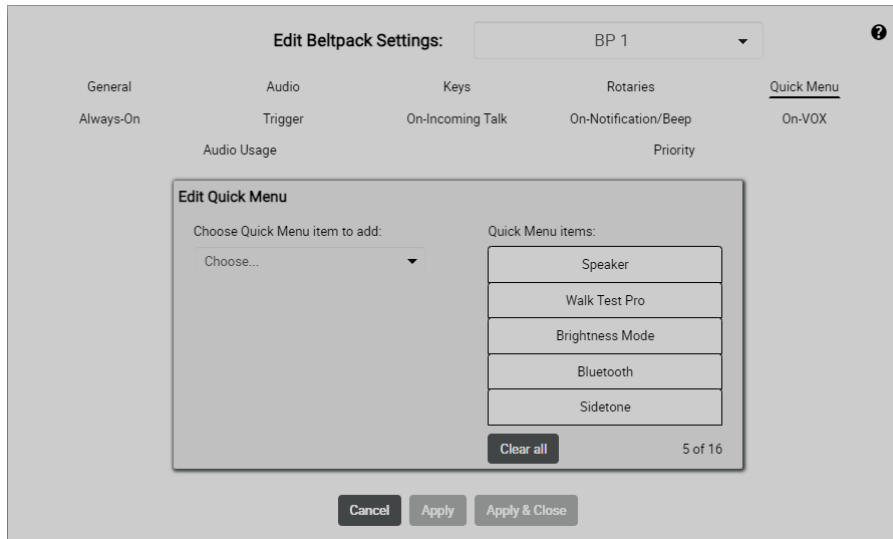


Figure 99: Edit (Beltpacks) – Quick Menu

Select in the drop-down list on the left side (**Choose Quick Menu item to add**) the quick menu item to be added to the respective Beltpack.

On the right side the present quick menu items are displayed. The order of the menu items can be changed by drag and drop. A menu item can be deleted by drag and drop the respective entry outside the window. Clicking the **Clear all** button deletes all entries.

Always-On

This view is used for defining up to five functions that are permanent active, when a Beltpack is connected, without pressing any Beltpack key.

This view is only available in the system modes **Standalone/AES67** and **Standalone/Link**.

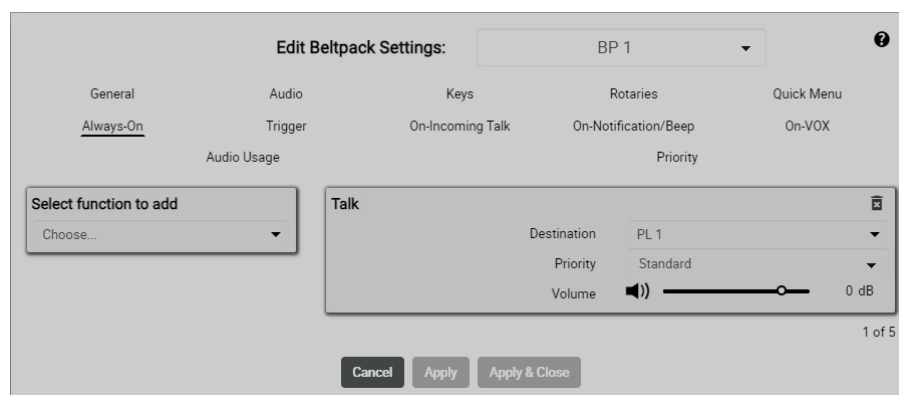


Figure 100: Edit (Beltpacks) – Always-On

Function to add	In total, the following functions are available and permanently active:	
	Talk	Call to the selected destination.
	Talk - Always Listen	Call to the selected destination and permanently listen to the selected source.
	Talk & Listen	Call to the selected destination and listen to the selected source.
	Listen	Forces the selected source microphone to open and listen to the source.
	Monitor	Listens to the selected source only if it has its own microphone open.
Destination /Source	Set Trigger	Switching of (physical/virtual) GPIO outputs.
	Defines the destination (or source) depending on the selected function:	
	Talk Listen Monitor	Destination (or source) of calls: - present Partylines - present Beltpacks - present Audio Channels
	Talk - Always Listen Talk & Listen	Destination and source of calls: present Partylines
Priority ^{*1}	Set Trigger	GPIO outputs to be switched (physically/virtual): - Define Output/Virtual Trigger - Create Virtual Trigger
	Defines the priority (<i>Standard</i> , High, Low) of the function and the resulting dimming of the audio signal.	
Volume ^{*1,*2}	Volume adjustment.	
	A function can be deleted by clicking the trash button.	

^{*1} not if Function = **Set Trigger**, **Notification/Beep**

^{*2} not if Function = **Talk** and Destination = **Audio Channels** > **Ouput Audio Channels**

Trigger

Up to 5 functions can be configured, which are activated when and as long as the selected trigger is in the "high" state.

This view is only available in the system modes **Standalone/AES67** and **Standalone/Link**.

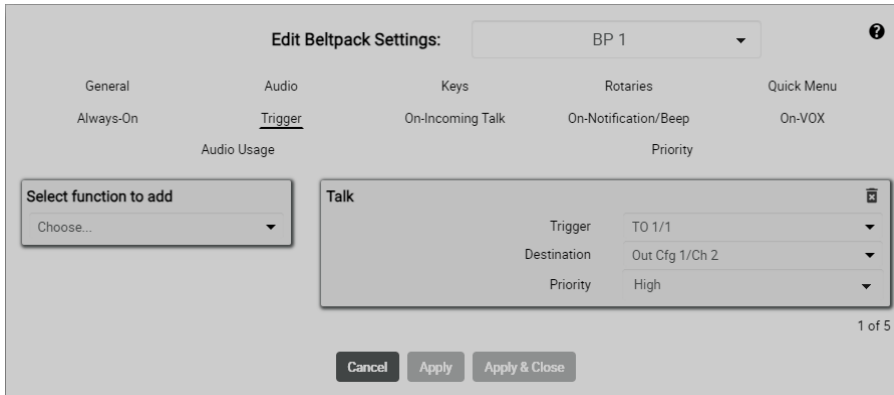


Figure 101: Edit (Beltpacks) – Trigger

Function to add	In total, the following functions are available, which are activated when the selected trigger fires:	
	Talk	Call to the selected destination.
	Talk - Always Listen	Call to the selected destination and permanently listen to the selected source.
	Talk & Listen	Call to the selected destination and listen to the selected source.
	Listen	Forces the selected source microphone to open and listen to the source.
	Monitor	Listens to the selected source only if it has its own microphone open.
	Set Trigger	Switching of (physical/virtual) GPIO outputs.
	Notification/Beep	Triggering a notification / beep.
Trigger	Defines the trigger (input/output/virtual) that causes activating the respective function.	
Destination /Source	Defines the destination (or source) depending on the selected function:	
	Talk Listen Monitor	Destination (or source) of calls: - present Partylines - present Beltpacks - present Audio Channels
	Talk - Always Listen Talk & Listen	Destination and source of calls: present Partylines
	Set Trigger	GPIO outputs to be switched (physically/virtual): - Define Output/Virtual Trigger - Create Virtual Trigger
	Notification/ Beep	Destination of beep-tones / voice-notifications: - present Partylines - present Beltpacks - present Audio Channels
Priority ^{*1}	Defines the priority (<i>Standard</i> , High, Low) of the function and the resulting dimming of the audio signal.	
Volume ^{*1,*2}	Volume adjustment.	
	A function can be deleted by clicking the trash button.	

^{*1} not if Function = **Set Trigger**, **Notification/Beep**

^{*2} not if Function = **Talk** and Destination = **Audio Channels** > **Ouput Audio Channels**

On-Incoming Talk

Up to 5 functions can be configured, which are automatically activated when and as long as someone talks to the Beltpack.

This view is only available in the system modes **Standalone/AES67** and **Standalone/Link**.

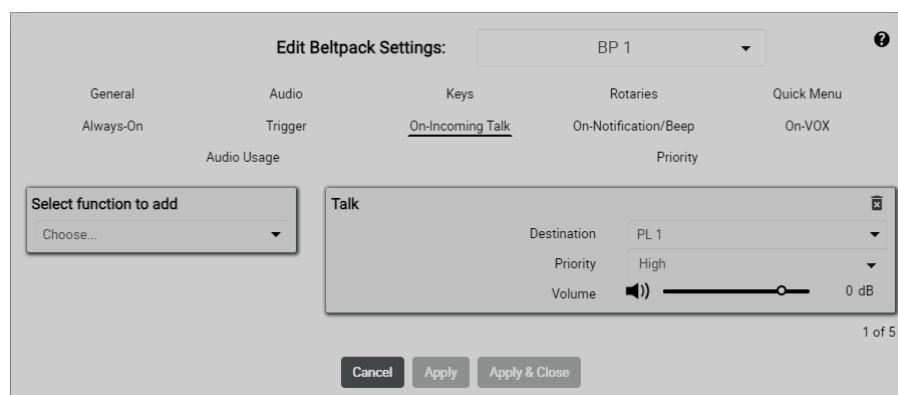


Figure 102: Edit (Beltpacks) – On-Incoming Talk

Function to add	In total, the following functions are available, which are activated when and as long as someone is talking to the Beltpack:	
	Talk	Call to the selected destination.
	Talk - Always Listen	Call to the selected destination and permanently listen to the selected source.
	Talk & Listen	Call to the selected destination and listen to the selected source.
	Listen	Forces the selected source microphone to open and listen to the source.
	Monitor	Listens to the selected source only if it has its own microphone open.
	Set Trigger	Switching of (physical/virtual) GPIO outputs.
	Notification/Beep	Triggering a notification / beep.
Destination /Source	Defines the destination (or source) depending on the selected function:	
	Talk Listen Monitor	Destination (or source) of calls: - present Partylines - present Beltpacks - present Audio Channels
	Talk - Always Listen Talk & Listen	Destination and source of calls: present Partylines
	Set Trigger	GPIO outputs to be switched (physically/virtual): - Define Output/Virtual Trigger - Create Virtual Trigger
	Notification/ Beep	Destination of beep-tones / voice-notifications: - present Partylines - present Beltpacks - present Audio Channels
Priority ^{*1}	Defines the priority (<i>Standard</i> , High, Low) of the function and the resulting dimming of the audio signal.	
Volume ^{*1,*2}	Volume adjustment.	
	A function can be deleted by clicking the trash button.	

^{*1} not if Function = **Set Trigger**, **Notification/Beep**

^{*2} not if Function = **Talk** and Destination = **Audio Channels** > **Ouput Audio Channels**

On-Notification/Beep

Up to 5 functions can be configured, which are automatically activated when and as long as someone "beeps" the Beltpack.

This view is only available in the system modes **Standalone/AES67** and **Standalone/Link**.

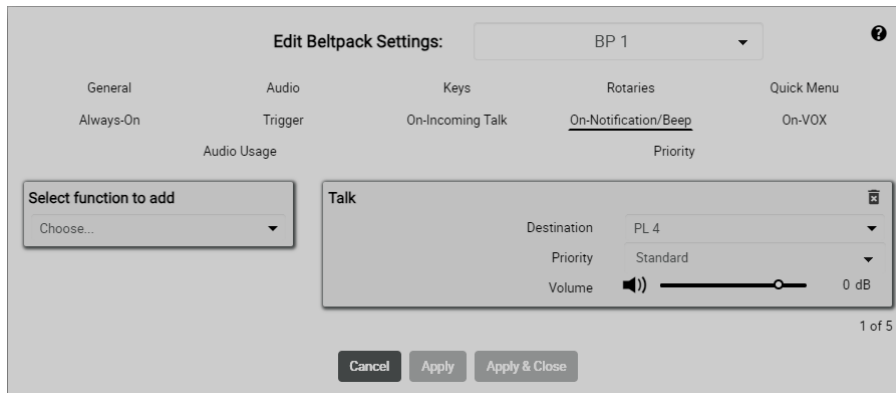


Figure 103: Edit (Beltpacks) – On-Notification/Beep

Function to add	In total, the following functions are available, which are activated when and as long as someone "beeps" the Beltpack:	
	Talk	Call to the selected destination.
	Talk - Always Listen	Call to the selected destination and permanently listen to the selected source.
	Talk & Listen	Call to the selected destination and listen to the selected source.
	Listen	Forces the selected source microphone to open and listen to the source.
	Monitor	Listens to the selected source only if it has its own microphone open.
	Set Trigger	Switching of (physical/virtual) GPIO outputs.
	Notification/Beep	Triggering a notification / beep.
Destination /Source	Defines the destination (or source) depending on the selected function:	
	Talk Listen Monitor	Destination (or source) of calls: - present Partylines - present Beltpacks - present Audio Channels
	Talk - Always Listen Talk & Listen	Destination and source of calls: present Partylines
	Set Trigger	GPIO outputs to be switched (physically/virtual): - Define Output/Virtual Trigger - Create Virtual Trigger
	Notification/Beep	Destination of beep-tones / voice-notifications: - present Partylines - present Beltpacks - present Audio Channels
Priority ^{*1}	Defines the priority (<i>Standard</i> , High, Low) of the function and the resulting dimming of the audio signal.	
Volume ^{*1,*2}	Volume adjustment.	
	A function can be deleted by clicking the trash button.	

^{*1} not if Function = **Set Trigger**, **Notification/Beep**

^{*2} not if Function = **Talk** and Destination = **Audio Channels** > **Output Audio Channels**

On-VOX

Up to 5 functions can be configured, that are automatically activated when and as long as the [Microphone VOX](#) is triggered. The VOX is a switch that operates when a sound is detected and exceeds the defined threshold. This view is only available in the system modes **Standalone/AES67** and **Standalone/Link**.



Please note that in the '[Audio](#)' section the '**Microphone VOX**' function must be activated. The adjustment of the microphone VOX parameters also takes place there.

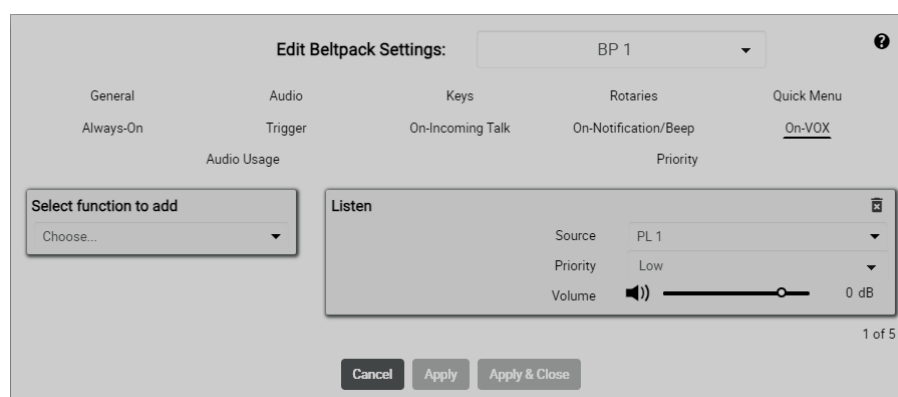


Figure 104: Edit (Beltpacks) – On-VOX

Function to add	In total, the following functions are available, which are activated when and as long as the Microphone VOX is triggered:	
	Talk	Call to the selected destination.
	Talk - Always Listen	Call to the selected destination and permanently listen to the selected source.
	Talk & Listen	Call to the selected destination and listen to the selected source.
	Listen	Forces the selected source microphone to open and listen to the source.
	Monitor	Listens to the selected source only if it has its own microphone open.
	Set Trigger	Switching of (physical/virtual) GPIO outputs.
	Notification/Beep	Triggering a notification / beep.
Destination /Source	Defines the destination (or source) depending on the selected function:	
	Talk Listen Monitor	Destination (or source) of calls: - present Partylines - present Beltpacks - present Audio Channels
	Talk - Always Listen Talk & Listen	Destination and source of calls: present Partylines
	Set Trigger	GPIO outputs to be switched (physically/virtual): - Define Output/Virtual Trigger - Create Virtual Trigger
	Notification/Beep	Destination of beep-tones / voice-notifications: - present Partylines - present Beltpacks - present Audio Channels
Priority ^{*1}	Defines the priority (<i>Standard</i> , High, Low) of the function and the resulting dimming of the audio signal.	
Volume ^{*1,*2}	Volume adjustment.	
	A function can be deleted by clicking the trash button.	

^{*1} not if Function = **Set Trigger**, **Notification/Beep**

^{*2} not if Function = **Talk** and Destination = **Audio Channels** > **Ouput Audio Channels**

Audio Usage

This view is only available in the system modes **Standalone/AES67** and **Standalone/Link**.

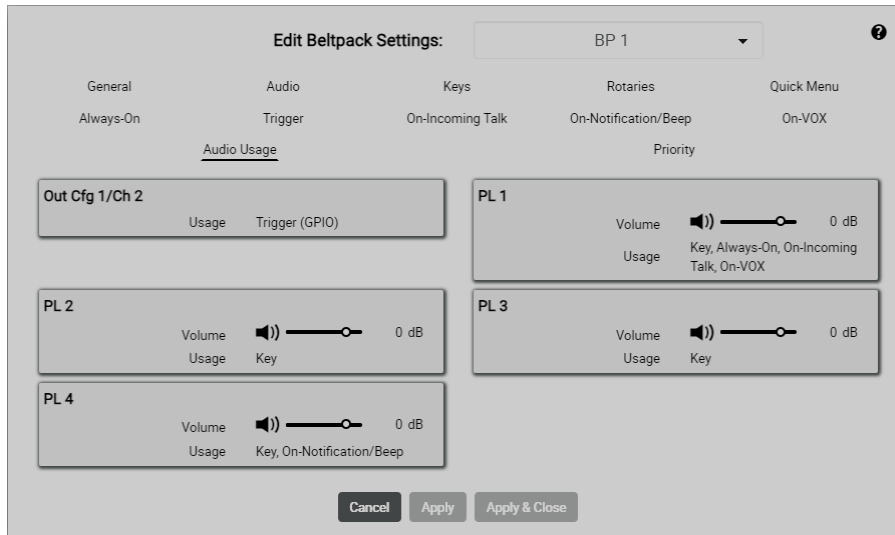


Figure 105: Edit (Beltpacks) – Audio Usage

Listing of all audio channels that can be received by the Beltpack.
With the Volume slider and the Mute button, the volume can be adjusted or muted.

Priority

New in 3.3

Belpacks can now be prioritized in the whole Network Space by giving them a default priority. Furthermore, each Belpack can have special priorities on individual Bolero Antennas. These priorities can be configured here as well as in the Profile and Antenna configuration view (⇒ [Edit \(Network Devices\) > Priority](#)).

Higher priority Belpacks will forcefully disconnect lower priority Belpacks if there is no free space on an Antenna, thus helping higher priority Belpacks to maintain a connection to the network in peak load situations.

Belpack Priorities can be enabled and disabled for the whole Network Space in the Network Space settings view in the Web Interface.

(⇒ [Action-Button \(Network Devices\) > Edit Network Space > General Settings > Belpack Priority](#))

Note that the maximum number of Belpacks on 2.4G Antennas is reduced from 8 to 7 when the Belpack Priority is enabled.

Note that a Belpack Priority license (part of the **Pro 2 License (BP2)** bundle) is needed to use Belpack priorities.

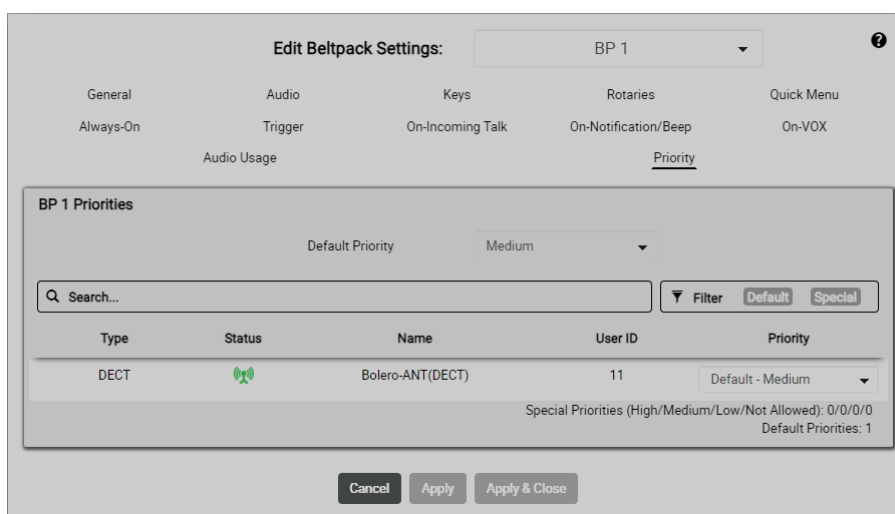


Figure 106: Edit (Belpacks) – Priority

A list of all (currently online) Antennas that shows the priority level for the selected Belpack.

Default Priority	Selection of the default priority for the selected Belpack.	
Filter	Show only Antennas with a Default or Special priority setting for the selected Belpack.	
Priority	Selection of the Belpack priority on the corresponding Antenna:	
	Not Allowed	The Belpack is not able to connect to this Antenna.
	Low, Medium	The Belpack is forced to move to another Antenna if the Antenna is full, all other connected Belpacks have a higher priority and a Belpack with higher priority tries to connect. Belpacks with the same priority are not able to connect if the antenna is fully occupied.
	High	If the Antenna is fully occupied, the Belpack will force another Belpack with lower priority to move to another Antenna or disconnect. Only when all other Belpacks connected have also high priority the Belpack is not able to connect

2.3.4.3 Info (Beltpacks)

Clicking the  Info symbol shows information of the respective device. The dialog can be closed by pressing the ESC key.

	Opens the online help.
Close	Closes the information.



Figure 107: Info (Beltpacks) – General

General Information

Name	Name of the Beltpack.
User ID	Unique ID of the Beltpacks
Type	Type of device (DECT, 2.4GHz, S-Beltpack)
Profile	Name of the active profile
Connection Status	State of the network connection
Serial	Serial number of the Beltpack
Last Connected	Shows the date and time when the Beltpack was last logged on.

Battery Information

Charge Status	State of charge in percent and mAh.
USB Power	Shows whether the Beltpack is supplied with power via the USB interface.
Temperature	Temperature in °C (too cold!, cold, normal, warm, too hot!).
Battery Health	Battery status as percentage of the original maximum capacity.
Capacity Max	Maximum capacity of the battery.

2.3.5 Profiles (User Rights)

The **Profiles** window lists all available Beltpack profiles of the active network space.

Profiles are a collection of Beltpack parameters. To achieve a fast and easy configuration, profiles can be applied to multiple Beltpacks without setting parameters manually in each Beltpack.

Change of a profile parameter will immediately update this parameter in all Beltpacks assigned to this profile.

Allowing the admin to decide if a Beltpack user has the ability to change certain parameters, the profiles also implement user rights.

The **Profiles** window features the following functions:

- List of all available Profiles
- Creation of Profiles
- Changing of Profile settings
- Defining of user rights

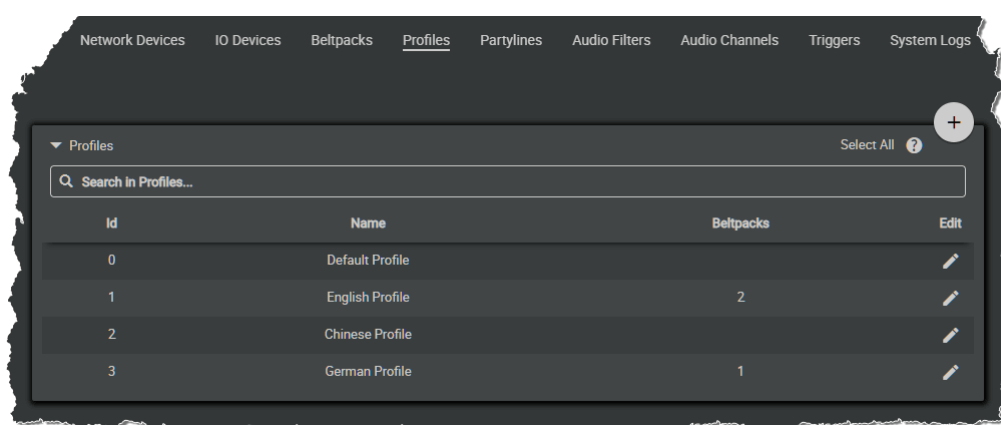


Figure 108: Web Interface – Profiles

Id	Shows unique ID of the Profile.
Name	Name of the Profile.
BP	Amount of Beltpacks using this Profile.
Edit	Button to edit the Profile. 

2.3.5.1 Action Button (Profiles)

Clicking the  action button offers functions to manage Beltpack profiles.
The dialog can be closed by pressing the ESC key.

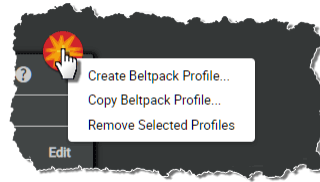


Figure 109: Action Button (Profiles)

Create Beltpack Profile

This function allows creating a new Beltpack profile. All parameters are the same as editing in the Beltpack.
(⇒ [Edit \(Beltpacks\)](#))

Copy Beltpack Profile

This function allows creating a new Beltpack Profile by using the selected Beltpack Profile as template.

Remove Selected Profiles

This function deletes the selected Profile after confirmation.

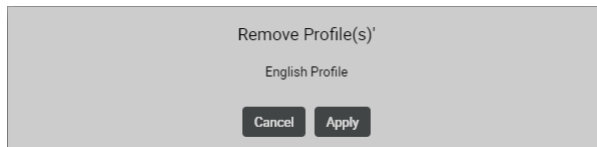


Figure 110: Remove Selected Profiles

2.3.5.2 Edit (Profile)

Clicking the  Edit symbol opens a dialog to edit profiles on several pages. The selected page is underlined. The dialog can be closed by pressing the ESC key without saving any changes. In the drop-down list at the top, it is possible to directly switch to the 'Edit Profiles' view of another Profile.

	Opens the online help.
Cancel	Discards all changes.
Apply	Stores all changes.
Apply & Close	Stores all changes and closes the window.



Edit Profile: Default Profile

General

Profile Name: Default Profile
 Profile ID: 0
 Headset Type: Auto
 Display Mode: Standard
 Language: English
 Silent Mode: ☐
 Show on Reply: ☒
 Partyline Reply: Reply To Caller

Name

Name: BP
 Update Name: ☐
 Append ID: ☒

Notifications

	Light	Vibrate	Beep	Voice
Call:	☒	☐	☐	N/A
Notification/Beep:	☒	☒	☒	N/A
Info/Low Battery:	☒	☒	☒	☒
Out of Range:	N/A	☒	☐	☒
Volume Keys:	N/A	☐	☒	☐
Beep Notification	<input type="range"/>			-12 dB
Voice Notification	<input type="range"/>			-6 dB

Audio Replay

Recording Time: 3 s
 Store Time: 60 min

Timeout

Volume Change Timeout: 3 s
 Menu Timeout: 120 s

Display Brightness

Brightness Mode: Medium

Settings

Display	<input type="range"/>	60 %
Display Dim	<input type="range"/>	20 %
Display Dim Timer	<input type="range"/>	20 s
Display Timeout	<input type="range"/>	Off
Keys	<input type="range"/>	60 %
Keys Dim	<input type="range"/>	20 %
Keys Dim Timer	<input type="range"/>	20 s
Keys Timeout	<input type="range"/>	Off
Call LED Brightness	<input type="range"/>	40 %
Status LED Brightness	<input type="range"/>	60 %

Registration

Allow Multi-Registration: ☒
 Automatic Net Change: ☐

Buttons: Cancel, Apply, Apply & Close

Figure 111: Edit (Profiles)

The parameters are the same as those available when editing Beltpack settings.
 (⇒ [Features in Detail > Web Interface > Beltpacks > Edit \(Beltpacks\)](#))

	Changes to a profile in the web interface are immediately applied to all Beltpacks that use the edited profile, regardless of the previous setting on the Beltpack. Only the changed profile settings (highlighted in blue) are applied, while all other settings remain unaffected. Some settings are grouped (e.g. Keys, Always-On, Rotaries, etc.), meaning they can only be edited together.
---	--

The following entries are an exception:

General

Profil Name	Name of the Profile.
Profil Id	Unique ID of the Profile.

Name

Name	Name of the Beltpacks.
Update Name	If this function is activated, the entered Name is set for all Beltpacks using this profile.
Append ID	If this function is activated, an incremental ID of the Beltpack is appended to the name.

Furthermore the user rights can be edit for parameters. Click the symbol to toggle the status:

	The Beltpack user has the user right to use this function.
	The Beltpack user has <i>no</i> right to use this function. This function is hidden in the Beltpack.

User Rights

In the **User Rights** view, access to additional menu items can be restricted.

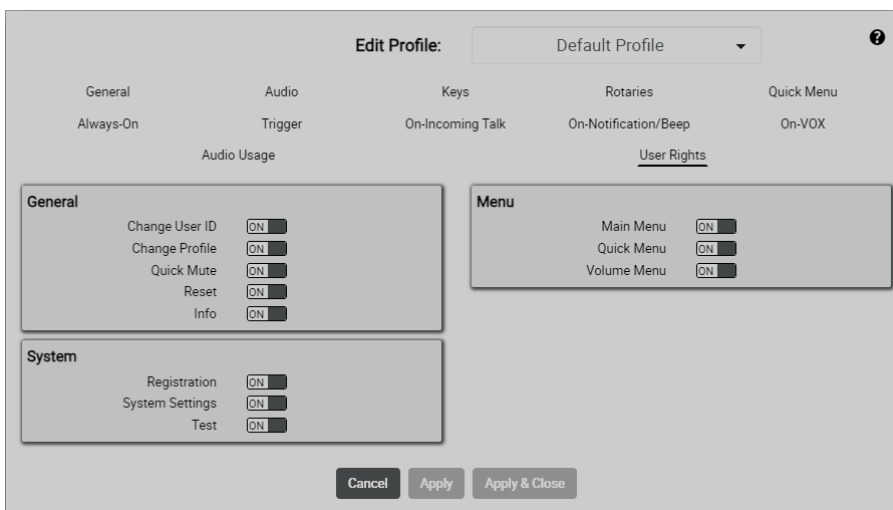


Figure 112: Edit (Profiles) – User Rights

General

Change User ID	User rights to change user IDs: 'General Settings > Name & ID > ID'.
Change Profile	User rights to change the Beltpack profile: 'General Settings > Profile'.
Quick Mute	User rights to allow quick mute in the Volume Change menu.
Reset	User rights to access the menu 'Service > Reset'.
info	User rights to access the menu 'Service > Information'.

System

Registration	User rights to access the menu 'Registration'.
System Settings	User rights to access all sub-menus in the menu 'Admin' (except Registration Mode).
Test	User rights to access the menu 'Service > Test'.

Menu

Main Menu	User rights to access the main menu. (The message Menu locked is displayed.)
Quick Menu	User rights to access the Quick Menu.
Volume Menu	User rights to access the volume adjustment.

2.3.6 Partylines

The **Partyline** view lists all available Partylines of the active network space.
This view is only available in the system modes '**Standalone/AES67**' and '**Standalone/Link**'.

This view allows creating and editing up to 12 Partylines in the active network space.
If a **Pro 1 License** is available in the Network Space, the number of subscriber lines increases to 32.

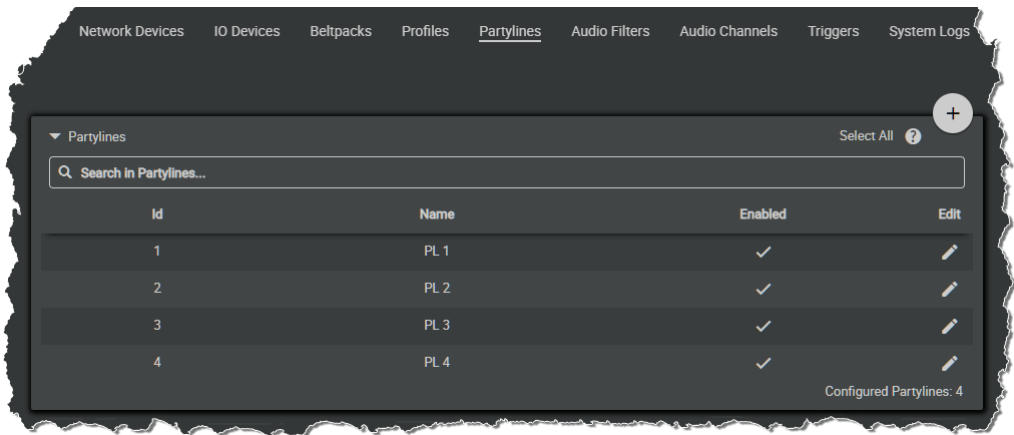


Figure 113: Web Interface – Partylines

Id	Shows unique ID of the Partyline.		
Name	Name of the Partyline.		
Enabled	Displays the activity status of the Partyline. Disabled Partylines are not shown on the Beltpacks.	enabled	✓
		disabled	✗
Edit	Button to edit the Partyline.		✎

2.3.6.1 Action Button (Partylines)

Clicking the  action button offers functions to manage Partylines.
The dialog can be closed by pressing the ESC key.



Figure 114: Action Button (Partylines)

Create Partyline

This function allows adding a new Partyline to the list.
A name and an ID are required for the creation. (The next available ID is displayed by default.)



Figure 115: Create Partyline

Remove selected Partylines

This function allows removing the selected Partyline(s) from the list.
A dialog is opened to confirm the action.

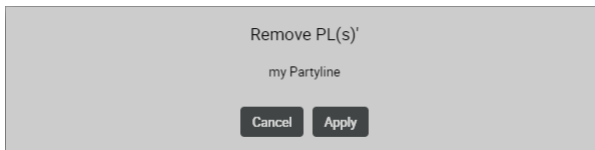


Figure 116: Remove selected Partylines

2.3.6.2 Edit (Partylines)

Clicking the  Edit symbol opens a dialog to edit Partylines.
The dialog can be closed by pressing the ESC key without saving any changes.
In the drop-down list at the top, it is possible to directly switch to the 'Edit Partylines' view of another Partyline.

	Opens the online help.
Cancel	Discards all changes.
Apply	Stores all changes.
Apply & Close	Stores all changes and closes the window.

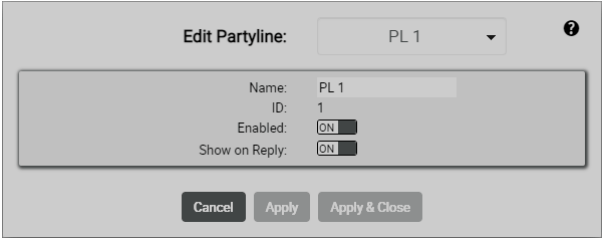


Figure 117: Edit (Partylines)

Name	Name of the Partyline.
Id	Displays the unique ID of the Partyline. (fixed, read only)
Enabled	Switch to enable (ON) the Partyline.
Show on Reply	Switch to enable (ON) the Partyline for the Reply function. (When the Beltpack's Reply key is pressed, the Beltpack speaks into the Partyline that spoke last).

2.3.7 Audio Filters

The 'Audio Filters' view allows creating and editing audio filters that can be assigned to the Beltpacks to adjust the audio characteristics of headphones and microphones. The audio filters do not affect Bluetooth audio and the line input.

The selection / activation of the audio filters is done in the Beltpack or in the web interface:

- Beltpack: Main menu > Audio > Enhancements > [Microphone/Headphone Filter](#)
- Web-Interface: Beltpacks > Edit (Beltpacks) > Audio > Audio Enhancements > [Headset Microphone/Speaker Filter](#)

To enable this feature, a Pro 1 [License](#) (P1) is required in the Network Space.

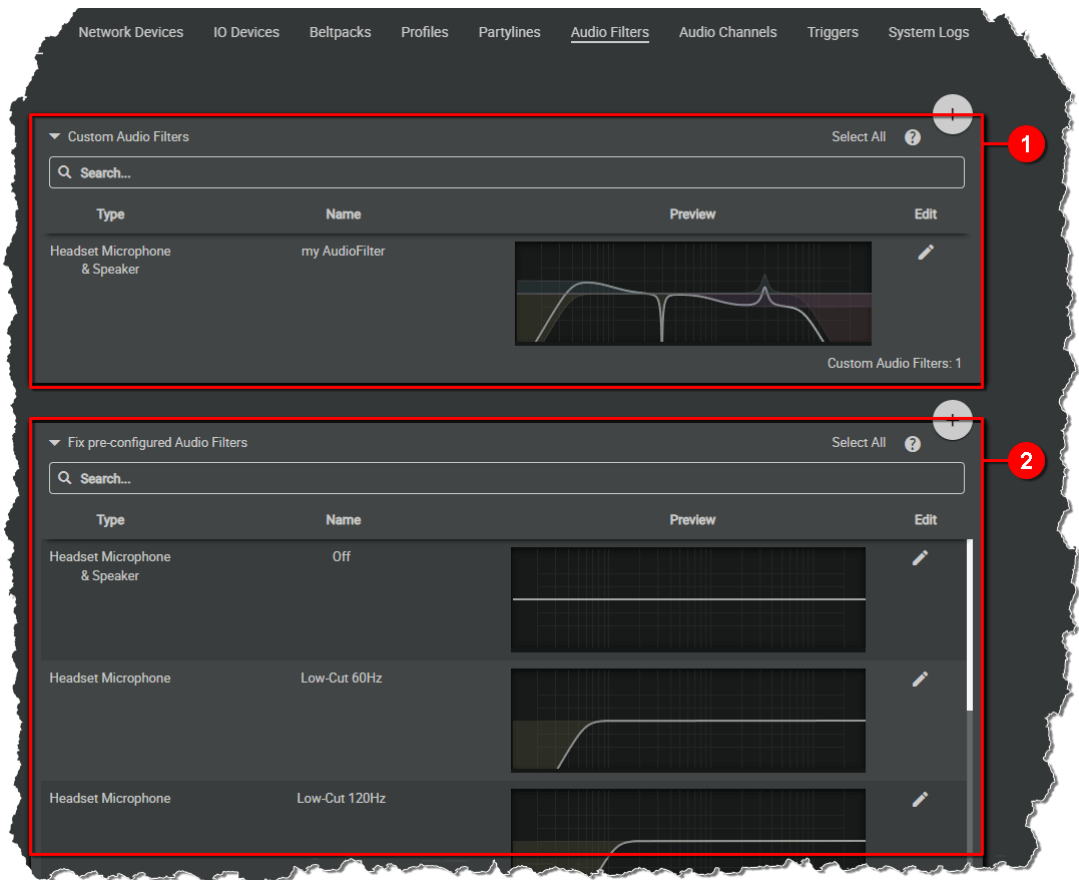


Figure 118: Web Interface – Audio Filters

Type	Indicates whether the audio filter applies to a microphone, headphones, or both.
Name	Name of the audio filter.
Preview	Graphical view of the audio filter.
Edit	Button to edit the audio filter.

1

Custom Audio Filters

Filters with up to 10 bands can be created, with 6 filter types to choose from:

Parametric	Equalizer for attenuation or amplification of the level at a frequency with adjustable quality.
High-Pass / Low-Pass	First-order high-pass / low-pass filter that reduces the level of all frequencies below / above the cutoff frequency (-3 dB).
High-Shelve / Low-Shelve	Filter that attenuates or amplifies the level above / below the cutoff frequency by an adjustable value.
Notch	Narrowband bandstop for filtering out a narrow frequency range with adjustable quality.

2

Fix Pre-configured Audio Filters

There are 20 audio filters available, which are tuned to Riedel headsets, among others. The profiles are defined separately for microphones and/or headphones.

Profile Name	for Microphones	for Headphones	for Microphones & Headphones
Off	-	-	x
Low-Cut 60 / 120 Hz	x / x	-	-
AIR Headset	Electret / Dynamisch	-	-
PRO Headset	Electret / Dynamisch	-	-
MAX Headset	Electret / Dynamisch	-	-
RUN Headset	Electret	-	-
Low-Cut 80 / 150 Hz	-	x / x	-
AIR Headset / Air Headset +	-	x / x	-
PRO Headset / PRO Headset +	-	x / x	-
MAX Headset / MAX Headset +	-	x / x	-
RUN Headset / RUN Headset +	-	x / x	-

2.3.7.1 Action-Button (Audio Filters)

Clicking the  action button offers functions to manage the audio filters.
The dialog can be closed by pressing the ESC key.

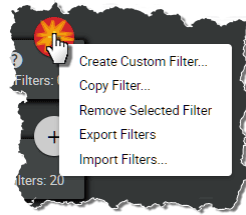


Figure 119: Action Button (user-defined audio filter)

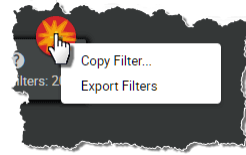


Figure 120: Action Button (static audio filter)

Create Custom Filter

This function allows you to create a new audio filter. The parameters are the same as those available when editing an audio filter (⇒ [Edit \(Audio Filters\)](#)).

Copy Filter...

Opens the audio filter previously selected from the list as a template for creating a custom filter.

Remove Selected Filter

Removes the previously selected audio filters from the list.
A dialog opens to confirm the action.

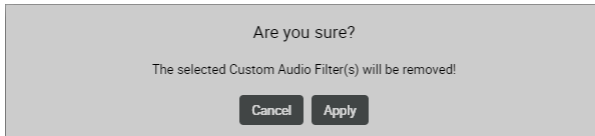


Figure 121: Remove Selected Filter

Export Filters

This function allows saving the previously selected audio filters to a ".bin" file.
After confirmation, the configuration is saved in the default download folder of the browser. The file name is composed of the Net name, the addition "AudioFilters", and the current date and time.

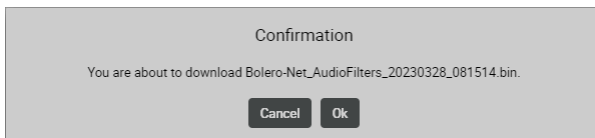


Figure 122: Export Filters

Import Filters

This function loads previously saved audio filters as user-defined audio filter. After calling this function, the dialog for selecting the desired ".bin" file opens. The audio filter is loaded into the Custom Audio Filters section without prompting.

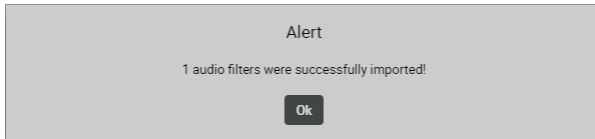


Figure 123: Import Filters

2.3.7.2 Edit (Audio Filters)

Clicking the  Edit symbol opens a dialog to edit the audio filters.
The dialog can be closed by pressing the ESC key without saving any changes.
In the drop-down list at the top, it is possible to directly switch to the 'Edit Audio Filters' view of another audio filter.

	Opens the online help.
Cancel	Discards all changes.
Apply	Stores all changes.
Apply & Close	Stores all changes and closes the window.

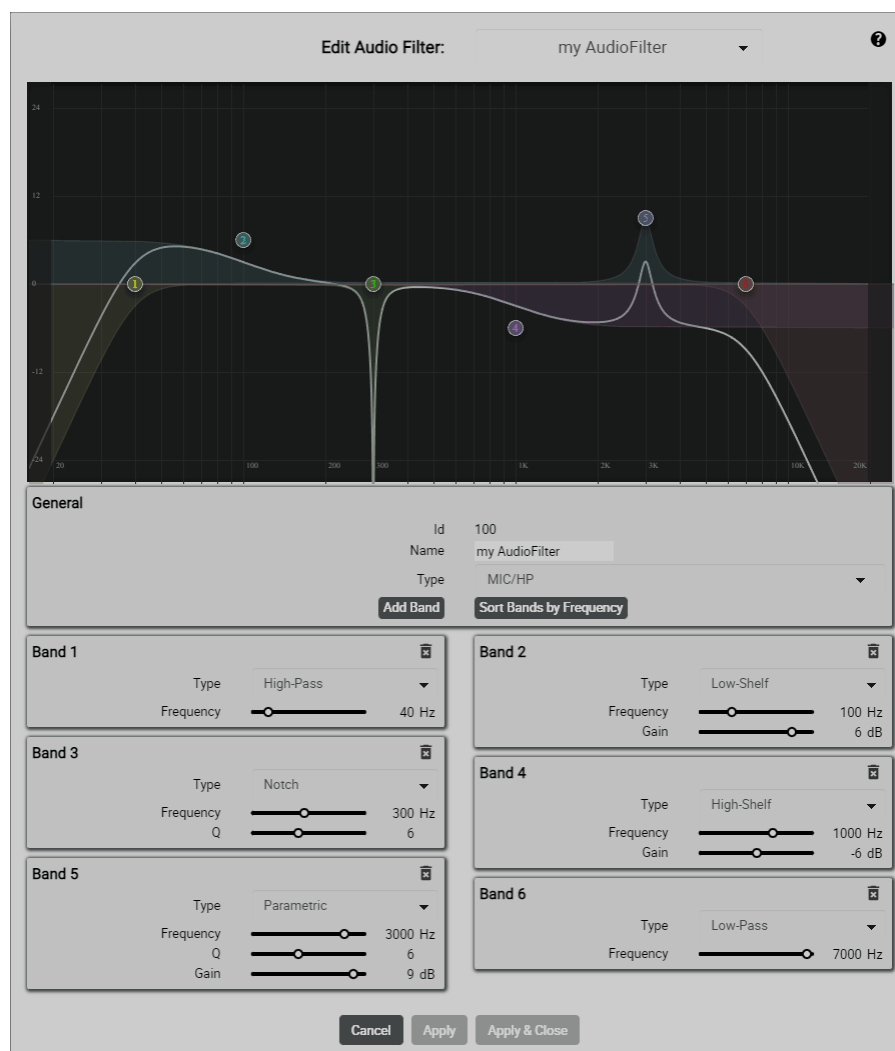


Abbildung 124: Edit (Audio Filters)

General

ID	Display of the ID automatically generated during creation.
Name	Field for entering the name of the audio filter.
Type	Filter enabled for Headphone, Microphone or both signal paths.
Add Band	Creates a new filter band in this audio filter. A maximum of 10 filter bands can be created per audio filter.
Sort Bands by Frequency	Swaps the order of the filter bands so that they are arranged according to their frequency.

Band 1 ... 10

Filters with up to 10 bands can be created, with 6 filter types to choose from:

Type	Parametric	Equalizer for attenuation or amplification of the level at a frequency with adjustable quality.
	Notch	Narrowband bandstop for filtering out a narrow frequency range with adjustable quality.
	High-Pass	First-order high-pass filter that reduces the level of all frequencies below the cutoff frequency (-3 dB).
	Low-Pass	First-order low-pass filter that reduces the level of all frequencies above the cutoff frequency (-3 dB).
	High-Shelve	Filter that attenuates or amplifies the level above the cutoff frequency by an adjustable value.
	Low-Shelve	Filter that attenuates or amplifies the level below the cutoff frequency by an adjustable value.
Frequency	Frequency of the filter. (20 ... 7999 Hz)	
Q ^{*1}	Quality of the filter. (0.1 ... 15)	
Gain ^{*2}	Gain factor of the filter. (-24 ... +12 dB)	

^{*1} only with 'Parametric' and 'Notch' type

^{*2} only with 'Parametric' and 'Low/High-Shelve' type

2.3.8 Audio Channels

The **Audio Channels** view lists all available audio channels of the active network space.

This view is only available in the system modes '**Standalone/AES67**' and '**Standalone/Link**'.

Audio Channels need to be enabled in the **IO Devices** view first.

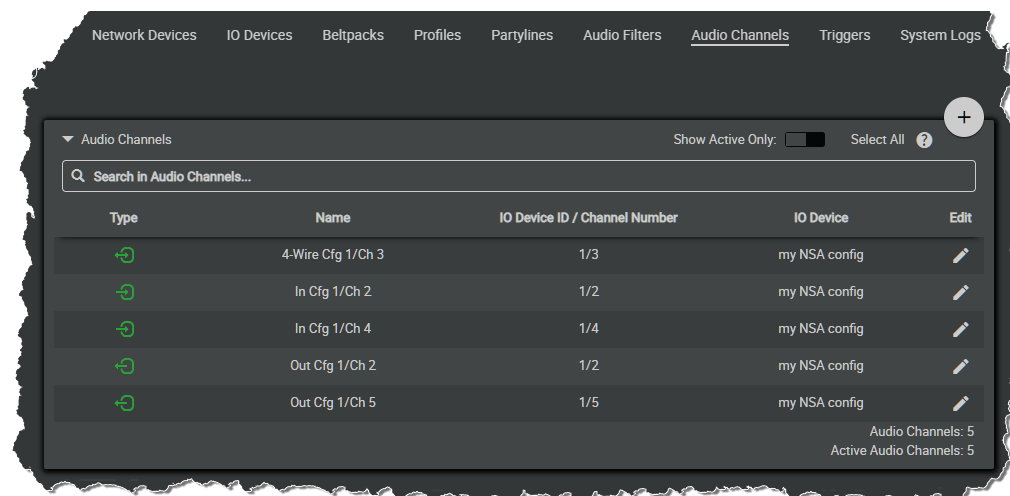


Figure 125: Web Interface – Audio Channels

Show Active Only: ☐	When the switch is enabled (On), only Audio Channels that meet the following conditions are displayed:		
	- The Audio Channel must be enabled in the Edit dialog (On) (⇒ Edit (Audio channels) > "General" tab > "General" section: Enabled). - The Audio Channel must have an active audio signal.		
Q Search in Audio Channels...	Only Audio-Channels that contain the search text in the Name , IO-Device-ID/Channel-Number or IO-Device field are displayed (case sensitivity is ignored).		
Type	Indicates the type of the Audio Channel. If green, the channel is active.	Input Output 4-Wire	
Name	Name of the Audio Channel.		
IO Device ID / Channel Number	ID of the IO Device / Number of the Audio Channel.		
IO Device	Name of the IO Device.		
Edit	Button to edit the Partyline.		

2.3.8.1 Action Button (Audio Channels)

Clicking the  action button offers functions to manage audio channels.
The dialog can be closed by pressing the ESC key.

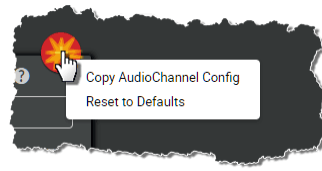


Figure 126: Action Button (Audio Channels)

Copy Audio Channels Config

This function allows copying the configuration of the selected audio channel to another audio channel.

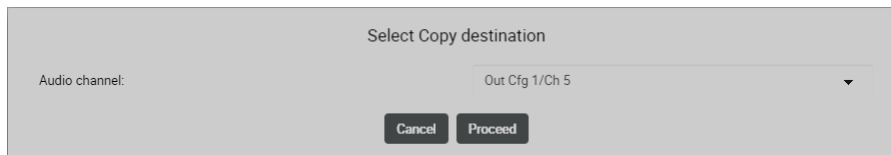


Figure 127: Copy Audio Channels Config

Reset to Defaults

This function allows resetting the values of the selected audio channels to the configurations default values.

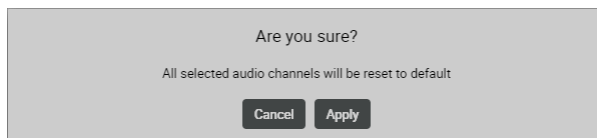


Figure 128: Reset to Defaults

2.3.8.2 Edit (Audio Channels)

Clicking the  Edit symbol opens a dialog to edit audio channels on several pages. The selected page is underlined. The dialog can be closed by pressing the ESC key without saving any changes. In the drop-down list at the top, it is possible to directly switch to the 'Edit Audio Channels' view of another Audio Channel.

	Opens the online help.
Cancel	Discards all changes.
Apply	Stores all changes.
Apply & Close	Stores all changes and closes the window.

General

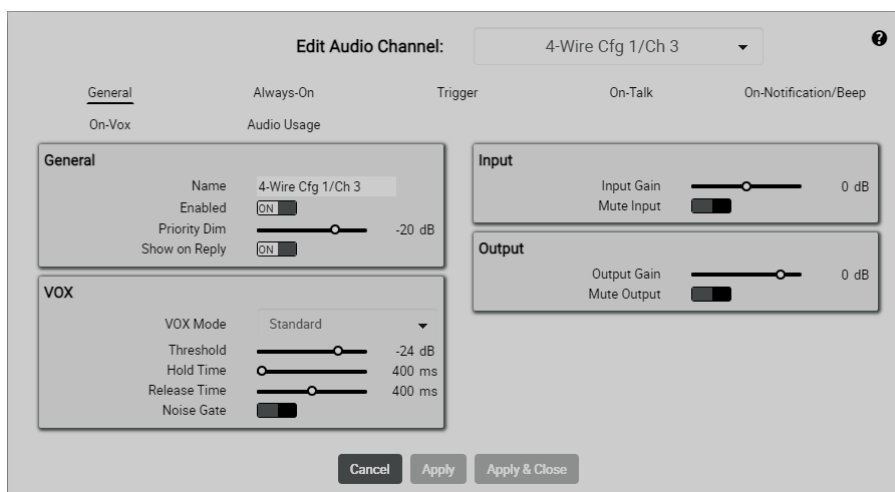


Figure 129: Edit (Audio Channels) – General

General

Name	User configurable name of the Audio Channel.
Enabled	Switch to enable (on) or disable the Audio Channel. Disabled Audio Channels can be hidden using the 'Show Active only' switch on the 'Audio Channels' page. (⇒ Audio Channels)
Priority Dim ^{*1}	Slider to adjust the dim level of priority calls: Mute, -72 ... -20 ... 0 dB
Show on Reply	Switch to activate (ON) the audio channel for the Reply function. (When the Beltpack's Reply button is pressed, the Beltpack speaks into the audio channel that spoke last).

^{*1} audio outputs and 4-wire only

VOX

The VOX or voice activation function is one of the most useful features.

The VOX is a switch that operates when a sound is detected at the audio inputs and 4-wire and exceeds the defined threshold.

The 'VOX' section is only available for audio inputs and 4-wire.

VOX Mode	Off: The VOX functionality is turned off. The audio signal is always going through. Standard: The VOX functionality is turned on. The audio signal is switched through depending on the configurable parameters Threshold , Hold Time and Release Time .
Threshold	Slider to define the audio level that triggers the VOX. The Off threshold is fix 3dB below this adjusted threshold.
Hold Time	Slider to define the amount of time the VOX remains engaged during brief speech pauses. This also means the last several seconds of each audio transmission is always silence.
Release Time	Slider to set the time period for the microphone to change from open to fully closed.
Noise Gate	The audio is only <u>forwarded</u> to the system when the VOX switch is active.

Input

This function is only available for audio inputs and 4-wire.

Input Gain	Slider to adjust the input gain: -12 ... 0 ... +12 dB
Mute Input	Slider to mute the input signal.

Output

This function is only available for audio outputs and 4-wire.

Output Gain	Slider to adjust the output gain: Mute: -60 ... 0 ... +12 dB
Mute Output	Slider to mute the output signal.

Always-On

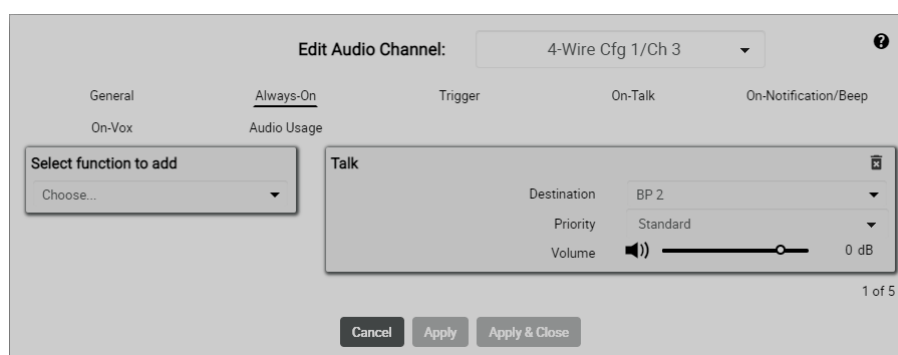


Figure 130: Edit (Audio Channels) – Always On

Function to add	Up to 5 functions can be configured, that are permanently activated.	
	Talk *1	Call to the selected destination.
	Talk - Always Listen *1, *2	Call to the selected destination and permanently listen to the selected source.
	Talk & Listen *1, *2	Call to the selected destination and listen to the selected source.
	Listen *2	Forces the selected source microphone to open and listen to the source.
	Monitor *2	Listens to the selected source only if it has its own microphone open.
	Set Trigger	Switching of (physical/virtual) GPIO outputs.
Destination /Source	Defines the destination (or source) depending on the selected function:	
	• Talk • Listen • Monitor	Destination (or source) of calls: • present Partylines • present Beltpacks • present Audio Channels
	• Talk - Always Listen • Talk & Listen	Destination and source of calls: • present Partylines
	• Set Trigger	GPIO outputs to be switched (physically/virtual): • Define Output/Virtual Trigger • Create Virtual Trigger
Priority *3	Defines the priority of the function and the resulting dimming of the audio signal: High: All <u>other</u> audio signals with lower priorities (Standard or Low) are dimmed at the sink when the audio signal with high priority is active. Low: This audio signal is dimmed when the sink receives an active audio signal with higher priority (Standard or High).	
Volume *3,*4	Volume adjustment.	
	A function can be deleted by clicking the trash button.	

^{*1} not at audio outputs

^{*2} not at audio inputs

^{*3} not if Function = **Set Trigger**

^{*4} not if Function = **Talk** and Destination = **Audio Channels** > **Output Audio Channels**

Trigger

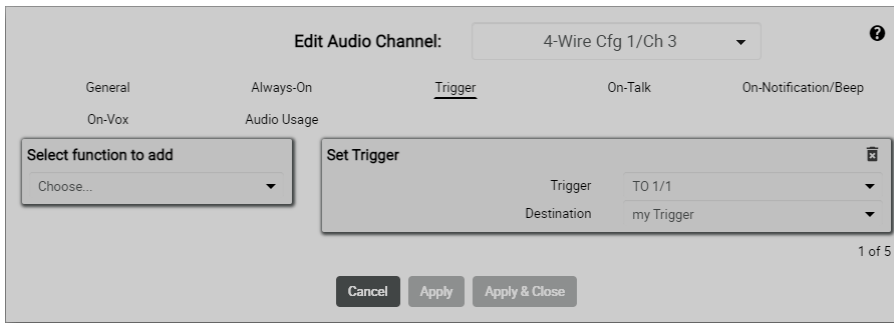


Figure 131: Edit (Audio Channels) – Trigger

Function to add	Up to 5 functions can be configured, that are activated when and as long as the selected Trigger is in "high" state.	
	Talk ^{*1}	Call to the selected destination.
	Talk - Always Listen ^{*1, *2}	Call to the selected destination and permanently listen to the selected source.
	Talk & Listen ^{*1, *2}	Call to the selected destination and listen to the selected source.
	Listen ^{*2}	Forces the selected source microphone to open and listen to the source.
	Monitor ^{*2}	Listens to the selected source only if it has its own microphone open.
	Set Trigger	Switching of (physical/virtual) GPIO outputs.
	Notification/Beep	Triggering a notification / beep.
Trigger	Defines the trigger (input/output/virtual) that causes activating the respective function.	
Destination /Source	Defines the destination (or source) depending on the selected function:	
	Talk Listen Monitor	Destination (or source) of calls: - present Partylines - present Beltpacks - present Audio Channels
	Talk - Always Listen Talk & Listen	Destination and source of calls: present Partylines
	Set Trigger	GPIO outputs to be switched (physically/virtual): - Define Output/Virtual Trigger - Create Virtual Trigger
	Notification/ Beep	Destination of beep-tones / voice-notifications: - present Partylines - present Beltpacks - present Audio Channels
Priority ^{*3}	Defines the priority of the function and the resulting dimming of the audio signal: High: All other audio signals with lower priorities (Standard or Low) are dimmed at the sink when the audio signal with high priority is active. Low: This audio signal is dimmed when the sink receives an active audio signal with higher priority (Standard or High).	
Volume ^{*3, *4}	Volume adjustment.	
	A function can be deleted by clicking the trash button.	

^{*1} not at audio outputs

^{*2} not at audio inputs

^{*3} not if Function = Set Trigger

^{*4} not if Function = Talk and Destination = Audio Channels > Output Audio Channels

On-Talk

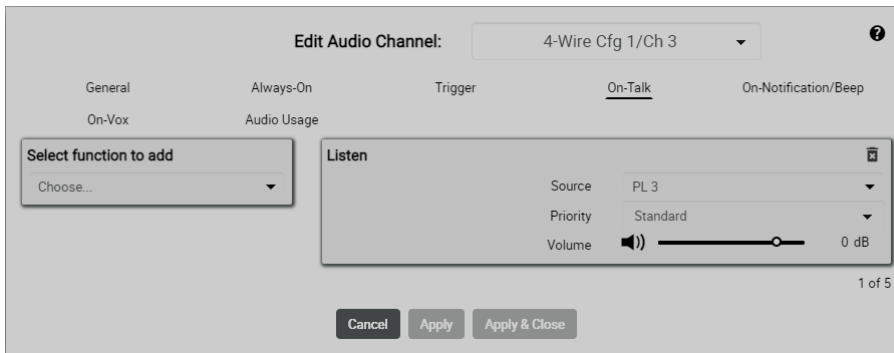


Figure 132: Edit (Audio Channels) – On-Talk

Function to add	Up to 5 functions can be configured, that are automatically activated when and as long as someone is talking to the Beltpack or Audio Channel (output and 4-wire channels only).	
	Talk ^{*1}	Call to the selected destination.
	Talk - Always Listen ^{*1, *2}	Call to the selected destination and permanently listen to the selected source.
	Talk & Listen ^{*1, *2}	Call to the selected destination and listen to the selected source.
	Listen ^{*2}	Forces the selected source microphone to open and listen to the source.
	Monitor ^{*2}	Listens to the selected source only if it has its own microphone open.
	Set Trigger	Switching of (physical/virtual) GPIO outputs.
	Notification/Beep	Triggering a notification / beep.
Destination /Source	Defines the destination (or source) depending on the selected function:	
	Talk Listen Monitor	Destination (or source) of calls: - present Partylines - present Beltpacks - present Audio Channels
	Talk - Always Listen Talk & Listen	Destination and source of calls: present Partylines
	Set Trigger	GPIO outputs to be switched (physically/virtual): - Define Output/Virtual Trigger - Create Virtual Trigger
	Notification/Beep	Destination of beep-tones / voice-notifications: - present Partylines - present Beltpacks - present Audio Channels
Priority ^{*3}	Defines the priority of the function and the resulting dimming of the audio signal: High: All <u>other</u> audio signals with lower priorities (Standard or Low) are dimmed at the sink when the audio signal with high priority is active. Low: <u>This</u> audio signal is dimmed when the sink receives an active audio signal with higher priority (Standard or High).	
Volume ^{*3, *4}	Volume adjustment.	
	A function can be deleted by clicking the trash button.	

^{*1} not at audio outputs

^{*2} not at audio inputs

^{*3} not if Function = Set Trigger

^{*4} not if Function = Talk and Destination = Audio Channels > Output Audio Channels

On-Notification/Beep

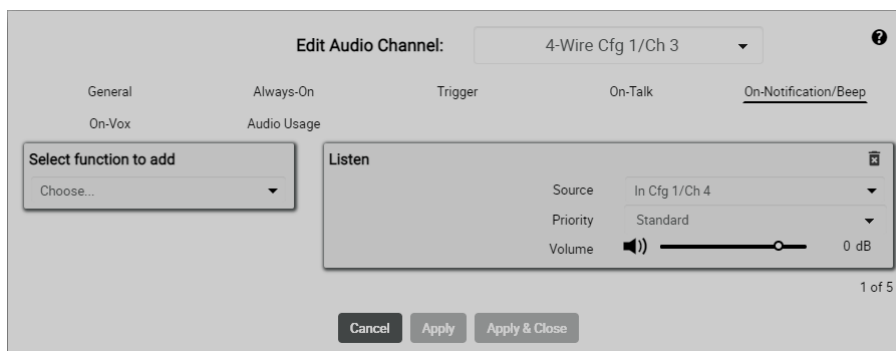


Figure 133: Edit (Audio Channels) – On-Notification/Beep

Function to add	Up to 5 functions can be configured, that are automatically activated when and as long as someone is "beeping" the Beltpack or Audio Channel (output and 4-wire channels only).	
	Talk ^{*1}	Call to the selected destination.
	Talk - Always Listen ^{*1, *2}	Call to the selected destination and permanently listen to the selected source.
	Talk & Listen ^{*1, *2}	Call to the selected destination and listen to the selected source.
	Listen ^{*2}	Forces the selected source microphone to open and listen to the source.
	Monitor ^{*2}	Listens to the selected source only if it has its own microphone open.
	Set Trigger	Switching of (physical/virtual) GPIO outputs.
Destination /Source	Triggers a notification / beep.	
	Defines the destination (or source) depending on the selected function:	
	Talk Listen Monitor	Destination (or source) of calls: - present Partylines - present Beltpacks - present Audio Channels
	Talk - Always Listen Talk & Listen	Destination and source of calls: present Partylines
	Set Trigger	GPIO outputs to be switched (physically/virtual): - Define Output/Virtual Trigger - Create Virtual Trigger
Priority ^{*3}	Notification/ Beep Destination of beep-tones / voice-notifications: - present Partylines - present Beltpacks - present Audio Channels	
	Defines the priority of the function and the resulting dimming of the audio signal: High: All <u>other</u> audio signals with lower priorities (Standard or Low) are dimmed at the sink when the audio signal with high priority is active. Low: <u>This</u> audio signal is dimmed when the sink receives an active audio signal with higher priority (Standard or High).	
Volume ^{*3, *4}	Volume adjustment.	
	A function can be deleted by clicking the trash button.	

^{*1} not at audio outputs

^{*2} not at audio inputs

^{*3} not if Function = Set Trigger

^{*4} not if Function = Talk and Destination = Audio Channels > Output Audio Channels

On-Vox

In this section, functions can be configured that are automatically activated when and as long as the [VOX](#) is triggered. The VOX is a switch that operates when a sound is detected and exceeds the defined threshold.



Please note that the 'VOX' function must be activated in the '[General](#)' section. The adjustment of the microphone VOX parameters also takes place there.

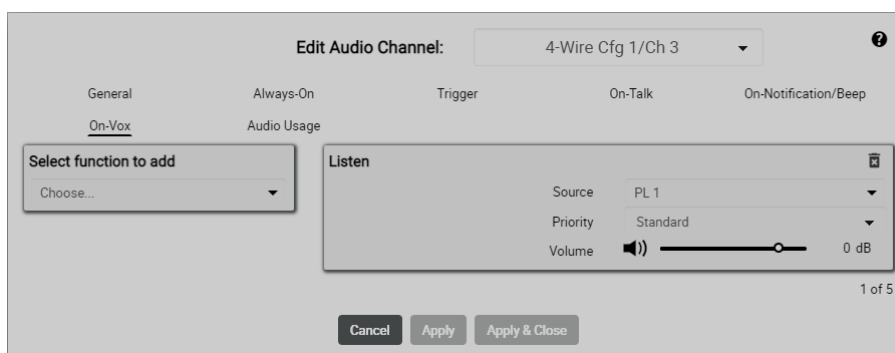


Figure 134: Edit (Audio Channels) – On-Vox

Function to add	Up to 5 functions can be configured, that are triggered by VOX.	
	Talk *1	Call to the selected destination.
	Talk - Always Listen *1, *2	Call to the selected destination and permanently listen to the selected source.
	Talk & Listen *1, *2	Call to the selected destination and listen to the selected source.
	Listen *2	Forces the selected source microphone to open and listen to the source.
	Monitor *2	Listens to the selected source only if it has its own microphone open.
	Set Trigger	Switching of (physical/virtual) GPIO outputs.
	Notification/Beep	Triggering a notification / beep.
Destination /Source	Defines the destination (or source) depending on the selected function:	
	Talk Listen Monitor	Destination (or source) of calls: - present Partylines - present Beltpacks - present Audio Channels
	Talk - Always Listen Talk & Listen	Destination and source of calls: present Partylines
	Set Trigger	GPIO outputs to be switched (physically/virtual): - Define Output/Virtual Trigger - Create Virtual Trigger
	Notification/Beep	Destination of beep-tones / voice-notifications: - present Partylines - present Beltpacks - present Audio Channels

Priority ^{*3}	Defines the priority of the function and the resulting dimming of the audio signal: High: All other audio signals with lower priorities (Standard or Low) are dimmed at the sink when the audio signal with high priority is active. Low: This audio signal is dimmed when the sink receives an active audio signal with higher priority (Standard or High).
Volume ^{*3,*4}	Volume adjustment.
	A function can be deleted by clicking the trash button.

- *1 not at audio outputs
- *2 not at audio inputs
- *3 not if Function = Set Trigger
- *4 not if Function = Talk and Destination = Audio Channels > Output Audio Channels

 Audio Usage



Figure 135: Edit (Audio Channels) – Audio Usage

Listing of all audio channels that can be received by the audio channel.
With the Volume slider and the Mute button, the volume can be adjusted or muted.

2.3.9 Triggers (GPIOs)

The Triggers view lists all available (GPIO) triggers of the active network space.

This view is only available in the system modes 'Standalone/AES67' and 'Standalone/Link'.

Virtual Triggers are 'logical' GPIOs which are not associated with a physical device.

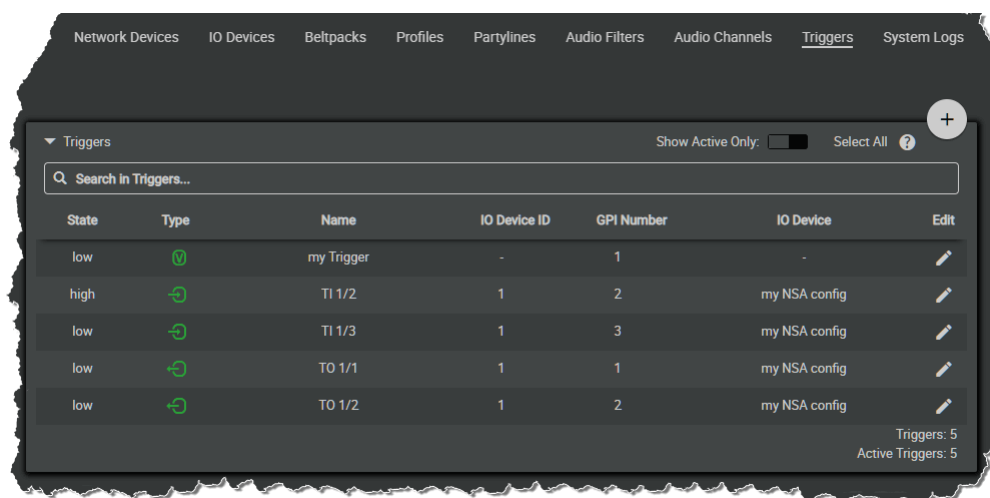


Figure 136: Web Interface – Triggers

Show Active Only: ☐	When the switch is enabled (On), only Triggers that meet the following conditions are displayed:		
	- The Trigger must be enabled in the Edit dialog (On) (⇒ Edit (Triggers): Enabled). - The trigger must be currently active.		
Search in Triggers...	Only Triggers that contain the search text in the Name , IO-Device-ID , GPI-Number or IO-Device field are displayed (case sensitivity is ignored).		
State	Indicates the state of the trigger.	not set (0)	low
		set (1)	high
		deactivated	-
Type	Indicates the type of the trigger. If green, the trigger is active.	input	
		output	
		virtual	
Name	Name of the trigger.		
IO Device ID	ID of the IO device at which the GPI interface is present.		
GPI Number	Number of the trigger at the respective IO device.		
IO Device	Name of the IO device at which the GPI interface is present.		
Edit	Button to edit the trigger.		

2.3.9.1 Action Button (Triggers)

Clicking the  action button offers functions to manage virtual triggers or triggers of IO devices. The dialog can be closed by pressing the ESC key.



Figure 137: Action Button (Triggers)

Create Virtual Trigger (GPIO)

This function allows adding a new Trigger to the list.

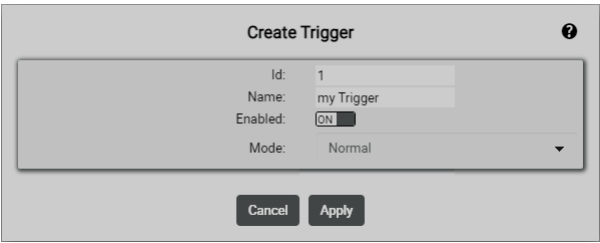


Figure 138: Create Virtual Trigger

Id	Unique ID of the Trigger. The next available ID is displayed by default.	
Name	Name of the Trigger.	
Enabled	Slider to activate the virtual Trigger.	
Mode	Normal	Usual Trigger that state is controlled by conditions.
	Force On	The state of the Trigger is forced on (1, high).
	Force Off	The state of the Trigger is forced off (0, low).

Remove Virtual Trigger (GPIO)

This function allows removing the selected Trigger(s) from the list. A dialog is opened to confirm the action.

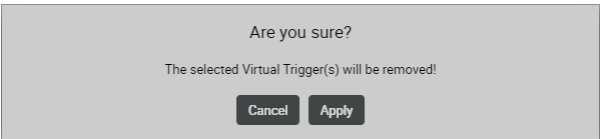


Figure 139: Remove Virtual Trigger

2.3.9.2 Edit (Triggers)

Clicking the  Edit symbol opens a dialog to edit triggers.
The dialog can be closed by pressing the ESC key without saving any changes.
In the drop-down list at the top, it is possible to directly switch to the 'Edit Trigger' view of another Trigger.

	Opens the online help.
Cancel	Discards all changes.
Apply	Stores all changes.
Apply & Close	Stores all changes and closes the window.

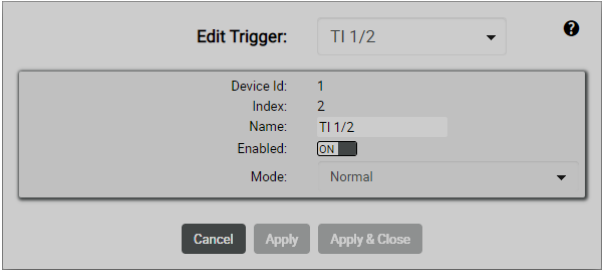


Figure 140: Edit (Triggers)

Device Id * ¹	Displays the unique ID of the IO device.		The ID is not adjustable.
Index * ¹	Displays the unique ID of the Trigger of the respective IO device.		
ID * ²	Displays the unique ID of the virtual trigger.		
Name	Field to edit the name of the Trigger.		
Enabled	Switch to enable (on) or disable the Trigger. Disabled Triggers can be hidden using the 'Show Active only' switch on the 'Triggers' page. (⇒ Triggers)		
Mode	Normal	Normal trigger operation.	
	Force On	Forces the trigger to static high.	
	Force Off	Forces the trigger to static low.	

^{*1} only for IO Devices
^{*2} only for virtual triggers

2.3.10 System Logs

The **System Logs** contains errors and events from all network space components, giving a first indication in case of unstable system behavior.

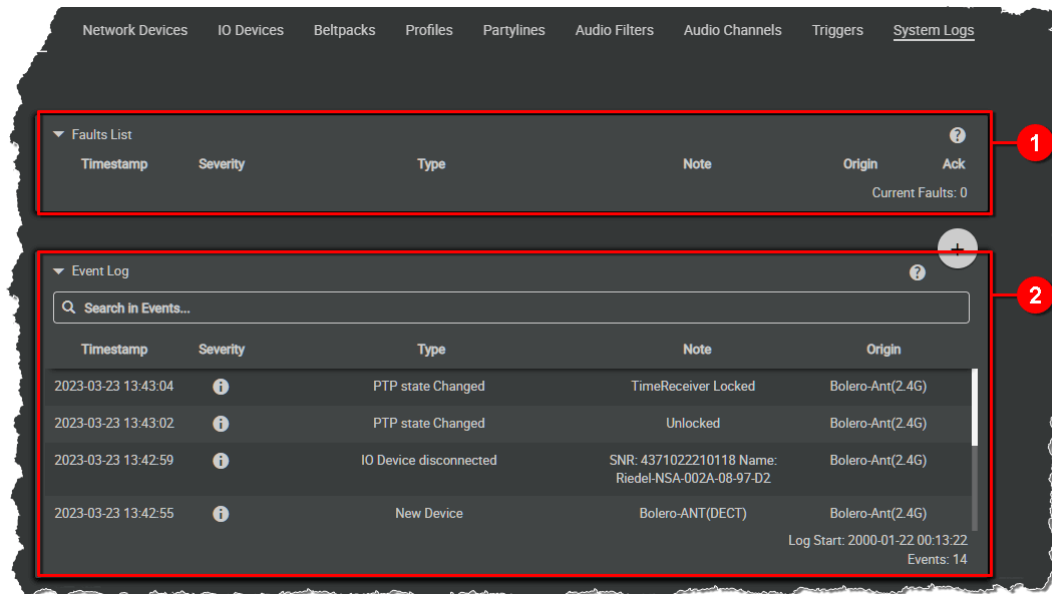


Figure 141: Web Interface – System Logs

1	Fault List This list contains all currently active errors. Errors in the Fault List can be confirmed and hidden by clicking on Acknowledge. <table border="1"> <tr> <td>Timestamp</td><td>Date and time of the failure.</td></tr> <tr> <td>Severity</td><td>Severity of the failure.</td></tr> <tr> <td>Type</td><td>Description of the failure.</td></tr> <tr> <td>Note</td><td>Affected audio port.</td></tr> <tr> <td>Origin</td><td>Affected device.</td></tr> <tr> <td>Ack</td><td>The respective message will be removed from the fault list by clicking the 'Acknowledge' button</td></tr> <tr> <td>Current Faults:</td><td>Numbers of entries in the Fault List.</td></tr> </table>	Timestamp	Date and time of the failure.	Severity	Severity of the failure.	Type	Description of the failure.	Note	Affected audio port.	Origin	Affected device.	Ack	The respective message will be removed from the fault list by clicking the 'Acknowledge' button	Current Faults:	Numbers of entries in the Fault List .		
Timestamp	Date and time of the failure.																
Severity	Severity of the failure.																
Type	Description of the failure.																
Note	Affected audio port.																
Origin	Affected device.																
Ack	The respective message will be removed from the fault list by clicking the 'Acknowledge' button																
Current Faults:	Numbers of entries in the Fault List .																
2	Event Log This list contains general activities. This can be e.g. information about status changes of devices (e.g. radio on/off, reboot, ...) or the connection status of Beltpacks. <table border="1"> <tr> <td>Search in Events</td><td>Text search in the Event Log.</td></tr> <tr> <td>Timestamp</td><td>Date and time of the failure.</td></tr> <tr> <td>Severity</td><td>Severity of the failure.</td></tr> <tr> <td>Type</td><td>Description of the failure.</td></tr> <tr> <td>Note</td><td>Affected audio port.</td></tr> <tr> <td>Origin</td><td>Affected device.</td></tr> <tr> <td>Log Start</td><td>Date and start time of logging.</td></tr> <tr> <td>Events</td><td>Numbers of entries in the Event Log.</td></tr> </table>	Search in Events	Text search in the Event Log .	Timestamp	Date and time of the failure.	Severity	Severity of the failure.	Type	Description of the failure.	Note	Affected audio port.	Origin	Affected device.	Log Start	Date and start time of logging.	Events	Numbers of entries in the Event Log .
Search in Events	Text search in the Event Log .																
Timestamp	Date and time of the failure.																
Severity	Severity of the failure.																
Type	Description of the failure.																
Note	Affected audio port.																
Origin	Affected device.																
Log Start	Date and start time of logging.																
Events	Numbers of entries in the Event Log .																

2.3.10.1 Action Button (System Logs)

Clicking the  action button offers functions to export or clear the log data.
The dialog can be closed by pressing the ESC key.

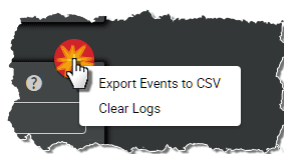


Figure 142: Action Button (System Logs)

Export Events to CSV

This function allows exporting the logged data to a file in CSV format.
The file is saved in the default download folder of your browser.

Clear Logs

This function will delete all events in the **Event Log** without confirmation.

2.3.11 Settings

The basic settings are accessed via the  gear symbol in the top right-hand corner. The dialog can be closed by pressing the ESC key.

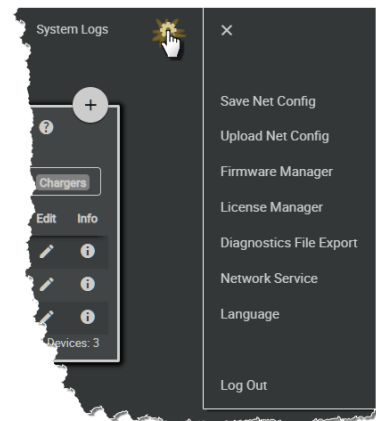


Figure 143: Settings

Save Net Config

This function allows saving the current Net configuration to a file and is only available when a user is logged in. After calling this function, the configuration is saved in the default download folder of your browser. The file name is composed of the Net name, the current date and time and the suffix "NetConfig.bol".

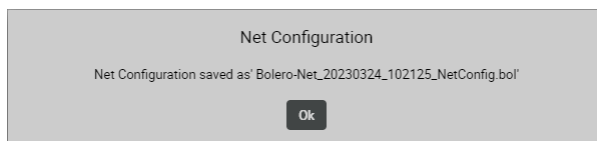


Figure 144: Web Interface – Save Net Config

Upload Net Config

This function loads a previously saved Net configuration into the system and is only available when a user is logged in.

After calling this function, the dialog for selecting the desired ".bol" file opens. The configuration is transferred to the Net without confirmation.

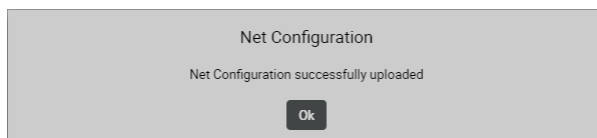


Figure 145: Web Interface – Upload Net Config

Firmware Manager

In this window the firmware of the devices can be updated.
It is possible to update Antennas, Chargers and Beltpacks inside Chargers with one button press.

The firmware manager displays the current firmware versions of all devices present in the Network Space with additional information.

To ensure a stable system, all devices must be operated with the same version.

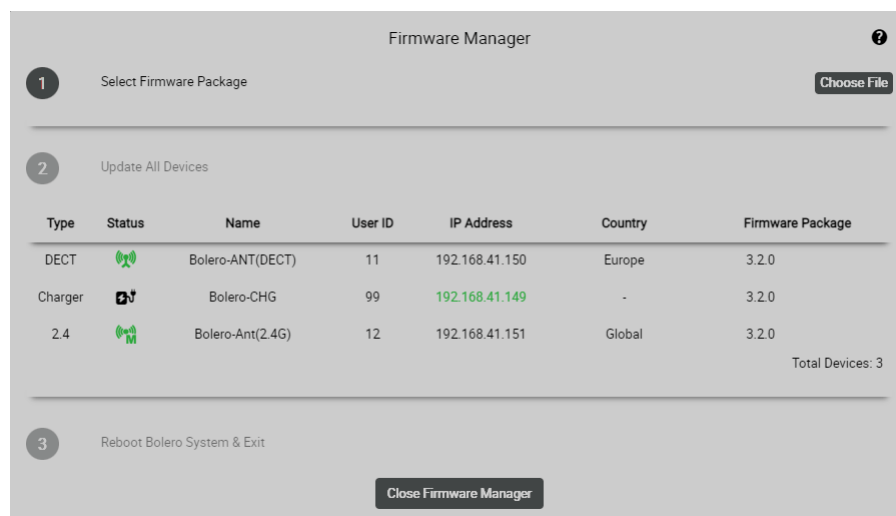


Figure 146: Web Interface – Firmware Manager

Proceed following steps to update one or multiple devices:

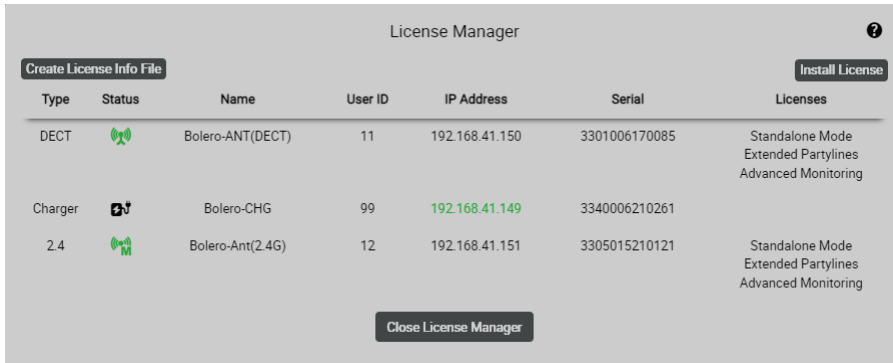
1. Click 'Select Firmware Image' and select the desired firmware file (.package).
2. Click 'Update All Devices' to start the update procedure.
3. Click 'Finish & Reboot System' to restart the devices.

See also Firmware Update of:

- Antennas and Chargers (⇒ [Firmware Update \(Network Device\)](#))
- Beltpacks (⇒ [Firmware Update \(Beltpack\)](#))
- S-Beltpacks (⇒ [Firmware Update \(S-Beltpack\)](#))

License Manager

The license manager shows the licenses installed on all network space devices and allows creating a license info file with all necessary information to generate new licenses and provides the functionality to install these new licenses on all devices in the system.



Type	Status	Name	User ID	IP Address	Serial	Licenses
DECT		Bolero-ANT(DECT)	11	192.168.41.150	3301006170085	Standalone Mode Extended Partylines Advanced Monitoring
Charger		Bolero-CHG	99	192.168.41.149	3340006210261	
2.4		Bolero-Ant(2.4G)	12	192.168.41.151	3305015210121	Standalone Mode Extended Partylines Advanced Monitoring

Figure 147: Web Interface – License Manager

Steps to get a license:

1. Create a **License Info File** and send it to your local distributor with the information which license shall be created and for which device.
2. You can also do this manually by copying the serial number of the device.
3. Riedel will create a license file for you. This new file will include the licenses for the requested devices. You can use this file several times on different Bolero networks, if not all devices are installed at one site.
4. Click '**Install License**' and select the new license file.
5. Licenses from the file will be activated on all devices found on the network.

The following licenses are available:

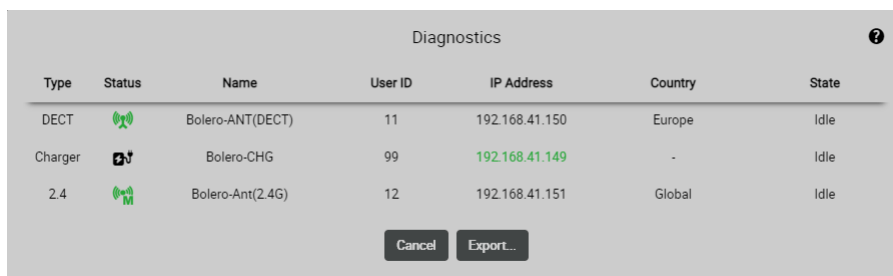
- SA: Standalone Mode
- PL: Extended Partylines
- M: Advanced Monitoring

	Active licenses are displayed in the lower left corner of the Antenna display.
---	--

Diagnostics File Export

The diagnostics view allows exporting internal diagnostic information into a ZIP-file. This data is used by Riedel service to analyze the system.

After clicking the **Export...** button the diagnostic information is saved in the default download folder of the used browser. The filename is generated out of the Net name, the current date and time and the suffix ".diag".



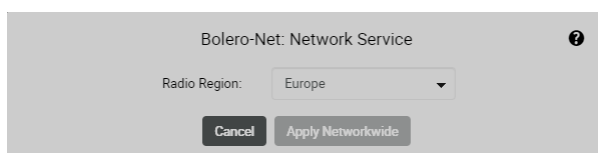
Type	Status	Name	User ID	IP Address	Country	State
DECT		Bolero-ANT(DECT)	11	192.168.41.150	Europe	Idle
Charger		Bolero-CHG	99	192.168.41.149	-	Idle
2.4		Bolero-Ant(2.4G)	12	192.168.41.151	Global	Idle

Cancel Export...

Figure 148: Web Interface – Diagnostics File Export

Network Service

In the Network-Service the DECT region can be set. These functions are reserved for use by Riedel service personnel only!



Bolero-Net: Network Service

Radio Region: Europe

Cancel Apply Networkwide

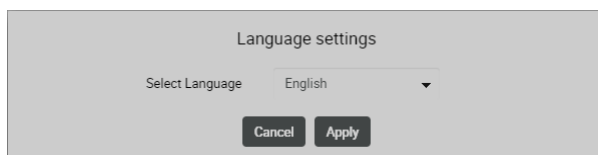
Figure 149: Web Interface – Network Service

Language

This function allows switching the language of the web interface and is only available when a user is logged in.

There are three languages to choose from:

- English Web User Interface
- Deutsche Benutzeroberfläche
- 中文网络用户界面语言



Language settings

Select Language English

Cancel Apply

Figure 150: Web Interface – Language

Factory Reset

This function allows resetting all devices in Network Space and is only available when *no* user is logged in. A dialog opens to confirm the action.

The "Factory Reset PIN" is required for this function. Please contact Riedel Service if necessary.

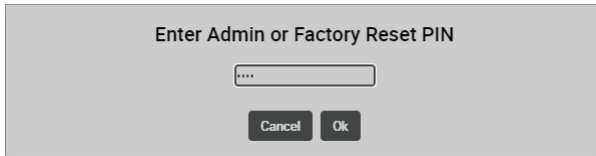
A gray dialog box titled "Enter Admin or Factory Reset PIN". It contains a text input field with four asterisks (****) and two buttons at the bottom: "Cancel" and "Ok".

Figure 151: Web Interface – Factory Reset

Login

A dialog opens in which the admin PIN of the Net must be entered.

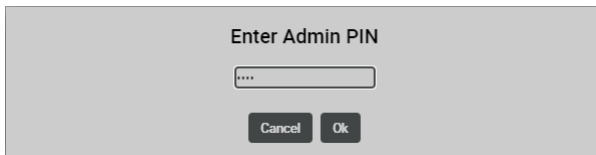
A gray dialog box titled "Enter Admin PIN". It contains a text input field with four asterisks (****) and two buttons at the bottom: "Cancel" and "Ok".

Figure 152: Web Interface – Login

Logout

A dialog opens in which the logout from the system must be confirmed.

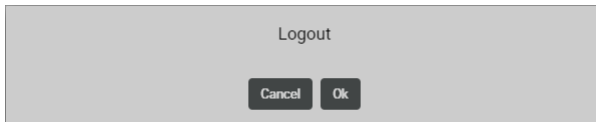
A gray dialog box titled "Logout". It contains two buttons at the bottom: "Cancel" and "Ok".

Figure 153: Web Interface – Logout

2.4 NSA-002A Integration

This chapter describes the required steps to integrate IO devices (NSA-002A) into a Bolero Standalone system.

The following devices are required:

- ✓ Bolero Antenna (with standalone license)
- ✓ preconfigured Network-Space in **Standalone/Link** or **Standalone/AES67 mode**
- ✓ Bolero Beltpack
- ✓ IO devices (NSA-002A, up to 10 per Network-Space)
- ✓ Gbps Network Switch (optionally with PoE+ functionality)

	The NSA-002A must be operated in Bolero-Mode to be integrated in the Bolero network space. The mode is indicated by the upper device mode LED (blue: Bolero, violet: Manual). The system modes can be toggled by pushing the mode button for more than 5 seconds. Further information can be found in the separate NSA-002A user manual.
	Up to 10 IO devices and 128 audio channels can be managed in one Standalone Network-Space. If 10 NSA-002A with 6 audio channels each are used, 68 audio channels are left for Beltpacks (128 - 10 x 6).

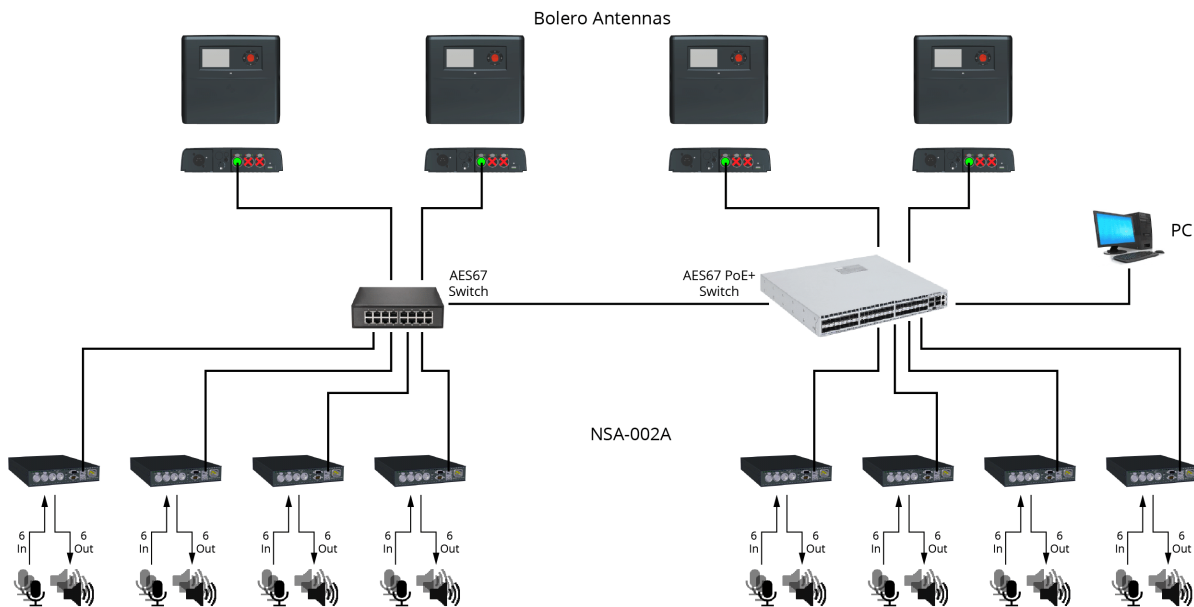


Figure 154: IO devices – setup diagram – Standalone/AES67 mode

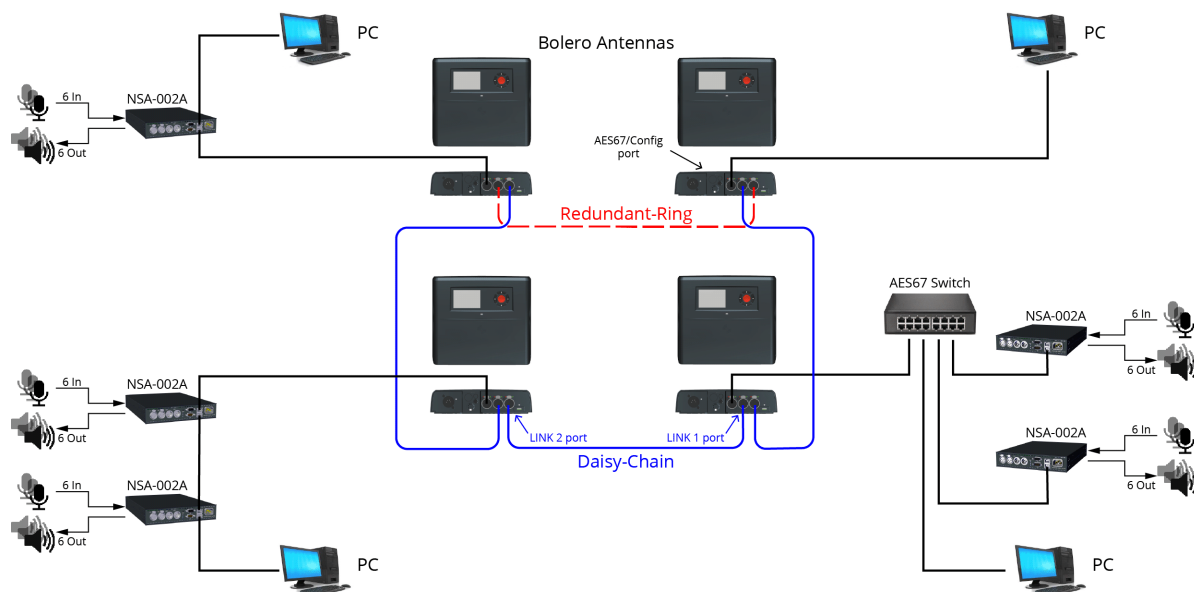


Figure 155: IO devices – setup diagram – Standalone/Link mode



One Bolero Antenna can handle up to two NSA-002A.
For ten NSA-002A five Bolero Antennas in the network space are required.

Standalone/AES67 mode:

- Connect the PC to the network switch.
- Connect the **ETH1/2** ports of the IO devices to the network switch.
 - If a PoE+ switch is used, the NSA-002A is also supplied with power.
 - Alternatively (or for additional redundancy) supply the NSA-002A with mains voltage.

Standalone/Link mode:

- Connect the PC to the **AES67/Config** port of any Bolero Antenna.
- Connect up to two IO devices at the Bolero Antenna:
 - Connect the first IO device (**ETH1/2** port) directly to the Antenna (**AES67/Config** port).
 - Connect the second IO device (**ETH1/2** port) at the unused **ETH1/2** port of the first IO device.
- If the NSA-002A is routed through a switch, maximal two NSA-002A can be connected to the switch.

- Determine the IP address of an Antenna.

The IP address of the Antenna is shown in the bottom right of the display (e.g. 192.168.41.150). The e-ink display shows the current IP also when the Antenna is not powered.

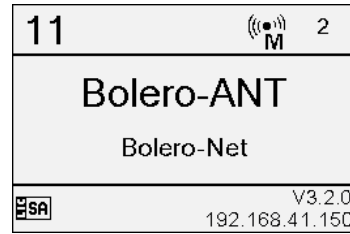


Figure 156: Antenna Display

Open the web interface of the Antenna to access the configuration:

- Enter the IP address of a Bolero Antenna in the web browser (e.g. 192.168.41.150).

The PC must have an IP address within the same subnet.

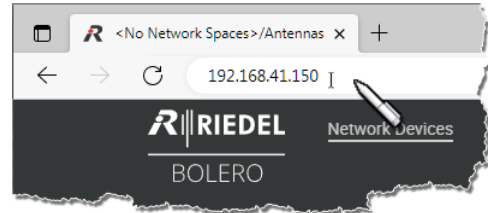


Figure 157: Web interface of the Antenna

- Open the page **IO Devices**.
- Select the unassigned IO devices by left clicking.

Selected elements will be highlighted.

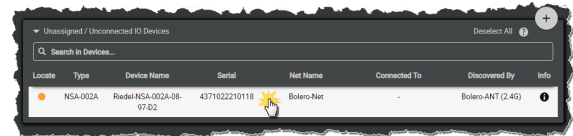


Figure 158: Selected IO devices

- Click on the plus symbol and select the entry **Add Selected IO Devices**.

A dialog is opened to enter the device configuration.



Figure 159: Add IO Devices

- Select **New Configuration**.
- Click **Proceed**.

A dialog is opened to create the device configuration.

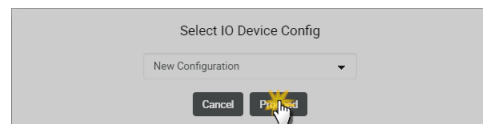


Figure 160: Dialog - Select IO Device Config

- Enter a name for the device configuration in the field **Name** (e.g. my NSA config).
- Enable/disable the desired GPIO-ports (**Trigger**) of the IO device and select the Pin-Mode (**Normal**, **Latching**, **Toggle**, **Auto**).
- Select the mode of the desired audio channels.
- If necessary, modify the names of the single Triggers and Audio Channels.
- Optionally add a description to the device, e.g. the exact location.
- **Apply** the changes.

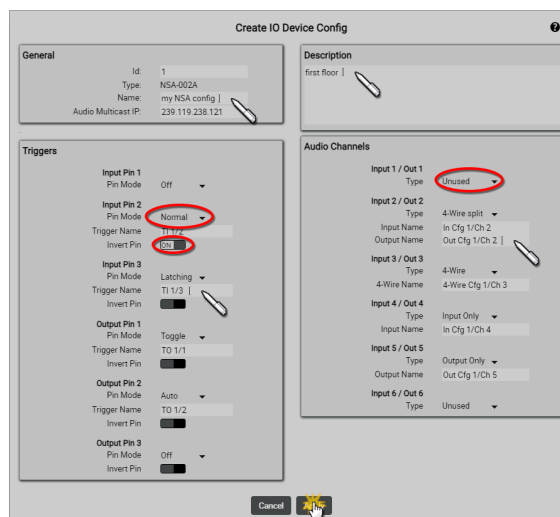


Figure 161: Dialog – Create IO Device Config

This example shows the new created device configuration called **my NSA config** and the corresponding NSA-002A.

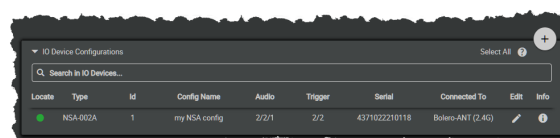


Figure 162: new created device configuration with NSA-002A

The configured audio channels are listed on the page **Audio Channels**.

- Click on the  button to configure the respective audio channel.

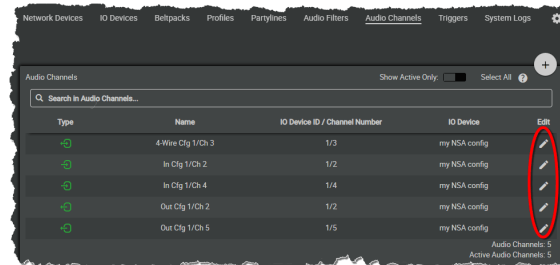


Figure 163: Audio Channels

The views **Always-On**, **Trigger**, **On-Talk**, **On-Notification/Beep** and **On-Vox** allows configuring up to five functions:

- **Talk** to a destination.
- **Talk** to a destination and **Always Listen** a source.
- **Talk** to a destination & **Listen** a source.
- **Listen** a source.
- **Monitor** a source.
- **Set Trigger** – switching a (physical/virtual) GPIO output.
- **Notification/Beep** – sending a beep-tone / voice-notification.

The function is triggered depending on the view where it is configured.

Functions in the view...

- **Always-On** are permanently activated.
- **Trigger** are switched by a trigger.
- **On-Talk** are automatically activated if it is talked in the respective channel.
- **On-Notification/Beep** are automatically activated if the respective channel receives a notification/beep.
- **On-Vox** are activated when and as long as the VOX is triggered.

(The parameters for VOX activation are configurable on the page '[General](#)'.)

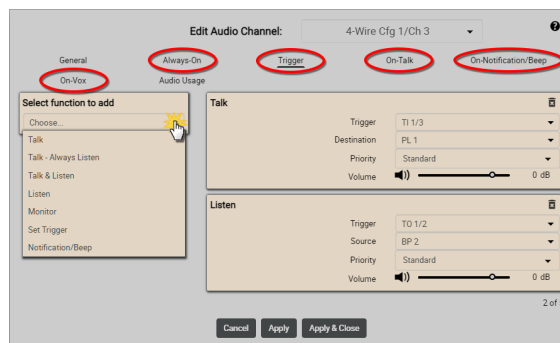


Figure 164: edit audio channel – Trigger

The page **Beltpacks** allows programming the Beltpacks key functions individually.

- Click the  button to configure the respective Beltpack.

 Use the **Profiles** page to configure all Beltpacks assigned to the profile in one step.
(⇒ [Profiles \(User Rights\)](#))

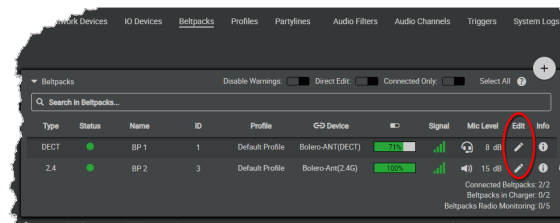


Figure 165: Registered Beltpacks

In the **Keys** section the keys of the Beltpack can be configured and functions can be assigned.

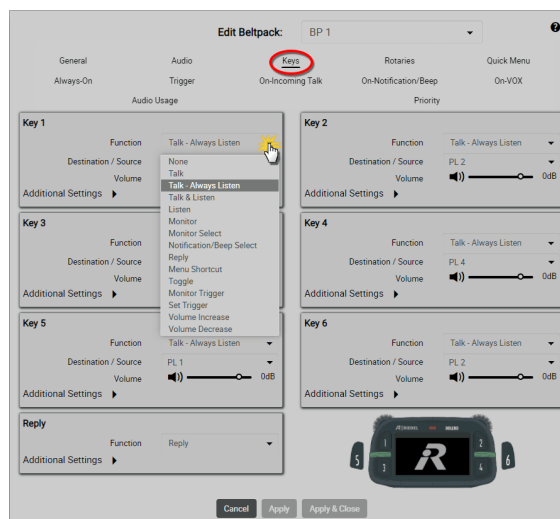


Figure 166: edit Beltpacks – Keys

After this configuration the Beltpacks are able to communicate to other Beltpacks as well as to the audio channels of the IO devices.

2.5 Add Devices

To add Antennas or Chargers to a working **Network Space**, the new device must not be assigned to any other Net. If a device is already assigned to a Net, you must first delete the existing registration before starting the new registration. (⇒ [Remove Devices > Network Devices](#))



New Antennas have disabled radio if the Antenna is not known by the matrix.

- Connect the network port of the new device to the network switch.
- Connect the Antenna's 'AES67/Config' port to the network switch.
 - If a PoE+ switch is used, the Antenna is also supplied with power.
 - Alternatively, attach a separate DC power supply to the Antenna's power connector.

Open the Bolero web interface to access the configuration:

- Enter the IP address of a Bolero device in the web browser (e.g. 192.168.41.151).

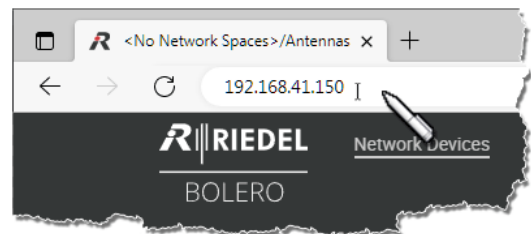


Figure 167: Web interface of the Antenna



Take care that the devices IP address is in the same IP range as the existing Net. The IP settings can be modified in the web interface (✎) as well as in the Antennas' menu (**IP Settings**).

- Select the unassigned devices to be added to an existing **Network Space**.

Selected elements will be highlighted.

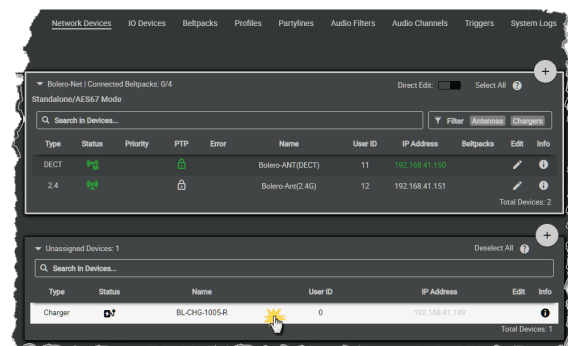


Figure 168: Select new device

- Click on the plus symbol off the unassigned devices and select the entry 'Add Selected Devices to Network Space...'.
A dialog is opened to select the Net.

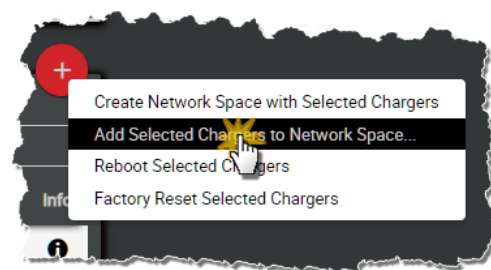


Figure 169: Add to Network Space

- In the list selection, select the Network Space to which the new Bolero device is to be added.
- Click the **Apply** button.

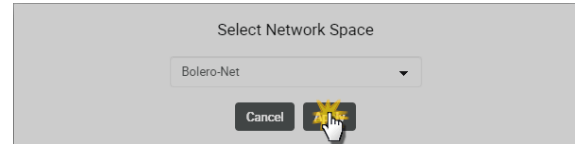


Figure 170: Dialog – Select Network Space

This example shows a new added Charger in the existing Network Space **Bolero-Net**.

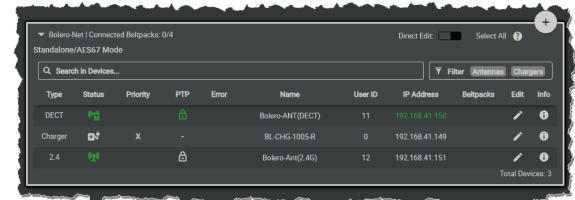


Figure 171: Added new Device in the Bolero-Net

Do not forget to assign a unique User ID and a **Name** to the new device.

- Activate the **Direct Edit** switch.
- Click on the ID of the new device and enter a unique ID (0-999).
- If desired, click on the name and customize it.

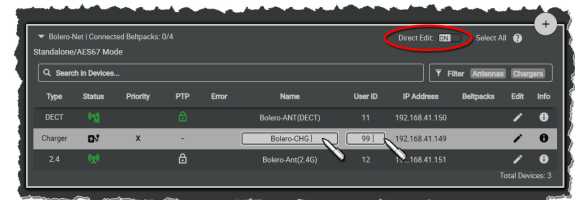


Figure 172: Apply unique User ID

In this example the Network Space consists now of two Antennas and one Charger.

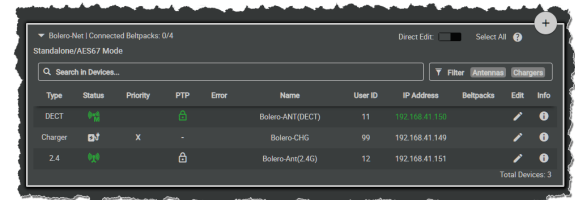


Figure 173: Devices in the Bolero-Net

2.6 Remove Devices

In the web interface it is possible to remove registered devices from a Network Space.

Network-Devices

- Choose the register 'Network Devices'.
- Select the desired devices to be removed from the Network Space.

Selected elements will be highlighted.

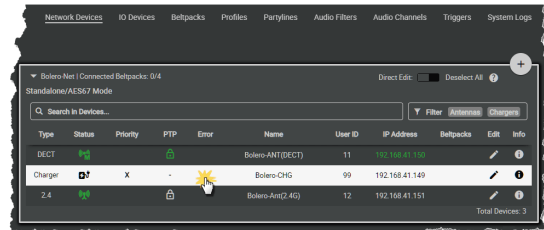


Figure 174: Select Network Device

- Click on the plus symbol and select the item 'Remove Selected Devices'.

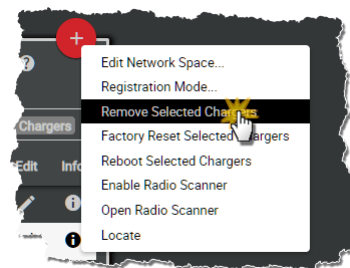


Figure 175: Remove Selected Network Device

- Confirm the opened dialog by clicking 'OK'.

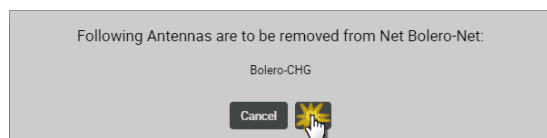


Figure 176: Confirmation dialog

The devices are immediately removed from the Network Space and are visible in the **Unassigned Devices** area.

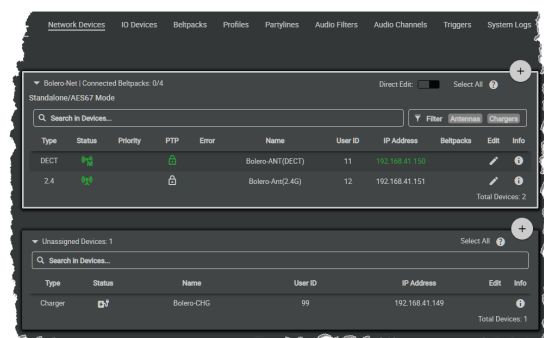


Figure 177: Network Device removed

Belpacks

- Choose the register '**Belpacks**'.
- Select the desired Belpacks to be removed from the Network Space.

Selected elements will be highlighted.

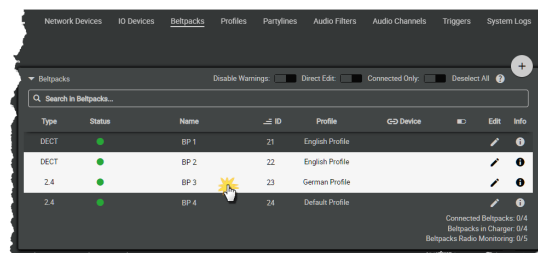


Figure 178: Select Belpacks

- Click on the plus symbol and select the menu item '**Deregister**'.

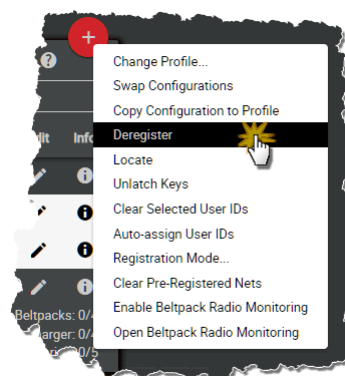


Figure 179: Deregister

- Confirm the opened dialog by clicking '**Ok**'.

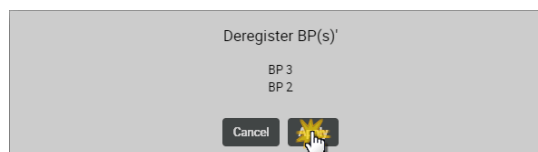


Figure 180: Confirmation dialog

The Belpacks will be removed immediately from the Net.

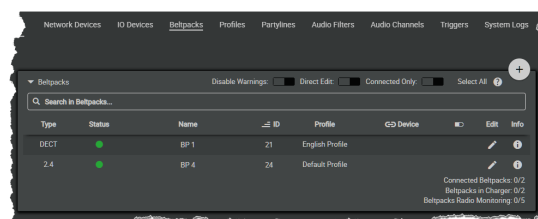


Figure 181: Belpacks removed

2.7 Firmware Update (Network Device)



Upgrading From Earlier Versions

The Network Space configuration and the Antenna configuration is preserved when updating from version 1.0.x/1.1.x/1.2.x/2.0.x/2.1.x/2.2.x/3.0.x/3.1.x/3.2.x. Configurations saved with one of these older versions can be loaded in version 3.3.0. As final step of the update, all devices are rebooted. Please refresh your browser tab when the connection is re-established to conclude the update.

Updating From Version 1.x.x

If you plan to use Standalone/Link Mode with Link Power, you should update the system from version 1.x.x while the Antennas are powered via XLR. Before an Antenna can be powered via Link Power or deliver power over the links after an update, it must be powered by XLR for at least a couple of minutes (to complete the update of the remote power controller firmware).

Updating From Version 1.0.x

Bolero Antennas running version 1.0.x have to be updated twice to this version. After a successful update you will see the package version 3.3.0 in the "Current Firmware" column of the Firmware Manager.

Downgrading From This Version

When downgrading to a previous version, the Network Space, Antenna configurations, and the IP address settings will be lost. Saved configurations of this version cannot be loaded on previous versions. Note that you cannot downgrade from this version to a version earlier than 3.0.0 (1.x.x, 2.x.x) directly, you have to downgrade to 3.0.0 first and then downgrade to 1.x.x/2.x.x in a second step. Note that after a downgrade, any downgraded Chargers won't be accessible in the Web Interface any more.

This chapter describes the update procedure of **Network Devices** (Antennas and Chargers).

The firmware update of (S-)Belpacks is described in the following chapters:

- Belpacks (⇒ [Firmware Update \(Belpack\)](#))
- S-Belpacks (⇒ [Firmware Update \(S-Belpack\)](#))

Depending on the system mode, following devices are required:

	Standalone AES67 Mode	Standalone Link Mode	Integrated Artist Mode
PC	✓	✓	✓
Bolero firmware package (for example "bolero_v1.2.3-456.package")	✓	✓	✓
Network Switch (optionally with PoE+ functionality)	✓	X	✓
Bolero Antennas	✓	✓	✓
Bolero Chargers	✓	✓	✓



Before updating, make sure that the system time is up to date.
 ⇒ [Action-Button \(Network Devices\) > Edit Network Space: Time Settings](#)

Standalone/AES67 Mode &

Integrated/Artist Mode:

- Attach the PC to the network switch.
- Attach the 'AES67/Config' connector of the Bolero-Antennas to the network switch.
If the Antennas are connected to a 'PoE+' switch, they are also powered via the switch.
- Otherwise power the Antennas via external DC power supplies.

After the Antennas' bootup is finished, the respective IP address is displayed in the bottom right of the Antennas display (for example 192.168.41.150).

Standalone/Link Mode:

- Attach the 'AES67/Config' connector of one Bolero-Antenna to the PC.
- Cascade further Antennas via the Link connectors (Link-1 to Link-2, and vice-versa).
- Power the Antennas via external DC power supplies.
- Otherwise power the middle Antenna (of up to five daisy-chained Antennas) via BL-EPS-1005 power supply.



Figure 182: Antenna display

Open the web interface of an Antenna or Charger:

- Enter the IP address in the web browser (e.g. 192.168.41.150).

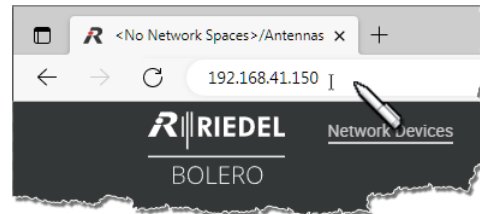


Figure 183: Web interface of the Antenna

- Click on the  settings icon and select the entry **Firmware Manager**.

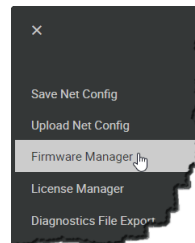


Figure 184: Firmware Manager

A dialog is opened to enter the **Admin-PIN** of the Net.

- Enter the **Admin PIN** that was defined when the Network Space was created.

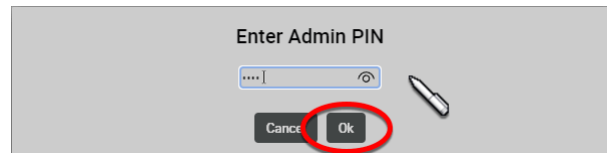


Figure 185: Dialog – Admin PIN

The Firmware Manager is opened.

- Click on the 'Choose File' button.
- Navigate to the location of the firmware package and select the desired one by clicking the Open button.

In this example the Bolero Network Space consists of two Antennas and one Charger.

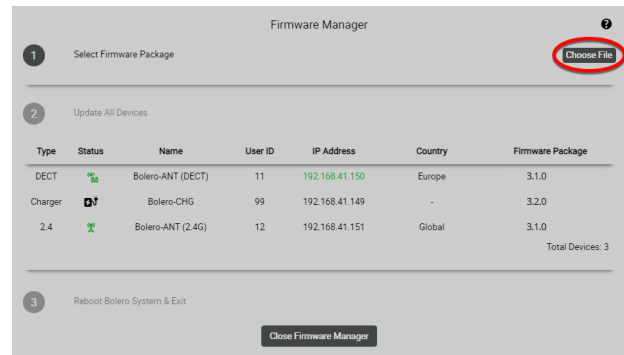


Figure 186: Firmware-Manager – Select Firmware Image

The firmware package is transferred to the Bolero system.
A bar graph visualizes the upload progress.

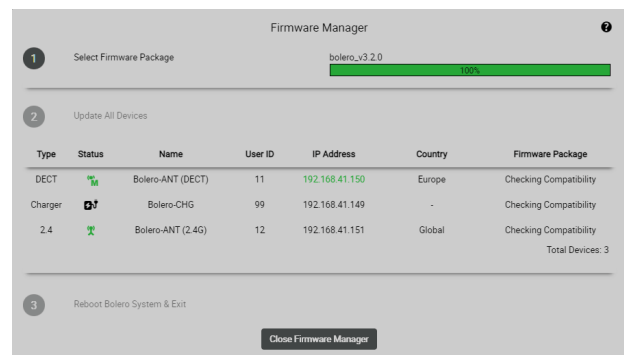


Figure 187: Firmware-Manager – Upload to Network Space

If 'Incompatible' is displayed for an Antenna after the upload, the selected firmware package is not compatible. The update will not be installed on this device.

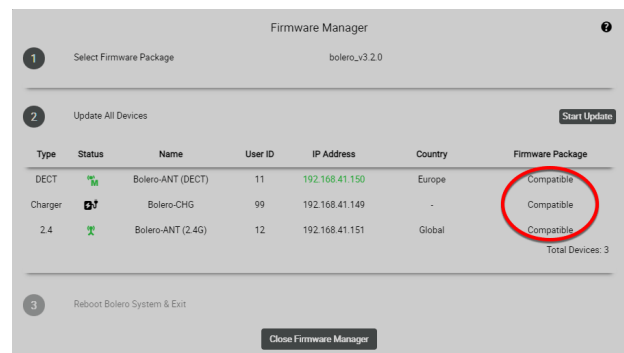


Figure 188: Firmware-Manager – Compatible Firmware-Package

- All compatible devices will be updated by clicking the 'Start Update' button.

 Audio and radio interruptions will occur from this point on.

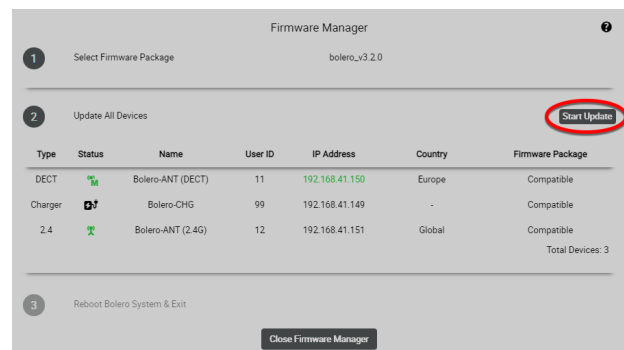


Figure 189: Firmware-Manager – Start Update

A dialog is opened to confirm the update of all compatible devices.

- Click the **Apply** button to proceed.

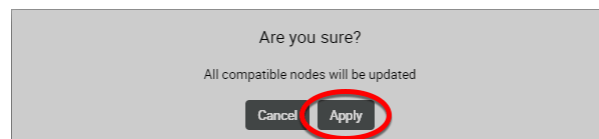


Figure 190: Firmware-Manager – Confirmation

Bar graphs visualize the update progress.

Caution: Do not remove the power from any devices.

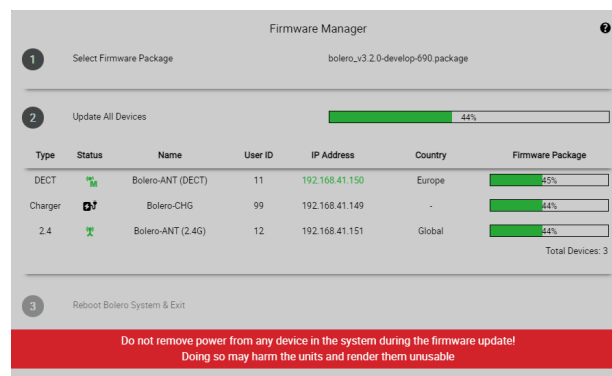


Figure 191: Firmware-Manager – progress

All devices must be rebooted to finish the update process.

- Click the **'Finish & Reboot System'** button.

The connection to the Antenna will be interrupted while the device is rebooting.

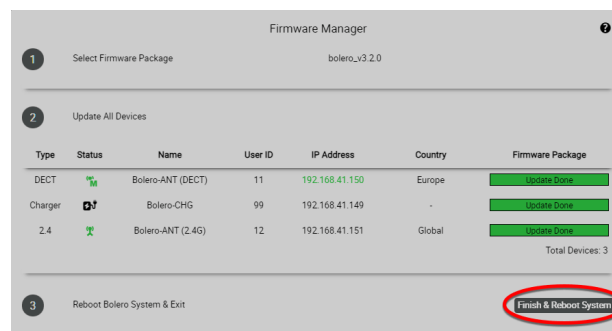


Figure 192: Firmware-Manager – Reboot devices

2.8 Advanced Radio Monitoring

DECT-Antennas as well as DECT-Beltpacks can be used to scan or monitor the radio spectrum utilized by DECT devices. This can be used to diagnose radio issues as well as help in planning system expansions.

Note that a **Pro 1** license is required on at least one Antenna in the Network Space to use this feature. The Antenna display shows an  icon in the bottom left corner on each Antenna with the Advanced Monitoring license, in combination with other icons for other licenses installed on the Antenna. New license files obtained from Riedel can be installed using the License Manager view in the Web Interface (⇒ [License Manager](#)).

2.8.1 Antenna Radio Scanner

The advanced radio monitoring app enables Bolero DECT Antennas in the network to scan the DECT environment. Antennas in the network can switch to a Radio Scanner mode when at least one antenna in the network holds the **Pro 1** license (.

An antenna in scanner mode will analyze the radio spectrum. The scan evaluates how many timeslots are interfered or used by the Bolero net. In addition, the radio scanner is looking for other Bolero and third-party systems in the air. To be able to use an Antenna in a Network Space as 'Radio Scanner', it must be selected in the Web Interface antenna list and using the 'Enable Radio Scanner' entry in the action menu (⇒ [Action Button \(Antennas\)](#)).



In radio scanner mode the Antenna is not available for Beltpacks anymore and all Beltpacks connected before will be disconnected.

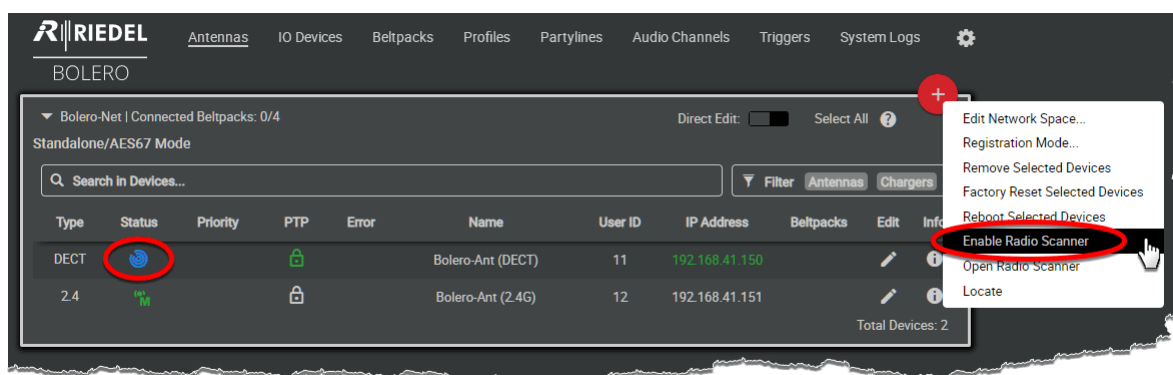


Figure 193: Web-Interface – Antennas (Enable Radio Scanner)

The gathered data (timeslot usage, detected systems, etc.) can be viewed in the Web Interface in the **Network Devices** view if data has been recorded and is available:

Action Button (Network Devices)

(⇒ ['Features in Detail > Web Interface > Network Devices > Action Button \(Network Devices\): Open Radio Scanner'](#))

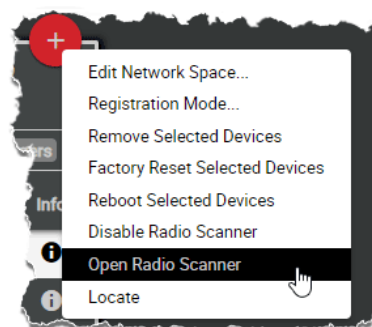


Figure 194: Web-Interface – Antennas (Open Radio Scanner)

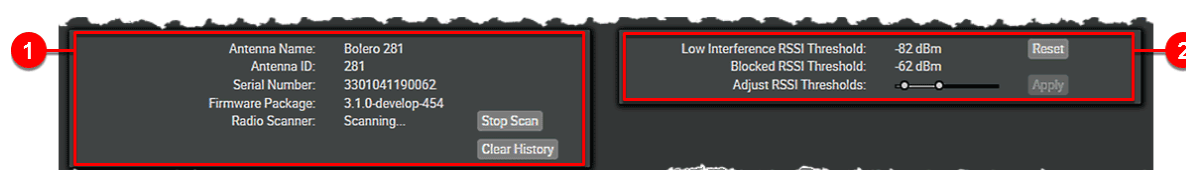


Figure 195: Antenna Radio Scanner

1	Antenna Name	Name of the Antenna.
	Antenna ID	Unique ID of the Antenna.
	Serial Number	Serial number of the Antenna.
	Firmware Package	Package version of the Antenna.
	Radio Scanner	Off / Scanning... Shows the current state of the Radio Scanner Start Scan Starts a new scan. The data of an existing scan will not be deleted. Stop Scan Stops a scan in progress. Clear History All data stored in this Antenna will be deleted after confirmation. The Admin PIN is required to delete the data.
2	RSSI Thresholds	Slider to adjust RSSI thresholds to classify time slots as "Blocked" or "Light Interference". All graphs will be updated to show the new thresholds. Increasing the thresholds will also show timeslots with reduced operation range. Reset Resets the values to the default setting. (-82 / -62 dBm) Apply Adopts the changed values.



The most recent data entries are permanently stored on the Antenna until manually cleared via the Web Interface, i.e. the Radio Scanner results are available even after an Antenna reboot.

The measurement data are displayed in the two sections **History** and **Snapshot**:

History section

This section shows the logged timeslot usage of the radio spectrum. The second graph shows all simultaneously operating DECT systems within the radio range of the antenna. The antenna will do one scan approximately every minute and stores up to three days of data. Select a previous point in time with the slider to check the detailed information in the **Snapshot** section.

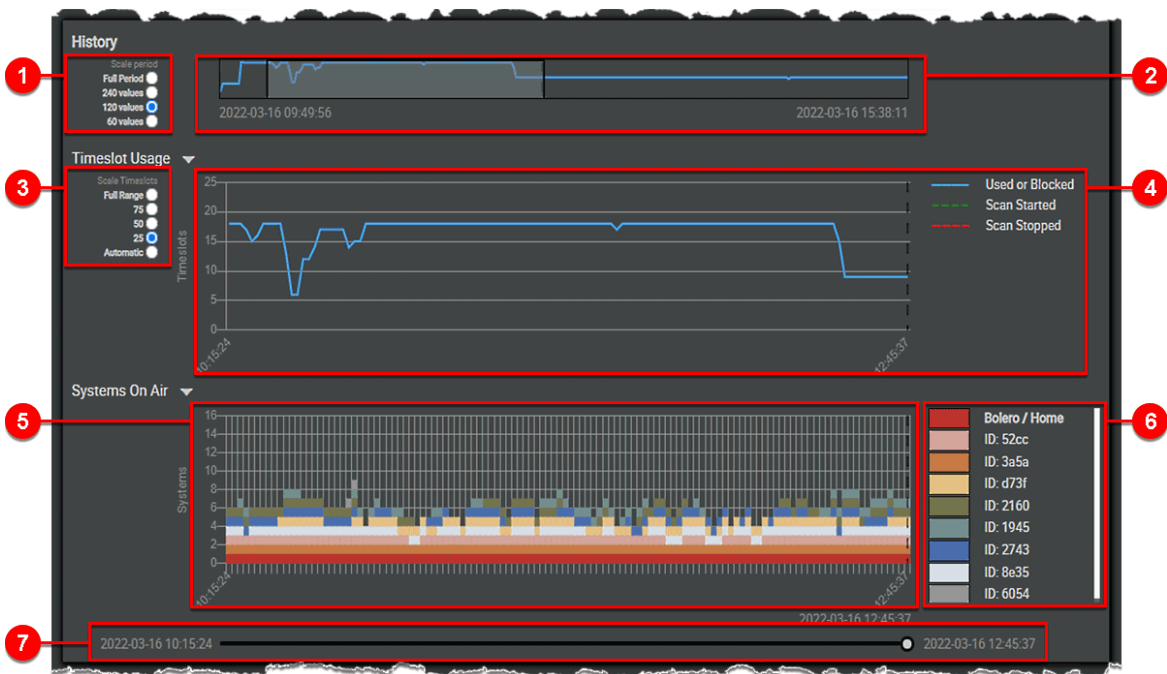


Figure 196: Antenna Radio Scanner (History Section)

- 1 Selection of the range of the time section: Full Period, 480, 240, 120, 60
- 2 Selection of the displayed time and range.
- 3 Selection of the graph timeslot scale: Full Range, 75, 50, 25, Automatic
Country dependent the total amount of available timeslots varies between 40 and 120.
- 4 Shows the used capacity in the Antenna radio area.
- 5 Shows the history of all found DECT systems in the Antenna radio area.
- 6 Shows the ID of all found DECT systems in the Antenna radio area.
- 7 Sets the time of a single measurement result that is shown in the snapshot section.

 The Antenna will do one scan approximately every minute and stores up to three days of data.

Snapshot section

This section gives an idea about additional capacity within the antenna's radio area. Detailed information about used and interfered timeslots is shown in the timeslot matrix. The **All Systems Timeslot Usage** graph shows which frequencies are used by the Bolero network space or interfered by different systems.

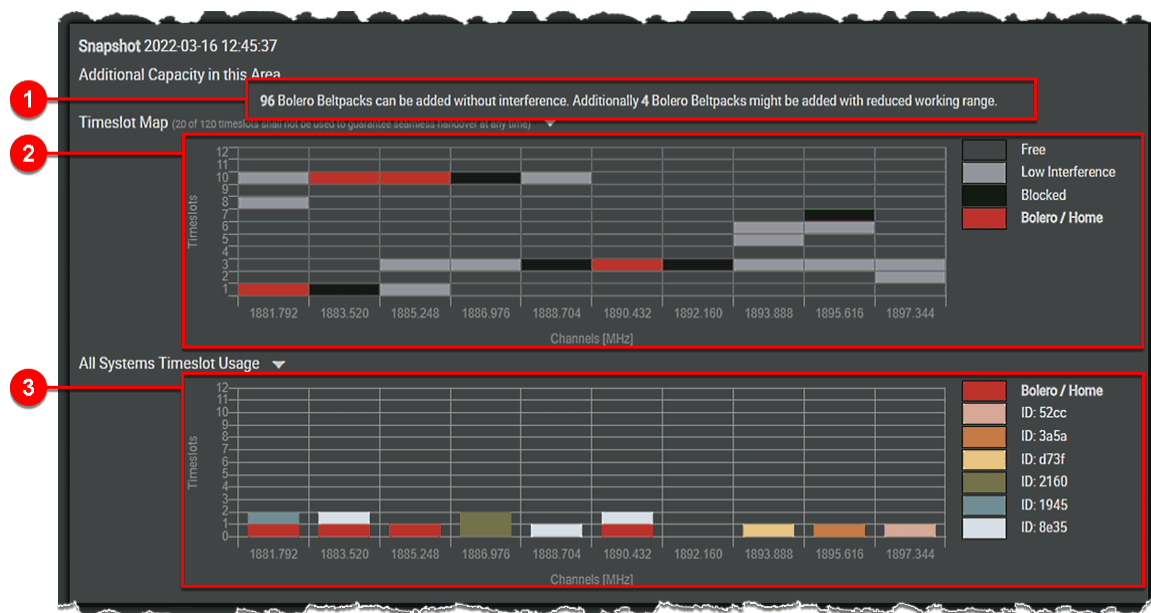


Figure 197: Antenna Radio Scanner (Snapshot Section)

- 1 Shows how many Beltpacks may additional operate in the Antenna radio area.
- 2 Shows the frequency/timeslot usage at the selected measurement time in the Antennas radio area.
- 3 Shows how many timeslots of a frequency are in use.



There are 12 timeslots available per carrier. For operation a Bolero Beltpack uses one timeslot.

2.8.2 Beltpack Radio Monitoring

The advanced radio monitoring app enables Bolero Beltpacks in the network space to monitor the DECT environment. Beltpacks are monitoring the environment continuously in the background when at least one antenna in the network space holds the **Pro 1** license (P1).

Up to five Bolero Beltpacks in the network space can operate in this detailed Radio Monitoring mode.

To be able to use a Beltpack in a Network Space as '**Radio Monitor**', it must be selected in the Web Interface Beltpack list and using the '**Enable Beltpack Radio Monitoring**' entry in the action menu (⇒ [Action-Button \(Beltpacks\)](#)).

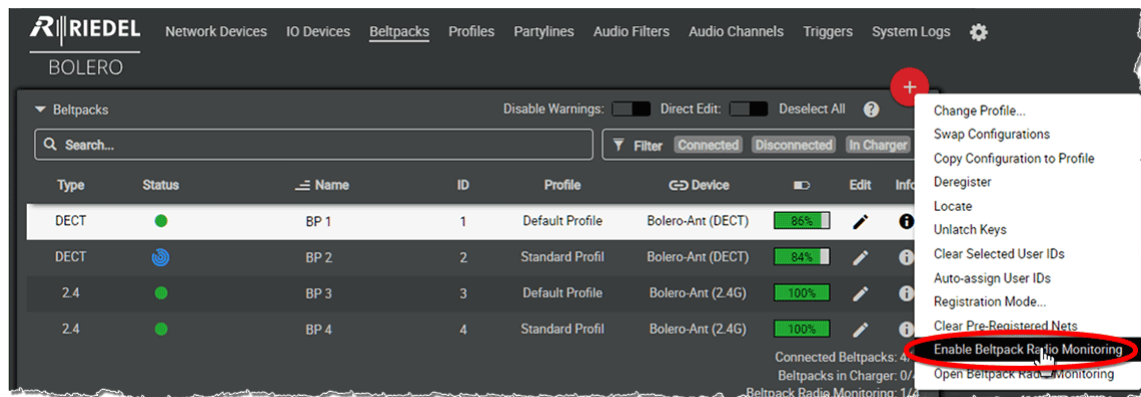


Figure 198: Web-Interface – Beltpacks (Enable Radio Monitoring)

The gathered data (timeslot usage, detected systems, etc.) can be viewed in the Web Interface in the **Beltpacks** view, even if the Beltpack is currently not connected:

Action Button (Beltpacks)

(⇒ [Features in Detail > Web Interface > Beltpacks > Action Button \(Beltpacks\): Open Beltpack Radio Monitoring](#))

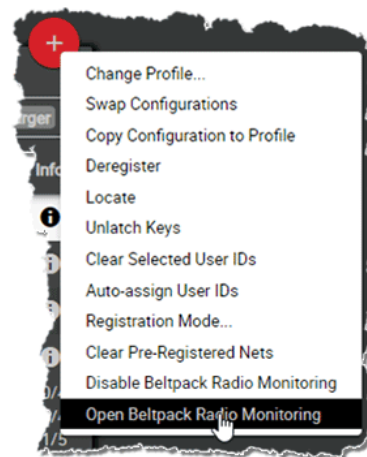


Figure 199: Web-Interface – Beltpacks (Open Radio Monitoring)



Figure 200: Beltack Radio Monitoring

1	Beltack Name	Name of the Beltack.	
	Beltack Radio Monitoring	Off / Scanning...	Shows the current state of the Radio Monitoring.
		Start Scan	Starts a new scan. The data of an existing scan will not be deleted.
		Stop Scan	Stops a scan in progress.
2	RSSI Thresholds	Clear History	All data stored in this Beltack will be deleted after confirmation. The Admin PIN is required to delete the data.
			Slider to adjust RSSI thresholds used to classify time slots as "Blocked" or "Light Interfered".
		Reset	Resets the values to the default setting. (-82 / -62 dBm)
		Apply	Adopts the changed values.

The measurements are not stored permanently on the Antenna or Beltack but is only maintained in the currently active Radio Master Antenna, i.e. previous Beltack monitoring data is discarded when a different Antenna becomes Radio Master or the Radio Master Antenna is turned off.

The measurement data are displayed in the two sections **History** and **Snapshot**:

History section

This section shows the logged timeslot usage of the radio spectrum. The second graph shows the TX and RX frame error rate. Frame errors below 10 are typically not audible. Select a previous point in time with the slider to check the detailed information in the **Snapshot** section.

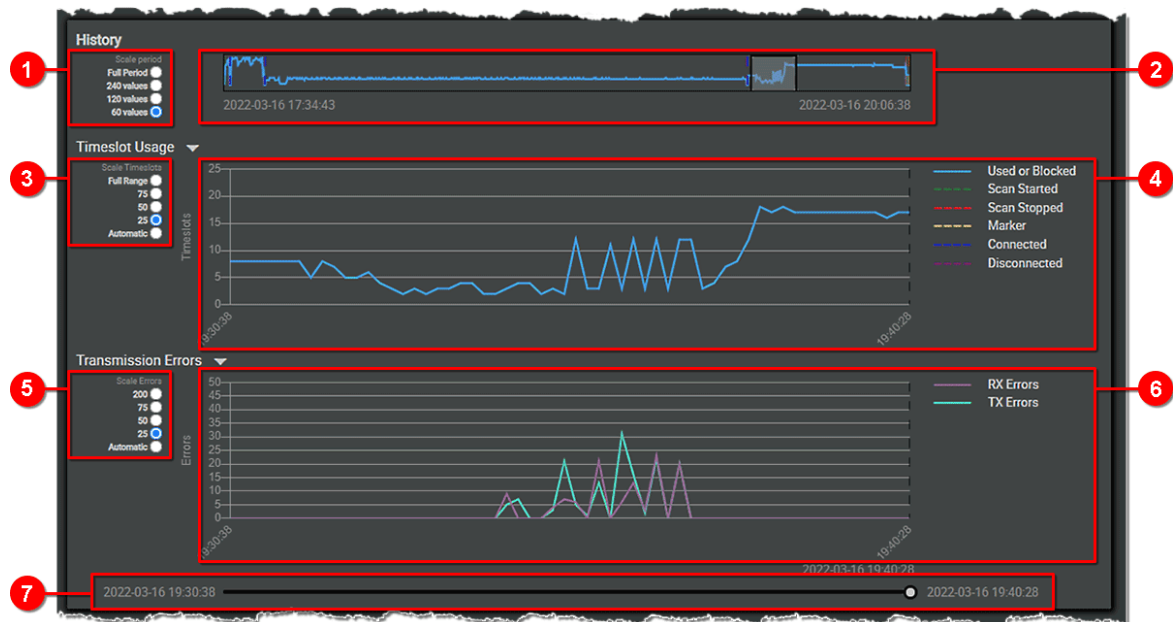


Figure 201: Beltpack Radio Monitor (History Section)

- 1 Selection of the range of the time section: Full Period, 240, 120, 60
- 2 Selection of the displayed time and range.
- 3 Selection of the graph timeslot scale: Full Range, 75, 50, 25, Automatic
Country dependent the total amount of available timeslots varies between 40 and 120.
- 4 Shows the used capacity in the Beltpack radio area.
- 5 Selection of the graph error range: 200, 75, 50, 25, Automatic
- 6 Shows the errors of the received (RX) and the transmitted (TX) audio signal.
Frame errors below 10 are typically not audible.
- 7 Sets the time of a single measurement result that is shown in the snapshot section.



The Beltpack will do three to six spectrum scans every minute and stores up to three days of data.

Snapshot section

This section gives an idea about additional capacity within the Beltpack's radio area. Detailed information about used and interfered timeslots is shown in the timeslot matrix. Yellow marked slots are not monitored because the Beltpack is blind on these slots as it operates on one of these timeslots.

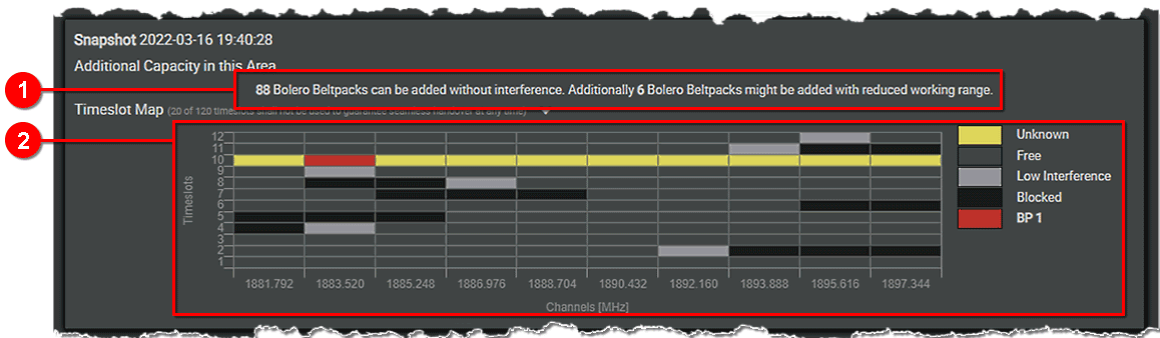


Figure 202: Beltpack Radio Monitor (Snapshot Section)

- 1 Shows how many Beltpacks may additional operate in the Beltpacks radio area.
- 2 Shows the frequency/timeslot usage at the selected measurement time in the Beltpacks radio area.



There are 12 timeslots available per carrier. For operation a Bolero Beltpack uses one timeslot.

2.9 Licenses

Optional Bolero functions can be activated by installing a license on an Antenna.

The licenses installed on the Antenna are represented by a corresponding icon in the Antenna display.

The following licensed features are available in this version:

License Bundle	Symbol	Feature	Description
Standalone		Standalone Mode	Use Bolero Standalone/AES67 and Standalone/Link system modes to allow Bolero intercom operation without any Artist frames. (⇒ System Modes)
Pro 1		Extended Partylines	Allows the use of up to 32 Partylines in Standalone mode instead of 12 partylines by default.
		Advanced Monitoring	Enables the DECT Scanner and Beltpack Monitoring features. (⇒ Advanced Radio Monitoring)
		Custom Audio Filters	Allows the creation of custom Audio Filters that can be used on all Beltpacks. (⇒ Audio Filters)
		Charger Monitoring	Chargers can be added to a Network Space and provide additional status information of the inserted Beltpacks. The behavior of the Chargers can be customized. (⇒ Bolero Charger)
New in 3.3 Pro 2		The Pro 2 licence includes all Pro 1 functions and in addition:	
		Individual Radio Power	Allows individual radio power settings for each Antenna in the Bolero net. (⇒ Edit (Network Devices) > General)
		Beltpack Priorities	Enables the setting of Beltpack priorities. (⇒ Edit (Beltpacks) > Priority)
New in 3.3 PQ		PunQtum	Enables Antennas in a Bolero Standalone network to connect to PunQtum Speaker Stations. (⇒ IO Devices)



The **Extended Partyline** and **Advanced Monitoring** licenses are discontinued. Note that existing **Extended Partyline** and **Advanced Monitoring** licenses will be converted to **Pro 1** licenses automatically, so the existing functionality will be kept and additionally all **Pro 1** features like **Custom Audio Filters** and **Charger Monitoring** are available as well.

2.10 License Installation

This chapter describes how to change licenses on Bolero Antennas.

The license on Antennas can be changed by a license file that is provided by your local distributor. The name of the license file needs to be equal to the serial number of the Antenna where the license will be installed. The serial number of an Antenna is 13 digits long and contains numbers only (e.g. "1234512345678"). The license file is a ".bin"-file (e.g. "1234512345678.bin"). Every license file is only readable by the Antenna matching the serial number.

A license file (.bin) must be packed into a zip-archive (.zip). Licenses of multiple Antennas can be changed at the same time, as they are combined in one zip-archive.



A license file is valid for two weeks after building. If the license file will be installed after that period, the license file will be rejected and needs to be regenerated, even with the same content. The building date of a license file that should be installed must be newer as date of the already installed license.

Follow these steps to install licenses:

- Click on the  settings icon and select the entry **License Manager**.

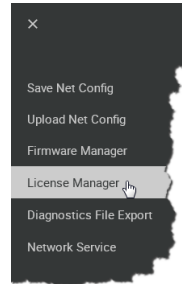


Figure 203: License Manager

A dialog is opened to enter the **Admin-PIN** of the Network-Space.

- Enter the **Admin PIN**, that was defined when the Network-Space was created.

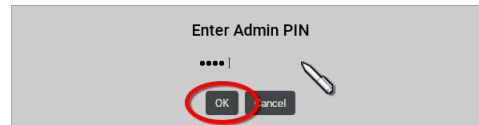


Figure 204: Dialog – Admin-PIN

- Click on the '**Install License**' button.
- Navigate to the location of the license file (zip) and select the desired one by clicking the **Open** button.

 Use the '**Create License Info File**' button to create a csv-file with all Antenna information like name, serial number and license information.

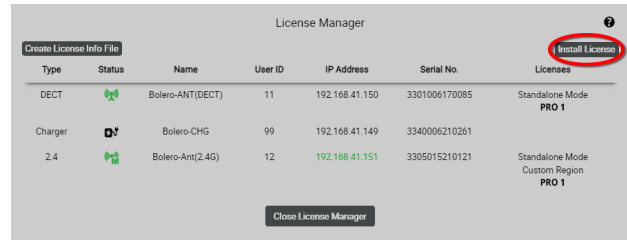


Figure 205: License-Manager – Install License

A dialog is opened to confirm the installation of all compatible licenses.

- Click the **Apply** button to proceed.

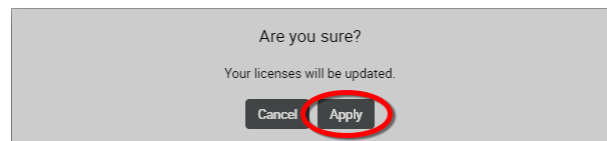


Figure 206: License-Manager – Confirmation

The license manager installs the loaded licenses on the respective Antennas.

After installation a report is opened and lists errors as well as Antennas with and without installed license.

- Click the **Close** button to exit the license manager.

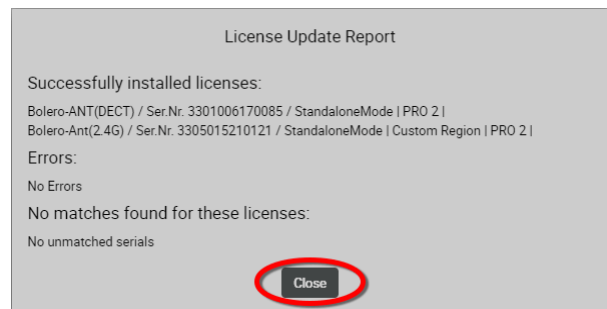


Figure 207: License-Manager – Report

2.11 Switch Recommendations

This page describes all technologies that are needed for Bolero traffic and describes a simple network classification that can be used to specify the switch that you need to choose.



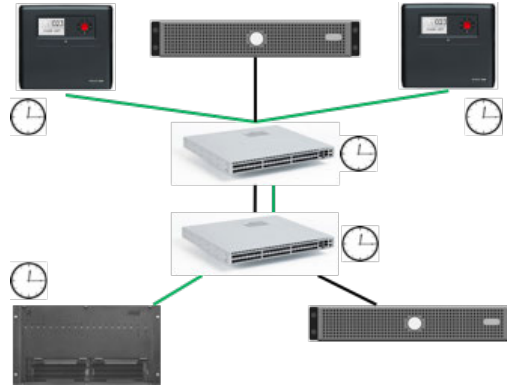
After reading these pages, you should be able to determine, if a switch is suitable for Bolero by looking at the spec sheet. If you classify the network you are building, choosing a switch can be done without excessive testing.

The Bolero system requires following key technologies for a seamless and reliable operation. In case one of the network switches does not support all these features, it might happen that Antennas connected to these switches reboot during operation.

PTPv2 (IEEE 1588)

PTPv2 boundary clock or transparent clock is required on every switch. PTPv2 is necessary for the synchronization of Bolero Antennas. The synchronization offset and jitter must not exceed a certain threshold for a reliable operation and beltpack handover. Switches without PTP may exceed these limits in idle mode or only when occasionally a higher data traffic is present. Supported PTP modes are AES67 profile, End-to-End delay measurement, and multicast traffic mode.

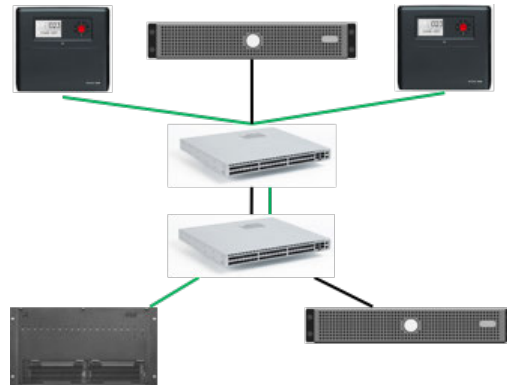
- Provides better synchronization of Bolero Antennas. The synchronization offset must not exceed 1 microsecond.
- Critical, if the network contains a lot of other devices (Video over IP, Servers, ...).
- Supported PTP mode:
 - AES67 profile
 - End-to-End delay measurement
 - Multicast traffic mode



QoS (IEEE 802.1p), based on DiffServ (RFC 2474)

With QoS the traffic from the Bolero Antennas can be prioritized when transmitted through a larger network. This is extremely important when the network contains more than one switch. Prioritization is needed for PTP [E, F] and AES67 [AFU1] traffic.

- Traffic from the Bolero Antennas can be prioritized when transmitted through a larger network.
- Extremely important when the network contains more than one switch.
- Prioritization on:
 - a. PTP [E, F]
 - b. AES67 [AFU1]

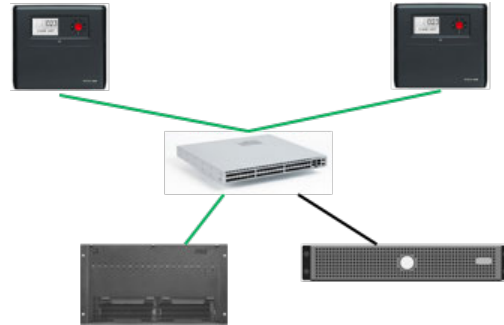


IGMP snooping (v2)

Required on the switch so that the multicast traffic only reaches ports that explicitly ask for it. It also prevents Artist CPU card from being flooded with Bolero traffic. Please note the limit of Multicast groups of a switch. Bolero needs 6 plus the amount of Beltpacks Multicast groups. (Example: 42 Beltpacks require min. 48 multicast groups). Cascading of switches does not raise the system limit. The lowest supported number of multicast groups of a switch in the complete system is the limit.

- Multicast traffic only reaches ports that explicitly ask for it
- Also prevents Artist CPU card from being flooded with Bolero traffic

Please note the limit of Multicast groups of a switch. Bolero needs 6+[amount of Beltpacks] Multicast groups (example: 42 Beltpacks require 48 Multicast groups). Cascading of switches does not raise the system limit. The lowest supported number in the complete system is the limit.



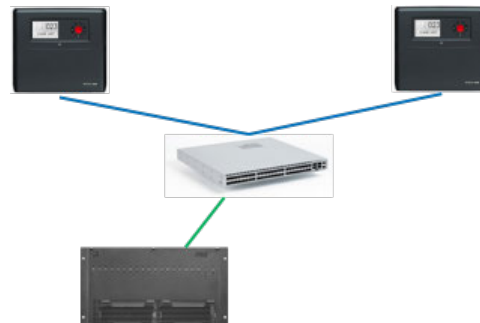
PoE+ (IEEE 802.3at)

Required to power the device without external PSU. When using power over Ethernet the Antenna can be powered from the switch. PoE+ provides up to 30 W of power per port. Please note that the most switches do not power all ports simultaneously. The power supply limits the total power.

- Provides up to 30 W of power per port
- Antenna can be powered from the switch

Please note that the most switches do not power all ports simultaneously. The power supply limits the total power.

When using Power over Ethernet use PoE+ switches only.



Jitter / Throughput / Latency

Bolero requires non-blocking switches and low jitter for a reliable and stable operation. Each Switch has a certain throughput that defines the speed of the backplane/switch fabric to transport packets from port to port. Cheaper switches have a smaller throughput than the sum of all ports speed. These switches are "blocking" and can cause higher jitter values.

Speeds are usually given in "Mpps" (Million packets per second) and are counted for 64byte packets. One Gbit port needs 1.488Mpps to be "non-blocking", so a 24-port switch needs at least 35,71 Mpps to be non-blocking.



When using Power over Ethernet use PoE+ (PoE **plus**) switches only!
The power of switches that are supporting PoE only is not sufficient!



A 1Gbit Ethernet connection is necessary to operate the Bolero net.

2.12 Network Requirements

- AES67 is a high-precision, low-latency Layer 3 protocol that requires a fine-tuned, high-performance network infrastructure to operate effectively.
- AES67 relies on the IEEE 1588 timing protocol, also known as PTP, to achieve the required timing precision.
- To achieve the required network performance, several components must be adapted and fine-tuned.

Wiring

The required network performance can only be achieved with cabling that complies with IEEE/IEC standards. Twisted pair cables of category Cat6 and higher must be used, and the cable length must not exceed 100 m (330 ft).

	Always check the data sheets of your cables. Some cables labeled "Cat6" meet the required insertion loss criteria only up to a certain length. Create a cable certification report in which you check all cables against the Cat6 channel criteria (=end-to-end tests).
---	--

Physical Port Settings

Port Speed

To meet the high-speed and latency requirements of AES67, Gigabit Ethernet must be used for the endpoint connections. Switch ports must comply with the IEEE802.3ab standard (1000 BaseT/Gigabit Ethernet). Any power consumption enhancements, such as energy-efficient Ethernet (also known as "Green Ethernet"), must be disabled on all ports.

Switch Bandwidth

The switches must be fast enough internally to handle traffic from all ports at maximum speed. The total switching capacity should be at least $(2 \times [\text{number of ports}] \times [\text{port speed}])$ Gbit/s.

PoE+

Bolero Antennas are Class 4 PoE devices (PD Class 4) that require 15 W+ to operate. The switches must therefore support PoE+ on all "Bolero" ports.

Optimal performance is achieved when the **power management mode** is set to **class - consumption**.

Network Separation / VLAN

Best practices in network design state that the different types of user traffic must be kept separate. This can be achieved either by using a dedicated switch infrastructure or by virtual VLAN traffic isolation. In addition, it is strongly recommended that Riedel AES67/Bolero traffic be kept separate from any other high-volume media traffic.

Traffic Types

The AES67 specifications in the table below cover the network protocols used for audio data transmission and synchronization over local area networks. They also include recommendations for traffic prioritization and multicast management.

Riedel's implementation of AES67 for Bolero uses the following traffic types:

Static

Port	Protocol	Description	Notes	System Mode	Version
22	TCP	Riedel Access	-	-	-
80	TCP	Web Management Access	-	-	-
5557	TCP	DECT (Radio) Controller Server	-	-	-
5558	TCP	DECT (Radio) Controller Server	-	-	-
8088	TCP	Web Management Access	-	-	-
8180	TCP	Charger Info	Charger only	-	-
30303	TCP	Debug Shell	Internal use only	-	-
30306	TCP	TCP Connector	-	-	-
30320	TCP	Artist AES67-108 Radon Dispatcher Beltpack config/control/status	On the Artist card only, not on BaseStations	Integrated /Artist	V3.0+

Port	Protocol	Multicast IPs	Description	Notes	System Mode	Version
319, 320	UDP	224.0.1.129, 224.0.0.107	PTP v2	Antenna only	-	-
1044	UDP	-	Firmware Update	-	-	-
5353	UDP	224.0.0.251	Discovery (zeroconf)	-	-	-
30181	UDP	239.192.29.10	Loop Detection	-	Standalone /Link	-
30301	UDP	239.202.29.2	Antenna Configuration & Discovery	-	-	-
30302	UDP		Time Sync / NTP	-	-	-
30304	UDP	239.202.29.2	Antenna Configuration & Discovery	-	-	-
30305	UDP	239.202.29.2	Antenna Configuration & Discovery	-	-	-
30312	UDP	239.202.29.2	Antenna Configuration & Discovery	-	-	-
30321	UDP	239.202.29.3	Antenna Configuration & Discovery	-	Integrated /Artist	V3.0+
30400 - 30500	UDP	-	IO Device Configuration	-	Standalone /Link	-
40000, 40001	UDP	224.0.0.38	Topology Change	-	Standalone /Link	-

Dynamic (AES67 Streams)

Port	Pro- tocol	Multicast IPs	Description	Notes	System Mode	Version
5004 (default)	UDP	224.0.2.0 – 239.255.255.255	Antenne ⇒ Artist	IP and Port configured via Director	Integrated/ Artist	-
10000 - 10099	UDP	224.0.2.0 – 239.255.255.255	Artist ⇒ Antenne	One IP per Network space, configured via Bolero Web UI ("Edit Network Space"); port dynamically assigned	Integrated/ Artist	V1.x - V2.1.x
42000, 42001	UDP	224.0.2.0 – 239.255.255.255	Artist ⇒ Antenne	Same Multicast Group as the other direction (AAFP ⇒ Artist), port assigned automatically	Integrated/ Artist	V2.2
42000, 42001	UDP	224.0.2.0 – 239.255.255.255	Artist AES67-108 ⇒ Antenne	Same Multicast Group as the other direction (AAFP ⇒ Artist), port assigned automatically	Integrated/ Artist	V3.x+
42000 (default)	UDP	224.0.2.0 – 239.255.255.255	Artist 1024 ⇒ Antenne	Same Multicast Group as the other direction (AAFP ⇒ Artist), port configured via Director	Integrated/ Artist	V3.x+
40000 - ...	UDP	224.0.0.1 – 239.255.255.255	Antenne ⇔ IO Device	IP configured via Bolero Web UI	Standalone	-
40000 - ...	UDP	224.0.0.1 – 239.255.255.255	IO Device ⇔ Antenne	Same Multicast Group as the other direction, configured via Bolero Web UI	Standalone	<=V2.0.x
41000 - ...	UDP	224.0.0.1 – 239.255.255.255	IO Device ⇔ Antenne	Same Multicast Group as the other direction, configured via Bolero Web UI	Standalone	>V2.0.x
dynamic Beltpacks: 10000 - ... Audio Ch.: 20000 - ...	UDP	224.0.0.1 – 239.255.255.255	Beltpack ⇔ Beltpack	Multicast Group configured via Bolero Web UI ("Edit Network Space"), port dynamically assigned	Standalone/ AES67	-

To avoid conflicts/errors, please ensure that:

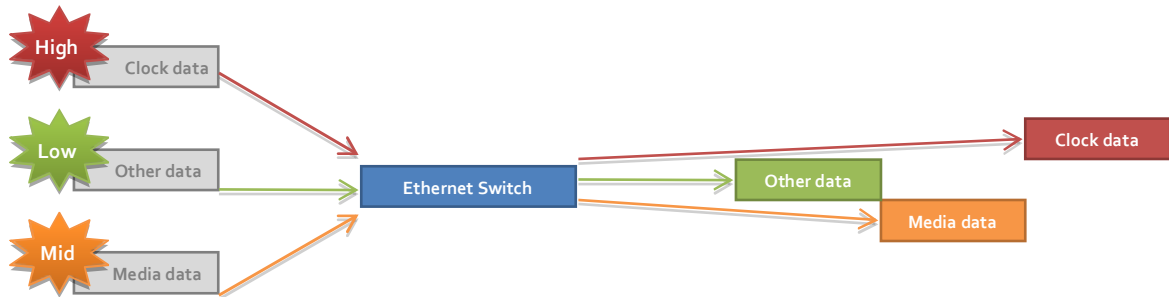
- All IP addresses listed above are not blocked on your local network.
- You do not use multicast IPs in the range of 224.x.x.x for the AES67 audio transport.

Riedel recommends assigning multicast IP addresses as follows:

- 239.255.0.1 for Beltpack ID 1
 - 239.255.0.2 for Beltpack ID 2
- etc. ...

Quality of Service (QoS)

If an AES67 and non-time critical traffic (non-time critical) are on the same network, Quality of Service is required. To give priority to AES67 traffic, all AES67 packets are marked with Differentiated Services Code Points (DSCP), indicating high priority.



All switches must support at least the three traffic classes defined in the table below:

Class name	DiffServ class	DSCP value
Clock (PTP)	EF (Expedited Forwarding)	46
Media	AF41 (Assured Forwarding)	34
Other (Best effort)	DF	0

Please also refer to the chapter ⇒ ["Switch Recommendations"](#).

The PTP Clock class should be assigned the highest priority for application traffic. It is recommended to use the high priority queue for this class.

Media traffic should be assigned the second highest priority for application traffic.

Many switch vendors apply these recommendations in their default QoS configuration.

Configuring Quality of Service for converged networks with different media services can be a complex task. Please refer to the manual of your switch or contact Riedel System Consulting at systemconsulting@riedel for more information.

Internet Group Management Protocol (IGMP)

AES67 is designed to send both unicast and multicast streams. Multicast streams can flood the network, so IGMP management is recommended.

IGMP snooping should be enabled on all switches and ports that are part of the (AES67) network to allow traffic to flow only to the intended destinations, i.e., only where the "active listeners" are located.

All listeners are part of the same multicast group (stream) and receive multicast traffic only as long as they are in the group.

Use the built-in IGMP query function of your switch.

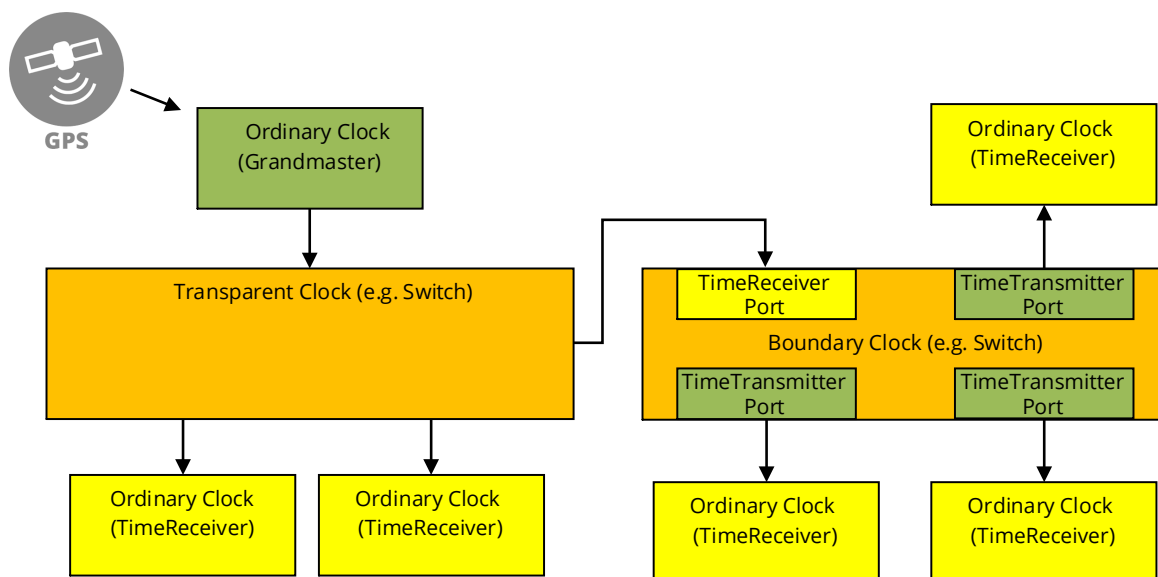
Although Riedel devices support both IGMP V2 and V3, you should ensure that all switches in your network are running the same version.

PTP [IEEE-1588]- Precision Time Protocol

PTP is a protocol used to synchronize devices in an IP network. In a local network, it achieves sub-microsecond clock accuracy. In audio-over-IP systems, each device has its own highly accurate internal clock whose drift relative to the TimeTransmitter is controlled by PTP messages.

Each network consists of at least one Grandmaster TimeTransmitter and TimeReceiver devices. The Ethernet switch between the Grandmaster and the TimeReceivers does not necessarily have to support PTP modes of operation. However, a boundary clock switch or transparent clock switch greatly improves timing performance under heavy load or in large LAN environments.

For small networks with less than 32 PTP TimeReceivers (SmartPanels/Antennas/AES67 cards) an "internal" Grandmaster can be used - e.g. Bolero Antenna or AES67 card. If there are more than 32 AES67 devices in the network, an external Grandmaster should be added to the network.



PTP standard profiles are composed of several adjustable parameters. The same profile must be used for all cooperating devices within a network.

Riedel devices can process both standard and media profiles. Please make sure that you select one of these two profiles in your Grandmaster.

2.13 Bolero PTP

Bolero uses a modified PTP version to synchronize the Antennas in Integrated/Artist mode and in Standalone/AES67 mode. The following tables show which of the PTP parameters are fixed in Bolero and which can be customized.

Fixed PTP settings

Priority 1	128
Announce Interval (log)	0 (=1 sec.)
Announce Receipt Timeout:	3 (until Bolero version 3.1.1) 8 (since Bolero version 3.2)
Sync Message Interval (log)	-3 (=125 ms)
Minimum Delay Request Message Interval (log)	0 (=1 sec.)
Clock Class	228
Clock Accuracy	0xFE (=unknown)

User-defined PTP settings

PTP Domain ^{*1}	0 ... 127 (default: 0)
PTP Hybrid Mode ^{*1}	on/off (default: off)
PTP TimeReceiver Only Mode ^{*1}	on/off (default: off)
DSCP for PTP ^{*1}	0 ... 63 (default: 46)
Multicast Time-To-Live (TTL) ^{*1}	1 ... 255 (default: 16)
PTP TimeTransmitter Priority (Priority 2) ^{*2}	0 ... 255 (default: 118)

^{*1} Net-wide settings

^{*2} Antenna specific setting

2.14 PTP Grandmaster Selection

To synchronize all Antennas, Bolero uses PTP. The Precision Time Protocol (PTP) is a protocol used to synchronize clocks throughout a network. Bolero Antennas are using the Best TimeTransmitter Clock Algorithm (BTCA) to identify the Grandmaster clock.

The BTCA allows a Bolero Antenna to automatically take over the duties of Grandmaster when the previous Grandmaster gets disconnected due to a switch fault, a broken cable or is unable to continue for any other reason.

After power up the Bolero Antenna is listening for Announce messages from the PTP general multicast address. An Announce message contains the properties of the clock which sent it. If the Bolero Antenna sees an Announce message from a better clock it goes into a client state. If the Bolero Antenna does not see an Announce message from a better clock within the Announce Time Out Interval, then it takes over the role of Grandmaster.

This process runs continuously, so that TimeTransmitter capable devices are constantly watch for a possible loss of the current TimeTransmitter clock.

The Announce message contains properties of the clock that defines if a device becomes a Grandmaster. The following list shows the criteria in order of precedence.

1.	Priority 1	In Bolero this value is set to 128 and cannot be changed. Smaller numeric values indicate higher priority. Normally this is set to 128 for TimeTransmitter capable devices and 255 for TimeReceiver Only devices. If you want to overrule the normal selection criteria some devices can change the Priority 1 and create any pecking order you wish. (Not Bolero!)
2.	Clock Class	Bolero Antennas have a Clock Class of 228. A clock with a GPS receiver locked to Universal Coordinated Time (UTC) has a different class than one which is free running like Bolero. There are also states for various levels of holdover when a clock which had a GPS receiver lost the connection.
3.	Clock Accuracy	Not applicable for Bolero as it has a free running clock. This is an enumerated list of ranges of accuracy to UTC, for example 25-100 ns.
4.	Clock Variance	Not applicable for Bolero as it has a free running clock. This is a complicated log scaled statistic which represents the jitter and wander of the clock oscillator over a Sync message interval.
5.	Priority 2	This is the Bolero "PTP TimeTransmitter Priority" setting. The main purpose is to select an internal grandmaster for the net, if no other device with better Clock Class or Priority 1 is found. It allows system integrators to identify primary and backup clocks among identical redundant Grandmasters. Smaller numeric values indicate higher priority.
6.	Source Port ID	This is a number which is required to be unique. Bolero is using the Ethernet MAC address. It guarantees that there is no draw.

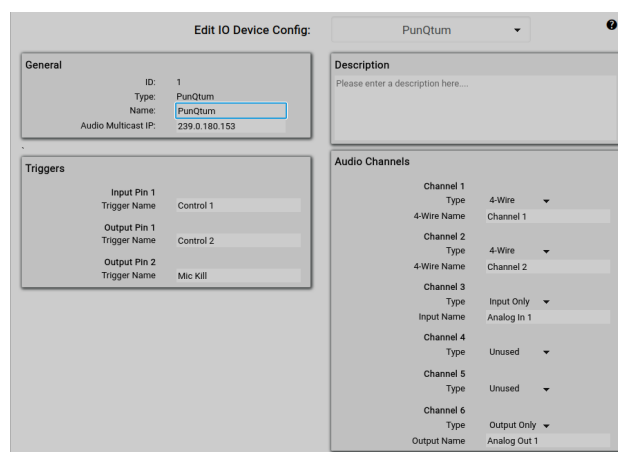
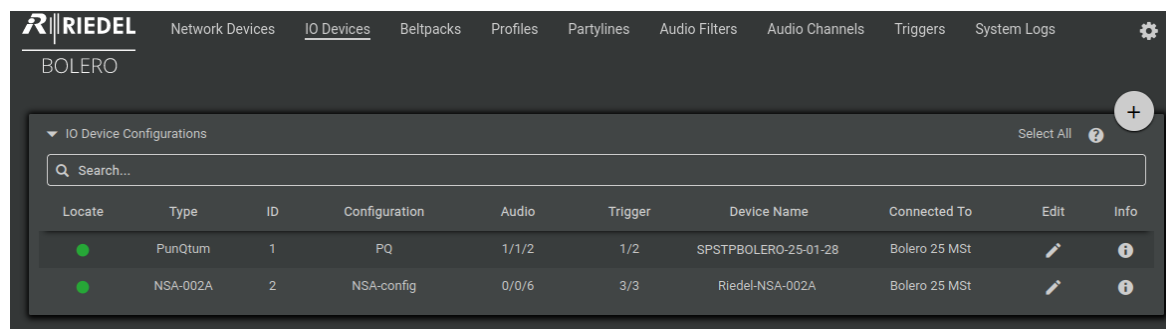
2.15 Bolero punQtum Integration

New in 3.3 'PunQtum Q210 P Speaker Stations' can now be used to integrate a PunQtum system into a Standalone mode Bolero Network Space similar to 'NSA-002A' devices.

- Integrates a punQtum Digital Partyline into a Bolero Standalone system setup
- Imports/synchronizes the punQtum config
 - punQtum System Interconnection Patch
- PQ 210 **P** is required as the interface to Bolero
- One PQ 210 **P** is able to share 6 duplex audio channels
 - 6 Partylines
 - 4 Partylines + 2 Inputs + 2 Outputs
- PQ 210 **PW** supported in the future

Firmware Requirements

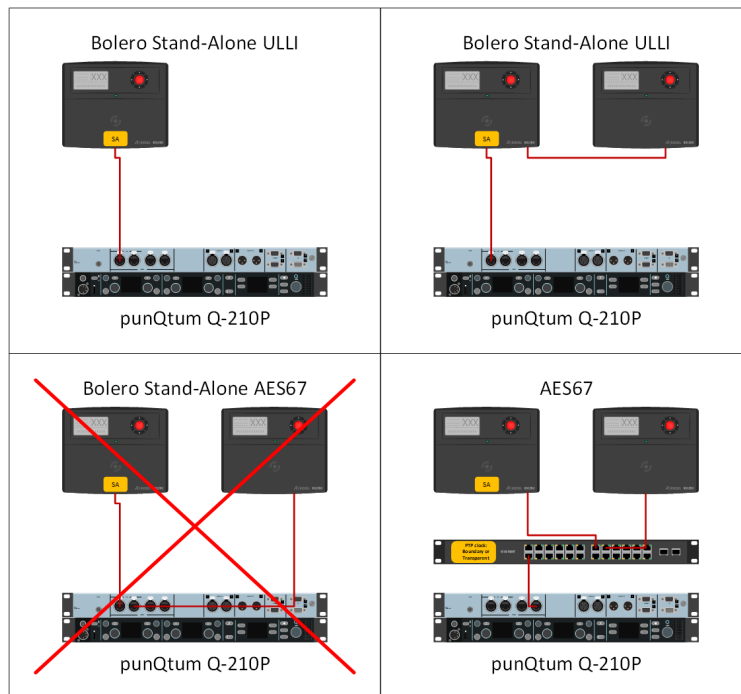
- punQtum:
 - Q-Tool Version 2.02.0018
- Bolero:
 - FW Version 3.3
 - License: BL-ANT-APP-PQ

Locate	Type	ID	Configuration	Audio	Trigger	Device Name	Connected To	Edit	Info
●	PunQtum	1	PQ	1/1/2	1/2	SPSTPBOLERO-25-01-28	Bolero 25 MSt		
●	NSA-002A	2	NSA-config	0/0/6	3/3	Riedel-NSA-002A	Bolero 25 MSt		

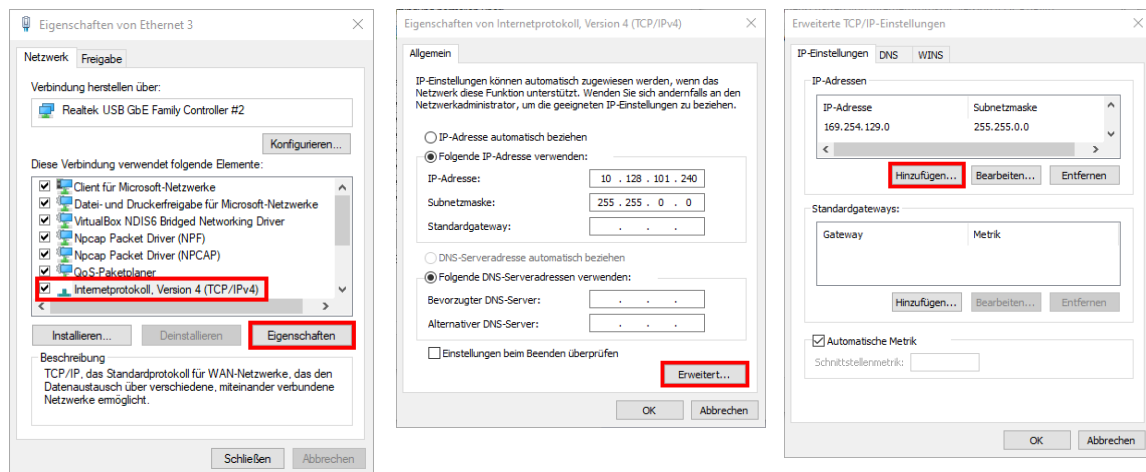
Possible Combinations

- A Bolero Antenna treats a punQtum Q-210P Station like an NSA-002A.

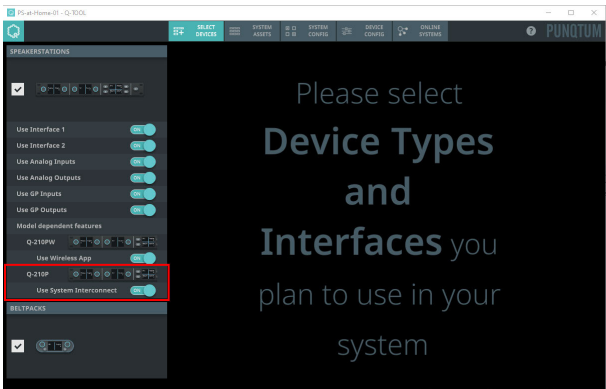


- Bolero Standalone/AES67 mode requires the use of a PTPv2 and IGMP capable switch.

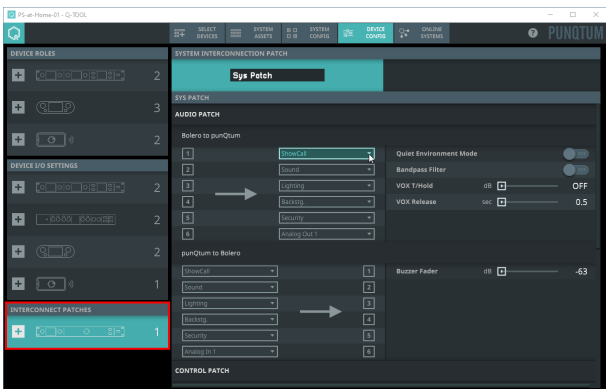
Computer Network Settings



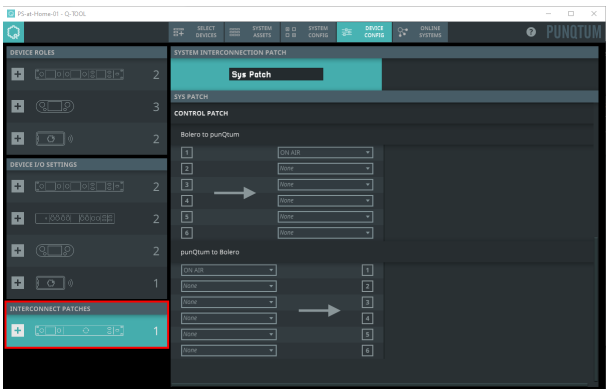
- Select Devices



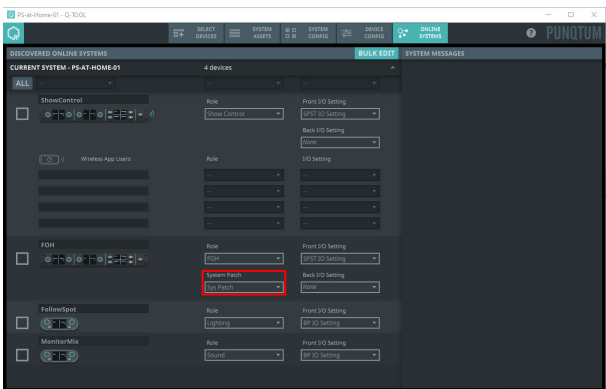
- Device Config (1)
 - Audio Patch



- Device Config (2)
 - Control Patch

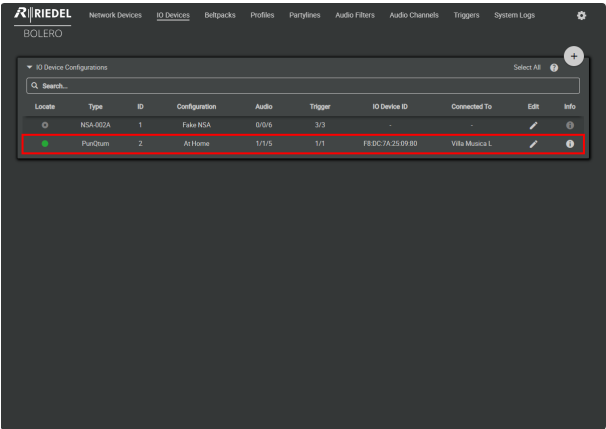


- Online Systems

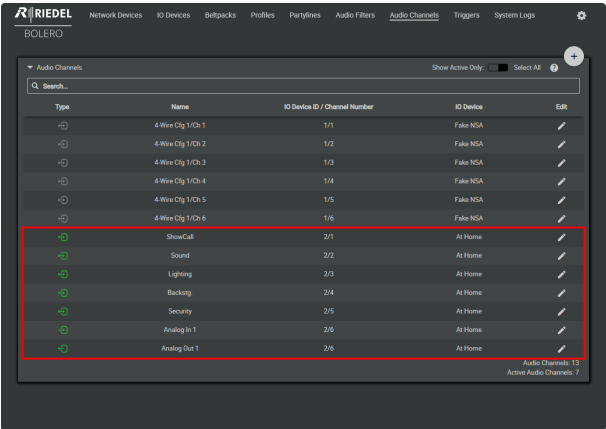


Bolero Setup

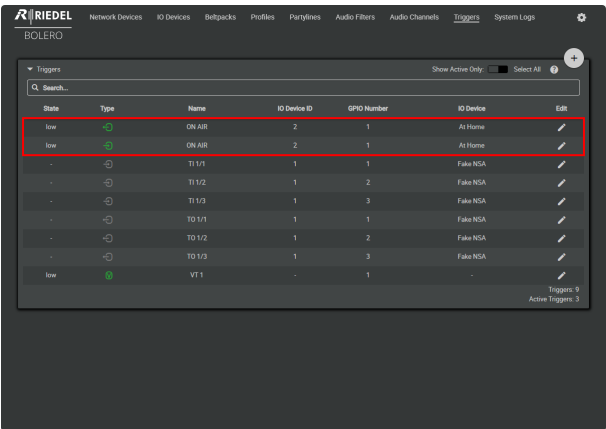
- IO Devices



- Audio Channels



- Triggers



3 Bolero Beltpack

The Bolero Wireless Beltpack is a light and compact, digital station with six individually configurable keys for intercom, IFB or GPO triggering use. Two rotary level controls on the front of the Beltpack allow volume-control for each key and menu navigation. Pushing the Talk key toggles talk on/off with momentary or latching operation as well as an Auto mode that combines both functions in one. Activation is indicated in the display and a button backlit LED. Optional super bright call LEDs and a vibration motor are able to indicate an incoming call or warnings. The Beltpack features a sunlight readable color display which by default shows the labels for the six function keys. In addition, the display gives the user access to the Quick menu and the intuitive configuration menu.

With the new "Touch&Go" Beltpack registration a quick and user-friendly registration is implemented. Just touch the Beltpack to the Antenna and GO.

Bolero is available in a DECT version and in the 2.4 GHz version. The Beltpacks do not differ in functionality, but 2.4GHz-Beltpacks will only connect to 2.4GHz-Antennas and DECT-Beltpacks will only connect to DECT-Antennas. Talking from a 2.4GHz-Beltpack to a DECT-Beltpack or vice versa works as long as they are both in the same Network Space or connected to the same Artist net. All Beltpack types can use the same Charger (even at the same time) for charging and updating.

All types of Beltpacks can be registered via NFC on all types of Antennas, i.e. registering a 2.4GHz-Beltpack on a DECT-Antenna or a DECT-Beltpack on a 2.4GHz-Antenna is possible. Of course OTA (over-the-air) registration works only for Beltpacks and Antennas of the same type (both 2.4GHz or both DECT).

A high-clarity voice codec provides both higher speech intelligibility and more efficient use of RF spectrum supporting twice the number of beltpacks per antenna for the same radio bandwidth as other systems. The Riedel-exclusive ADR technology combines a unique receiver design with multiple diversity elements specifically designed to reduce sensitivity to multipath reflections, making Bolero DECT and 2.4 GHz useable in challenging RF environments where other systems have great difficulty.

The Bolero Wireless Beltpack has a user replaceable headset connector (XLR), a 3.5mm jack for a line-in signal and a USB port. Bolero DECT-Beltpacks support Bluetooth 4.1, allowing a Smartphone to be connected. When a Smartphone is connected, the Beltpack can act like a car's "hands free" setup so the user can receive calls on their phone and talk and listen via their Beltpack headset. Users can also inject phone calls directly into the intercom channels, providing new levels of workflow flexibility.

A fully charged Bolero rechargeable Battery allows more than 17 hours of operation. The rugged housing with rubber protectors houses the internal antennas.

3.1 Operating Elements

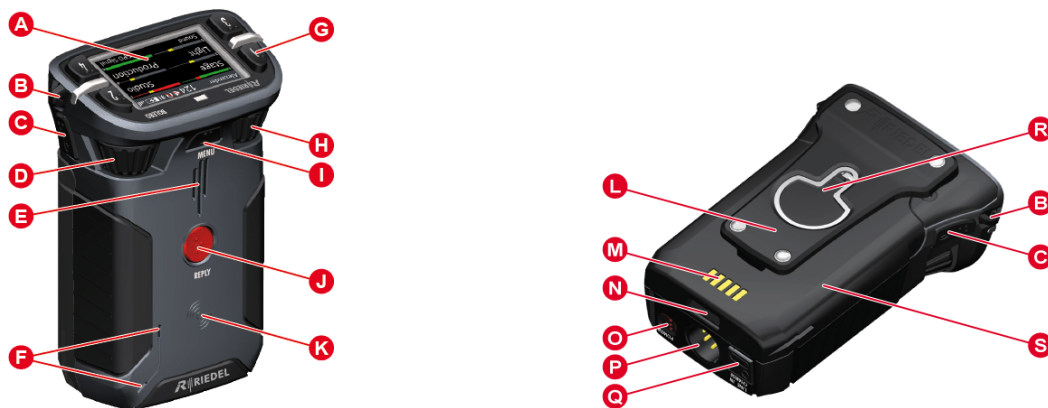


Figure 208: Beltpack – Operating Elements (front/top, rear/bottom)

A	Full color sunlight readable display
B	Lanyard or safety cord mounting holes
C	Walkie-Talkie keys 5+6 (side)
D	Rotary encoder (2)
E	Speaker
F	Microphones
G	Keys 1...4 (top)
H	Rotary encoder (1)
I	Menu key
J	Reply key
K	NFC contact point
L	Belt clip
M	Charging contacts
N	Battery release button
O	Power button
P	Headset connector (XLR , replaceable)
Q	Line-In and charging sockets (3.5mm jack / USB Type-C) underneath a rubber cover
R	Screw head mount and bottle opener
S	Removable battery pack

XLR (male)

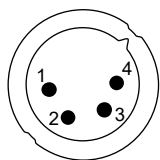


Figure 209: XLR 4 male

Pin	Description
1	Microphone -
2	Microphone + (+5 VDC)
3	Earphones -
4	Earphones +

The XLR connector (XLR4M) supports mono headsets with electret or dynamic microphones, depending on the menu setting.

The microphone power (+5 VDC) will be switched on if the menu setting '**Audio > Headset Type**' is set to **Electret**, **Electret detect** or **Auto** and an electret microphone is attached.

Stereo operation is supported with the 7-pin XLR connector (XLR7M).

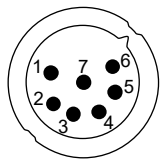


figure 210: XLR 7 male

Pin	Description
1	HS MIC A - , (GND)
2	HS MIC A + , (+5 VDC)
3	GND
4	HS Phones A + (left)
	HS Phones A + (right)
	PTT A
	Data A

The replacement of the XLR connector as well as a schematic are described in the chapter [XLR Insert](#).

3.5mm jack (female)

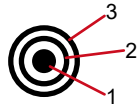
	Pin	Description
	1 (Tip)	Left
	2 (Ring)	Right
	3 (Sleeve)	GND

Figure 211: 3.5mm jack female

The 3.5 mm jack is a line input connector. The maximum input level is +12 dBu.

USB Type-C

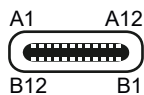
	Pin	Description	Pin	Description
	1	GND	7	Dn1
	2	SSTXp1	8	SBU1
	3	SSTXn1	9	VBUS
	4	VBUS	10	SSRXn2
	5	CC1	11	SSRXp2
	6	Dp1	12	GND

Figure 212: USB Type-C

The USB connector is used to charge the Beltpack.



Charging is only possible with >500 mA USB ports. 100 mA are not supported.
The charge current is limited to 500 mA by the Beltpack.

3.2 Status LEDs



Figure 213: Beltpack – Status LEDs (top)

1	Status	off	Beltpack is turned off
		green	- Beltpack ready (System ok) - Beltpack off, USB charging, battery full
		green blinking	USB charging, battery level >90
		red	- Booting - Beltpack not registered/not connected - Low battery level (<15%) - Outside the Antenna coverage area
		red blinking	Critical battery level (<8%)
		red fast blinking	Critical error (no function)
		orange	Mic unmuted, Sidetone on
		orange blinking	USB charging, battery level <90%
		orange fast blinking	Locate function active
		orange-red blinking	- Mic unmuted - Sidetone on - Critical battery level (<8%)
2, 3	Call	off	No active call
		green	Incoming call
		green blinking	Volume increase/decrease
		bright orange	Incoming / outgoing notification (beep)

3.3 Basic Operation

3.3.1 Startup

Turn the Beltpack on (or off) by pressing the 'Power' button on the bottom.

If the Beltpack is already registered to a Net, the Beltpack will try to establish a connection to it. An unregistered Beltpack shows "Not registered!" on the splash screen. Pushing the 'Reply' key for a second opens the **Registration** menu to register the Beltpack in a Bolero-Net. (⇒'Add Beltpacks'.)



Figure 214: Power on/off

The Main-View appears after successful registration and establishing a connection to a Net:



Figure 215: Main-View

Status bar	Beltpack name		Alexander
	Beltpack ID		24
	Silent mode		
	Speaker mode (Walkie-Talkie)		
	Headset not connected		
	Listen / Monitor information		
	Bluetooth	paired	
		connected	
	Battery status	Charge level indicator	
		USB charging	
		USB charging (battery full)	USB
	Radio level status		
Main area	6 keys	Key number	1 ... 6
		Level meter	
		Name of the channel or function that is assigned to the respective key (e.g. Reply, Set Trigger, Menu-Shortcut, Toggle Setting, etc.).	Stage

3.3.2 Key Functions

While the display is showing the Main View, users may talk or listen individually or at the same time to all channels.

A channel can be activated by pressing one of the six corresponding keys (e.g. key 1).

All active channels are highlighted in color in the display and inactive channels are shown in dark gray.



Figure 216: outgoing call

The keys 1 to 4 are latching by default. Push again the key to deactivate the respective channel.

The keys 5, 6 and Reply are none latching by default (momentary). That means releasing this key will stop talking to this channel (Walkie-Talkie mode, PTT – push to talk).

Incoming calls are additionally indicated by the green Call LED on the corresponding side. (Channel 1, 3 and 5 on the left side and channel 2, 4 and 6 on the right side).



Figure 217: incoming call



The key mode (Latching / PTT) is set in Director if the system is set to **Integrated/Artist** mode. For a new configuration in Director, all 6 keys are in momentary mode by default.

Menu Key

Three different functions can be triggered by pressing and holding the Menu key for a certain time.

Hold time of the Menu key	Description
short key press (<0.5 sec.)	Setting of individual volume or muting of individual channels.
middle key press (0.5 ... 3 sec.)	The Quick Menu contains shortcuts to frequently used menu items.
long key press (>3 sec.)	Information can be called up and settings can be made in the Main Menu .



Abbildung 218: Menü-Taste

Navigation

Following keys can be used to navigate in the menu:

• Rotary Encoder 1 • Rotary Encoder 2	• Select the next or previous menu item • Change values/settings
• Key 3 • Reply Key	• Back to parent menu item • Cancel editing of values/settings
• Key 4 • Menu Key	• Enter selected menu item • Confirm values/settings



3.3.3 Volume Adjustment

The two knobs allow you to adjust and limit the overall volume of all channels or the volume of individual channels.

Main Volume

By turning one of the two rotary encoders while the display shows the main view, the overall volume of the speaker or headset can be adjusted. The current total volume is shown in a level meter in the header.



Figure 219: Main Volume

Channel Volume

To change the volume of individual channels, briefly press the menu key (1. <0.5 sec.).

Then use the two rotary controls (2. A+B) to adjust the volume of the first two channels (1+2). The level meters above the key labels indicate the channel volumes set in each case.

Further short keystrokes on the menu key change to the next channels 3+4, 5+6 and finally to the Reply key. Another short key press returns to the main view.

If no change takes place for 3 seconds, the Beltpack also switches back to the main view.

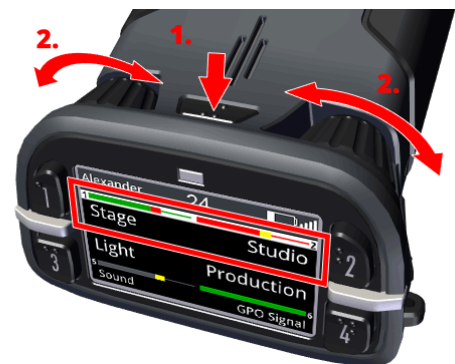


Figure 220: Channel Volume

3.3.4 Quick Mute

A Beltpack user is able to quickly mute a Partyline (or any other audio source) assigned to a key without turning the volume down to minimum. This is done by entering the volume menu (1. short press on the menu button) and then pressing the desired key (2. e.g. key 1) to mute or unmute. When the key is unmuted, the original volume is restored.

The volume level can be changed even while the audio source is muted.

Muting an active audio source will deactivate it.



Figure 221: Quick Mute

This feature has slightly different behavior in **Standalone** system mode:

• Integrated/Artist Mode	Muting behaves as described above.
• Standalone/AES67 Mode • Standalone/Link Mode	The behavior of a muted key can be customized: • In the Web Interface: (⇒ Edit (Beltpacks)) Beltpacks > Edit > Keys > Action - Muted Key Pressed • In the Beltpack Main Menu: (⇒ General Settings) General Settings > Key Assignment > Key 1 ... 6, Reply > Action - Muted Key Options: • Keep Mute State: No changes, the incoming audio signal stays muted. • Unmute: The incoming audio signal is immediately unmuted when the key is activated. • Momentary Unmute: The incoming audio signal is immediately unmuted when the key is activated and automatically muted when the key is deactivated again.

3.3.5 Quick Menu

The Quick-Menu is opened by pressing and holding the Menu key (0.5 ... 3 sec.).

The Quick-Menu allows using up to 16 user defined shortcuts to frequently used menu commands.

Navigate with one of the rotary encoders to the desired menu item and press the menu key to open the respective menu.

The selected menu item can be deleted in the Quick Menu by pressing the Key-1.

A user defined menu item can be assigned to the Quick-Menu by pressing the Key-2 and selecting the desired menu item.



Figure 222: Quick-Menu

Header	Time	14:43
	Silent mode	
	Speaker mode (Walkie-Talkie)	
	Headset not connected	
	Listen / Monitor information	
	Bluetooth	paired
		connected
	Net name / Net ID	Bolero-Net / 2
	Microphone type (dynamic, electret, error)	D-Mic E-Mic Mic-Err
	Battery status	with remaining operation time
		12h30m
		Battery error
		USB charging
		USB charging (battery full)
Main area	Radio level status with level indication	-58 dBm
	User defined menu shortcuts:	Brightness Mode Medium
	• Brightness Mode	Lock Keys
	• Lock Keys	Headset Type Auto Detect
	• Headset Type	Side Tone -12 dB
	• Side Tone	Silent Mode Off
Navigation Bar	• Silent Mode	
	Reply key or Key 3 – one layer back	 Back
	Key 1 – delete the selected item	 Del
	Key 2 – add item	 Add
	Menu key or Key 4 – select item	 Select

3.4 Main Menu

The Main Menu is opened by pressing and holding (>3 sec.) the Menu key.

Basic information is displayed and settings can be modified in the Main Menu.



The Beltpack language can be changed in the menu "Allgemeine Einstellungen > Language" to 'English'.



Abbildung 223: Hauptmenü

The Main-Menu contains following entries:
(Default values are underlined.)

- [Audio](#)
- [Brightness](#)
- [General Settings](#)
- [Bluetooth](#) (not available for 2.4GHz-Beltpacks)
- [Registration](#)
- [Admin](#)
- [Service](#)

3.4.1 Audio

Gain Settings	Headset Volume	Volume level of the headset: Mute, -60 ... <u>-12</u> ... +12 dB
	Speaker Volume	Volume level of the speaker: Mute, -60 ... <u>0</u> ... +12 dB
	Side Tone	Volume level of the Sidetone: Mute, -60 ... <u>0</u> ... +12 dB
	Headset Microphone	Gain level of the headsets microphone: 0 ... <u>+8</u> ... +30 dB
	Internal Microphone	Gain level of the internal microphone: 0 ... <u>+15</u> ... +30 dB
	Line Input	Gain level of the Aux input: Mute, -60 ... <u>-12</u> ... +12 dB
	Priority Dim	Dim level of priority calls: Mute, -72 ... <u>-20</u> ... 0 dB
	Beep Notification	Volume level of the beep tones (relative to Headset/Speaker volume): -24 ... <u>-12</u> ... +12 dB
	Voice Notification	Volume level of the voice notifications (relative to Headset/Speaker volume): -24 ... <u>-6</u> ... +12 dB
	Microphone Limiter	Threshold level of the microphone limiter: <u>Off</u> , -72 ... 0 dB
	Headset Limiter	Threshold level of the headset limiter: <u>Off</u> , -72 ... 0 dB
	Bluetooth Mobile/PC Volume *1	Volume level of the Bluetooth audio signals: Mute, -60 ... <u>-18</u> ... +12 dB
	Bluetooth Microphone *1	Bluetooth microphone amplification: -24 ... <u>0</u> ... +12 dB
	Headphone Lower Limit	Lower volume level of the headset: <u>Mute</u> , -60 ... +12 dB
	Speaker Lower Limit	Lower volume level of the speaker: <u>Mute</u> , -60 ... +12 dB

*1 only for DECT-Beltpacks

VOX	Microphone VOX	Enables the VOX function for the microphone input. The audio from the microphone is only routed to the system when the audio exceeds the VOX threshold. Off: Audio is always routed to the system when key is latched. Standard: Standard VOX algorithm activates when the signal exceeds a fix threshold. Adaptive: The adaptive VOX algorithm automatically adapts to the background noise level. The VOX threshold is changing every few seconds to the current background noise. Noise Gate: The audio is only <u>forwarded</u> to the system when the VOX is active.	
	BT/Line Input VOX Dim	Off: The VOX functionality is turned off. The audio signal is always going through. Standard: The VOX functionality is turned on. BT/Line audio is switched through depending on the configurable parameters Threshold and Hold Time . Adaptive: The adaptive VOX functionality is switched on and the threshold is continuously adapted to the current background noise. BT/Line audio is switched through depending on the configurable parameters Delta and Hold Time .	
Audio Usage 	Name of the Audio Ports 1 ... 35	List of all audio ports the Beltpack is able to listen to.	
		Volume	Volume level of the audio ports: Mute, -60 ... 0 ... +12 dB
		Mute	Muting of the audio ports: <u>Off</u> , On
Listen & Monitoring Devices 	List of other devices that are currently monitoring or listening to this Beltpack.		
Headset Type	Selection of the microphone type in the headset: <u>Auto detect</u> , Dynamic detect, Electret detect, Dynamic, Electret		
Plug Function	Plug	The Beltpack activates the headset mode if a headset is connected. <u>On</u> , Off	
	Unplug	The Beltpack activates the speaker mode if the headset is disconnected. On, <u>Off</u>	
Enhancements	Microphone Filter	Headset microphone filter: <u>off</u> , low-cut 60/120Hz, filter for AIR/PRO/MAX/RUN headsets dynamic/electret	
	Headphone Filter	Headphone filter: <u>off</u> , low-cut 80/150Hz, filter for AIR/PRO/MAX/RUN headsets standard/plus	
	Headset Echo Suppression	Prevents/reduces acoustic echo distortions to improve voice quality of headsets: <u>Off</u> , On. Echo suppression is always on in Speaker mode.	
Speaker	Enables the internal speaker and microphone (walkie-talkie mode): <u>Off</u> , On If the silent mode is active while the speaker mode is enabled, the silent mode is turned off and a warning is shown (Silent Mode is turned off).		

 only in Standalone/AES67 or Standalone/Link mode

3.4.2 Brightness

Brightness Mode	Selection between one user defined and four pre-defined brightness definitions: Off, Low, <i>Medium</i> , High, Custom	
Settings	Display	Normal brightness level of the display: Off, 0 ... <u>50</u> ... 100% (10% steps)
	Display Dim	Dimmed brightness level of the display: Off, 0 ... <u>50</u> ... 100% (10% steps)
	Display Dim Timer	After this time of inactivity, the display illumination is dimmed: Off, 1 ... <u>10</u> ... 240 sec.
	Display Timeout	After this time of inactivity, the display illumination is switched off: <u>Off</u> , 1 ... 240 sec.
	Keys	Normal brightness level of the keys: Off, 0 ... <u>60</u> ... 100% (20% steps)
	Keys Dim	Dimmed brightness level of the keys: Off, 0 ... <u>20</u> ... 100% (20% steps)
	Keys Dim Timer	After this time of inactivity, the key illumination is dimmed: Off, 1 ... <u>10</u> ... 240 sec.
	Keys Timeout	After this time of inactivity, the key illumination is switched off: <u>Off</u> , 1 ... 240 sec.
	Call LED Brightness	Brightness level of the Call LED: 20 ... <u>40</u> ... 100% (20% steps)
	Status LED Brightness	Brightness level of the Status LED: 20 ... <u>80</u> ... 100% (20% steps)

3.4.3 General Settings

Name & ID 	Name	Entry of the 12-digit Beltpack name.	
	ID	Entry of the 3-digit Beltpack ID.	
Profile	In a profile user rights, keys and parameter settings are defined. Profile changes are possible in the web interface.		
	Change Profile	Changes the profile of the Beltpack. A list of available profiles is displayed.	
Key Assignment 	Taste 1 ... 6, Reply Key	Function	• none • Talk • Talk - Always Listen • Talk & Listen • Notification/Beep Select • Reply • Menu Shortcut • Toggle • Monitor Trigger • Set Trigger • Volume + • Volume -
		Destination/ Source	• Beltpack • Partyline • Audio Channel
		Mode	• <i>Momentary</i> (default Key Reply) • Latched • <i>Auto</i> (default Key 1 ... 6)
		Priority	• Defines the priority of the function: High: All <u>other</u> audio signals with lower priorities (Standard or Low) are dimmed at the sink when the audio signal with high priority is active. Low: <u>This</u> audio signal is dimmed when the sink receives an active audio signal with higher priority (Standard or High).
		Key Group	Local key group on the Beltpack in which only one key can be active at a time: <i>Off</i> , 1 ... 5
		Action-Muted Key	Action when a muted key is pressed: (⇒ Quick Mute) • Keep Mute State: No changes, the incoming audio signal stays muted. • Unmute: The incoming audio signal is immediately unmuted when the key is activated. • Momentary Unmute: The incoming audio signal is immediately unmuted when the key is activated and automatically muted when the key is deactivated again.
		External Key 1 / 2	Function
	Mode		• <i>Momentary</i> • Latched • Auto • On only • Off only
	Destination		• Key 1 ... 6 • Key Reply

Rotary Assignment	Volume Rotary 1/2	Defines the channels adjusted by the rotary encoder: <i>Main</i> , Key 1...6 , Reply, Bluetooth, Line Input
Notification	Call	Defines the signalization mode of a call: <i>Light</i> , Vibrate, Beep
	Notification/Beep	Defines the signalization mode of a notification e.g. beep call: <i>Light</i> , <i>Vibrate</i> , <i>Beep</i>
	Info/Low Battery	Defines the signalization mode if the battery power is low: <i>Light</i> , <i>Vibrate</i> , Beep, <i>Voice</i>
	Out of Range	Defines the signalization mode if the Beltpack loses the connection to the Antenna: <i>Vibrate</i> , Beep, <i>Voice</i>
	Volume Keys	Defines the signalization while using the volume keys: Vibrate, <i>Beep</i> , Voice
Silent Mode	Disables the speaker and vibrator: On, <i>Off</i>	
Display Mode	In all modes the font size is automatically reduced to fit long content into the fields:	
	Standard	default value
	Alternative	Keys 5 and 6 are in the middle of the screen.
	Standard Flip	Standard, display upside down
	Alternative Flip	Alternative, display upside down
Replay	The Replay function allows repeated listening to the last call. Recordings are VOX controlled. Thus, no silence is recorded.	
	Playback	Starts the playback of the latest recording.
	Recording Time	Defines the duration of recordings: Off, 1 ... <i>3</i> ... 15 Sec.
	Store Time	Defines the time, how long the recording is stored: 1 ... <i>60</i> ... 240 Min.
Timeout	Menu	After this time of inactivity, the menu will be closed and the display shows the Main-View: 5 ... <i>120</i> ... 240 sec.
	Volume Change	After this time of inactivity, the volume adjustment is terminated: 1 ... <i>3</i> ... 240 sec.
Language	Selection of a pre-programmed language: <i>English</i> , Deutsch, 中文 Besides German and English, a Chinese translation of all Beltpack menus is available.	
Lock Keys	Lock the keys to prevent accidental key actions: locked, <i>unlocked</i>	

 only in Standalone/AES67 or Standalone/Link mode

3.4.4 Bluetooth

This menu is not available for 2.4GHz-Beltpacks.

Bluetooth State	Enable the Bluetooth functionality: <u>Off</u> , Connect to Headset, Connect to Mobile/PC
Connect / Disconnect	• Disconnect: If connected to a device • Connect: if not connect to a device
Pair / Delete Pairing	Activates the pairing mode and will be visible for other devices.
Share to net *1	Shares an active telephone call (no music) via intercom: <u>Local</u> , Public
Dim Level *1	Dimmed Bluetooth audio level if Beltpack has an active intercom conference: <u>Mute</u> , -24 ... +12 dB

*1 only if "Connect to Mobile/PC"

Further information can be found in chapter '[Bluetooth](#)'.

3.4.5 Registration

Register to net	Registers the Beltpack to an existing net. The OTA registration PIN is necessary (Admin PIN by default). A list of available nets is displayed: • Over The Air (OTA)
Connect to pre-registered net *1	Registers the Beltpack to previous registered nets. A list of available pre-registered nets is displayed: • Select one to connect • Currently connected net is shown with radio select icon
Delete pre-registered net	Deletes previous registered nets in the Beltpack. A list of pre-registered nets is displayed: • Select one to delete
Allow multi-registration *2	<u>On</u> : The Beltpack can be registered in up to 10 Nets. If the Beltpack is registered in another new Net, the 'oldest' Net from the list will be automatically overwritten. <u>Off</u> : For security reasons the multi-registration can be set to Off. The Beltpack can be registered to a single net only. All pre-registered nets except the current connected net will be deleted.
Automatic net change	<u>Off</u> : The Beltpack will only ever try to reconnect to the last connected Network Space. <u>On</u> : This allows the Beltpack to search for any of the pre-registered Network Spaces when trying to connect (the last connected Network Space will be checked first).

*1 only if **Allow multi-registration** is enabled

*2 automatically enabled if **Automatic net change** is enabled

Further information can be found in chapter '[Add Beltpacks](#)'.

3.4.6 Admin

The Admin PIN is required to access the Admin menu.

Registration Mode	Local Beltpack NFC	Registers a Beltpack at an already registered Beltpack via NFC: • NFC (local BP) active as long as you exit
	Over The Air (OTA)	Registers a Beltpack at an already registered Antenna via DECT: On , Off (all Antennas)
	Antenna NFC	Allows registering a Beltpack at an already registered Antenna via NFC: On , Off (all Antennas NFC)
	Timeout	After elapsing this time, the registration mode is disabled: Off , 1 ... 2 ... 60 min. (for OTA, System wide NFC, Charger)
OTA Pin	Defines the legitimation during OTA registration	
	Disable PIN	No PIN entry is required for OTA registration.
	Set new Pin	Insert a new 4-digit PIN that is required for the OTA registration.
	Set to Admin Pin	Defines to use the Admin PIN for OTA registration.
Admin Pin	Defines the legitimation to open the Admin menu in the Beltpack or to log into the web interface of the Antenna.	
	Disable PIN	No PIN entry is required for administration.
	Set new PIN	Insert a new 4-digit PIN that is required for administration purposes.
Time Source	Selects the synchronization source of the Beltpacks time setting: <i>PTP</i> , NTP, Internal	
System Time	Allows entering the system time if the time source is set to Internal .	
System Date	Allows entering the system date if the time source is set to Internal .	
Time Format	Define the time format: 12h, <u>24h</u>	
Date Format	Defines the date format: (dd/mm/yyyy, mm/dd/yyyy, <u>yyyy/mm/dd</u>)	

3.4.7 Service

Test	Walk Test	Analyzes the signal quality to the visible Antennas. Following values are shown: DECT - Antenna ID - Antenna RPN - current Signal Strength - current Signal Quality 2.4GHz - Antenna ID - available channels - Bars to show interference level of carrier frequencies - Radio error rate - audio error rate - retransmitted load
	Walk Test Pro	Lists all Antennas that are visible at the current position. Following values are displayed: - Antenna ID - Antenna RPN - Signal strength - Busy: available Antenna capacity (ok, full) - Errors downlink - Errors uplink
	Reset	Profile Defaults
	Factory Reset	Resets the Beltpack to factory default settings. All data (Net lists, Profiles, Registrations) will be lost! A new registration is required.
Information	Radio	Displays a table with radio information. Following values are displayed: - Visible Antennas - Current Radio Level - Radio Quality - Antenna Name - Antenna Number
	Beltpack	Displays a table with Beltpack information. Following values are displayed: - Package Version: x.x.x - Firmware Version: Vxx.xx.xx - Main Version: xxx - Display Version: xxx - Serial number: (13 digits)
	Battery	Displays a table with Battery information. Following values are displayed: - Charge Status: xx %, xxxx mAh - Charge Mode:(not charging, xxxx mA - Temperature: (too cold!, cold, normal, warm, too hot!) - Battery Health: xxx % of max. capacity - Capacity Max.: xxxx mAh - Hardware: xx.xx - Serial Number: (13 digits)
Area	Protected menu – for Riedel service purpose only	

3.5 Features in Detail

3.5.1 Headset Type

Open the Beltpack Menu by pressing and holding (>3 sec.) the Menu key and select '**Audio > Headset Type**'. Select the microphone type of the headset:

Auto Detect	The Beltpack automatically detects the headset type.
Dynamic Detect	The Beltpack is fixed to a headset type but turns on audio only if a headset is detected.
Electret Detect	
Dynamic	The Beltpack is fixed to a headset type and audio is enabled.
Electret	



For Headset MAX D2, the "Auto Detect" function is only available for headset revisions equal or higher than 10.01.

3.5.2 Speaker

In the menu '**Audio > Speaker**' is defined if the audio signal is routed to the internal speaker or to an attached headset.

The following table shows the usage of the internal and headset microphone:

	Speaker Mode: On	Speaker Mode: Off
Headset connected	Beltpack microphone	Headset microphone
no Headset connected	Beltpack microphone	no microphone active



In the speaker mode the echo cancellation is always active.

3.5.3 Brightness Mode

The menu 'Brightness > Brightness-Mode' allows switching between different predefined and one user specified display settings. Under 'Brightness > Custom Settings' the single parameters can be modified.

The predefined modes have following values:

Element	Description	Off ^{*1}	Low	Medium	High
Display	normal display brightness	0%	20%	60%	100%
Display Dim	dimmed display brightness	0%	10%	20%	50%
Display Dim Timer	inactivity timer to dim the display	off	5 sec.	20 sec.	Off
Display Off Timer	inactivity timer to turn off the display	off	60 sec.	Off	Off
Keys	normal key brightness	0%	20%	60%	100%
Keys Dim	dimmed key brightness	0%	20%	20%	60%
Keys Dim Timer	inactivity timer to dim the keys	off	20 sec.	20 sec.	Off
Keys Off Timer	inactivity timer to turn off the keys	off	240 sec.	Off	Off
Call LED Dim	dimmed Call LED brightness	0%	20%	40%	100%
Status LED Dim	dimmed Status LED brightness	0%	20%	60%	100%

^{*1} Note that even if the display brightness is set to 0%, the display automatically turns on with 10% brightness when the Beltpack main menu, volume menu or quick menu is entered. It turns off immediately when the menu is left again.

3.5.4 Profiles

A Profile is assigned to every Beltpack when it is registered. The profile contains default settings for the whole Beltpack-Config and user rights indicating which settings of the Beltpack-Config the Beltpacks user is allowed to see and/or to change.

Using the Admin or Registration PIN, a profile can be chosen in the Antennas Web Interface or in the Beltpack-Menu that should be assigned to all newly registered Beltpacks. The Beltpack stays associated to its profile as long as it is registered.

Changes to a profile in the web interface are immediately applied to all Beltpacks using the edited profile, regardless of the previous setting on the Beltpack. Note that only the changed profile settings (highlighted in blue) are applied to all Beltpacks using this profile, while all other settings on the Beltpacks remain unaffected. Some settings are grouped (e.g. Keys, Always-On, Rotaries functions, etc.), meaning they can only be edited together. For example, changing a single key in the Profile Configuration will re-apply the settings for all keys on all Beltpacks using this profile since all keys are in one group.

The profile of a Beltpack can be changed by the Beltpack-User in the Beltpack-Menu ("Change Profile"; if he has the right), by the Admin using the Web Interface or by (re-)registering the Beltpack while a different profile is selected to be used on all newly registered Beltpacks. A profile change means that a complete reset to the new profile defaults regarding the whole Beltpack-Config.

When a user chooses to load the same profile that the Beltpack already has, the Beltpack-Config is reset back to profile defaults. Should a Beltpack be (re-)registered using the same profile that it already has, nothing is changed (e.g. no changes in the Beltpack-Config).

3.5.5 Notification

In the menu 'General Settings > Notification' is defined, how different events are signalized. It is possible to combine multiple signalization types.

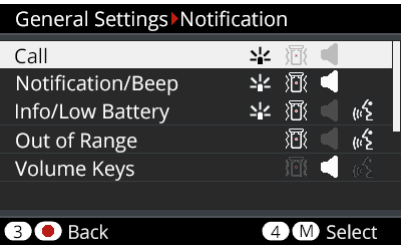


Figure 224: Notification

Events	Signalizations
Call	 orange flashing Call LED
Notification/Beep	 Vibration
Info/Low Battery	 Signal sound (beep)
Out of Range	 Voice announcement
Volume Keys	

3.5.6 Silent Mode

In the menu 'General Settings > Silent Mode', the speaker and vibration can be disabled.

3.5.7 Display Mode

The menu 'General Settings > Display-Mode' allows selecting between the standard view, a 'Flip' and an 'Alternative' view. The display modes can be combined.

The **Flip** mode flips the single rows in the display horizontally.

The **Alternative** mode displays the keys 5 and 6 in the middle.



In all modes the font size is automatically reduced to fit long content into the fields.

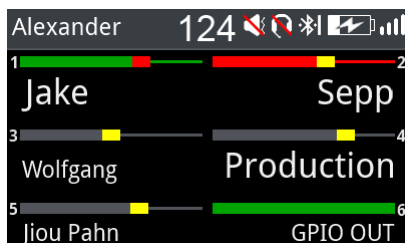


Figure 225: Standard



Figure 226: Standard Flip

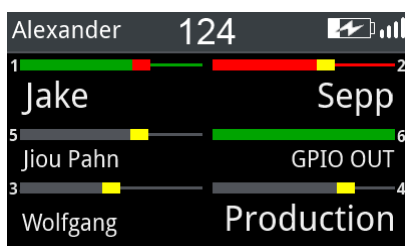


Figure 227: Alternative



Figure 228: Alternative Flip

3.5.8 Lock Keys

The menu 'General Settings > Lock-Keys' allows locking the keys to prevent accidental key actions.

To unlock the keys:

1. If any key is pressed, the display shows 'Keys/rotaries locked. To start the unlock sequence, press the Menu key.'.
2. Once the menu key is pressed, the display shows "Press Key 4 to unlock.".
3. If key 4 is pressed during the timeout, the keys are unlocked. Otherwise the keys remain locked and the display returns to the Main-View.

3.5.9 Bluetooth

This menu is not available for 2.4GHz-Belpacks.

The Belpack provides a Bluetooth 4.1 wireless connection, which is available even when no Antenna connection is available or the Belpack is not registered.

New in 3.3 Two Bluetooth headsets can now be paired to a single Belpack. Only one of the two can be actively connected at any point in time, but if the connected headset disconnects (e.g. because the headset battery ran out), the second paired headset will connect automatically if it is turned on.

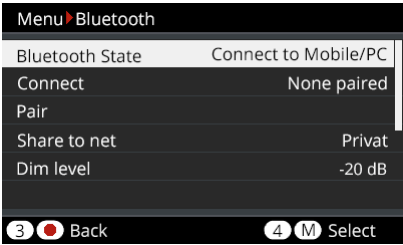


Figure 229: Bluetooth

The menu [Bluetooth State](#) allows defining the device to be paired (Headset or Mobile/PC). After that the menu [Pair / Discoverable](#) allows pairing the desired device.

If the Belpack is not connected to any device, the command **Connect** is displayed and allows establishing the connection to the paired device. If a connection is established, the command **Disconnect** is displayed.

After losing the Bluetooth connection:

	Bluetooth State: Mobile/PC	Bluetooth State: Headset
Connection loss (out of range)	The last connection is <i>not</i> reestablished.	The last connection is reestablished.
Reboot of the Bluetooth device	The last connection is <i>not</i> reestablished.	
Reboot of the Belpack	The last connection is reestablished.	

The Mobile/PC is able to force re-establishment via button press.
During Music or Telephone call, the title or Name or number is visible in Status line.

3.5.9.1 Bluetooth State

In the menu 'Bluetooth > Bluetooth State' is selected, if the Beltpack should be connected to a Mobile/PC or to a headset.

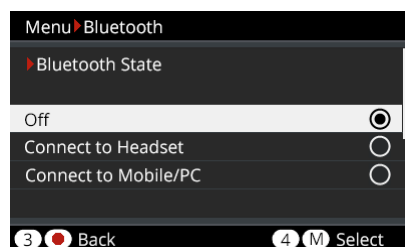


Figure 230: Bluetooth – Bluetooth State

Off	The Bluetooth functionality of the Beltpack is switched off.
Connect to Headset	The headset mode allows connecting a wireless Bluetooth headset to the Beltpack. In this mode the Bluetooth headset replaces the Beltpack's wired headset.
Connect to Mobile/PC	The Mobile/PC mode allows connecting a mobile device (mobile phone, tablet) or PC to the Beltpack. In this mode the Beltpack (including the wired headset) acts like a Bluetooth headset. The user is able to pick up a telephone call or skip forward to the next music track via the Beltpack user interface. A telephone call can be connected to one or more channels of the Beltpack (Public) or is only hearable on the connected Beltpack (Local). Music can only be heard at the local Beltpack. • Telephone call audio quality (bidirectional): Standard (20 Hz ... 4 kHz) • Music audio quality (unidirectional): HQ (20 Hz ... 20 kHz)

	The Line-Input is disabled in following conditions: • "Connect to Headset" mode: If there is a connection to a headset established. • "Connect to Mobile/PC" mode: While playing music. (When the music playback is stopped, the Line-Input is enabled again. The Line-Input remains active even during a telephone call.)
---	--

3.5.9.2 Pair

In the menu 'Bluetooth > Pair' the pairing process between the Beltpack and a Bluetooth device can be started. After selecting this menu the Beltpack is visible as an audio device called "Bolero" for other Bluetooth devices. Discovered devices are listed in the display.

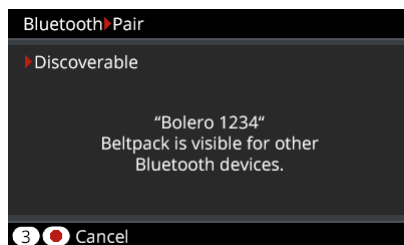


Figure 231: Bluetooth – Pair

Start the pairing process on the desired device. If a Mobile/PC is paired, confirm the generated PIN on this device. Confirm the PIN also on the Beltpack by pressing Key-4.

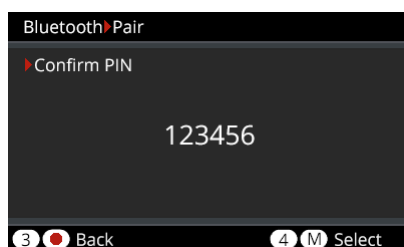


Figure 232: Bluetooth – Pair – Confirm



Pairing a new device will overwrite the previous settings.

3.5.9.3 Share to Net

The telephone signal from the mobile phone can be either heard/talked-to locally or be relayed to a public/intercom channel. Therefore the user is able to share the audio signal from the Beltpack connected mobile device via an activated intercom conference (**Public**) or listen to the audio signal at the Beltpack (**Local**) only. The audio signal is mixed to all active keys (channels).

The **Public** mode is indicated by a yellow status bar.

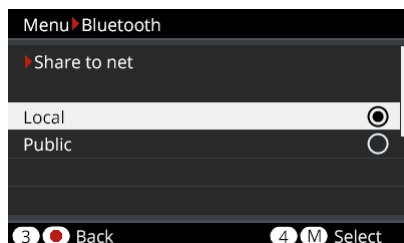


Figure 233: Share to net

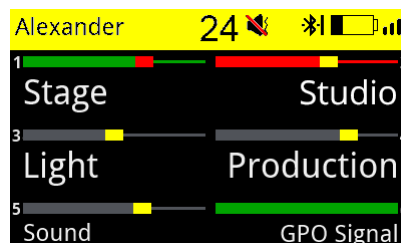


Figure 234: Public Mode enabled



In Public mode the Dim-Level function for the Beltpack device is disabled because the audio signal is part of the conference.

3.5.10 Add Beltpacks

Before a Beltpack can connect to a Bolero-Net, it has to be registered to it. Registration means, that the Bolero-Net knows the Beltpack, the Beltpack knows the Bolero-Net and an encryption key is generated to be used by both sides.

There are different ways to register a Beltpack to a Bolero Net:

Antenna OTA	Allows registering a Beltpack at an already registered Antenna via radio. (O ver T he A ir)
Antenna NFC	Allows registering a Beltpack at an already registered Antenna via NFC (N ear F ield C ommunication).
Beltpack NFC	Allows registering a Beltpack at an already registered Beltpack via NFC.

	If the function Allow multi-registration is activated, up to 10 Nets can be registered in a Beltpack. Otherwise the Beltpack can be registered in a single Net. (⇒ ' Beltpack > Main Menu: Registration ' and ' Antenna > Web-Interface > Beltpacks > Edit: Registration '))
---	--

3.5.10.1 Antenna OTA

This registration mode allows registering a Beltpack at an already registered Antenna over the air. Following steps are necessary to register a Beltpack via Antenna-OTA to a Bolero Net:

- At first the '**Registration Method (OTA)**' must be activated. This can be done in two ways:
 - a) Via the web interface
(ð'[Bolero Antenna > Features in Detail > Add Antennas](#)').
 - b) Via another Beltpack that is already registered in the Net:
Menu '**Admin > Registration Mode > Over The Air > On**'.

	• This setting is system wide and stays active until disabled or the registration timeout runs out. • The registration timeout is restarted each time a Beltpack is registered.
---	--

- Then start the registration process in the Beltpack that should be connected to the Net:
 - a) If the Beltpack is not registered to any Net, press and hold the 'Reply' key for one second. The Beltpack starts automatically searching for available Nets.
 - b) If the Beltpack is already connected to another Net, push the Beltpack's Menu key for >3 seconds (long key press), navigate to the menu 'Registration' and select 'Register to net'.

The Beltpack begins to search for available Nets and displays them one at a time.



Figure 235: Net searching

- The Beltpack will continue to search until a Net is found or '**Back**' is pressed.
- If '**Back**' is pressed, the Beltpack will stop searching and return to the **Registration** menu.
- If '**Next**' is pressed, the current Net is blocked and the Beltpack will continue searching for other Nets. The blocking list is cleared by reentering the **Registration** menu.
- If '**Select**' is pressed, the user will be asked for the **OTA Registration PIN** that was defined via the Antennas Web-Interface or via the Beltpack where the registration mode was enabled (by default the **Admin PIN** is used).
- After registration, the Beltpacks are immediately connected to the Bolero net.

3.5.10.2 Antenna NFC

This registration mode allows registering a Beltpack at an already registered Antenna via NFC. Following steps are necessary to register a Beltpack via Antenna-NFC contact point (📶) to a Bolero Net:

- At first the 'Registration Method (NFC)' must be activated. This can be done in two ways:
 - a) Via the Antennas web interface
(ð'Bolero Antenna > Features in Detail > Add Antennas').
 - b) Via another Beltpack that is already registered in the Net:
Menu 'Admin > Registration Mode > Antenna NFC > On'.

	- This setting is system wide and stays active until disabled or the registration timeout runs out (timeout is the same as for OTA registration). - All Antenna-NFCs are switched to registration mode. - The Beltpack-NFCs of connected Beltpacks are NOT switched to registration mode.
---	---

- The Beltpacks to be registered have to be turned on; no other special setting or user intervention is required.
- Just hold the NFC contact point of the Beltpacks close to the NFC contact point of any Antenna. The Beltpacks will be registered to the same net that the Antenna belongs to.
- After registration, the Beltpacks will immediately connect to the Bolero net.

3.5.10.3 Beltpack NFC

This registration mode allows registering a Beltpack at an already registered Beltpack via NFC. Following steps are necessary to register a Beltpack via Beltpack-NFC contact point (📶) to a Bolero Net:

At first the Registration Method 'Local Beltpack NFC' must be activated at the already registered Beltpack:

- Push the Menu key of the registered Beltpack for >3 seconds (long key press).
- Navigate to the 'Admin' menu.
- Enter the 'Admin PIN' of the net.
- Select 'Registration Mode' > 'Local Beltpack NFC'.



Figure 236: Registration Mode 'Local Beltpack NFC'

- The Beltpacks to be registered have to be turned on; no other special setting or user intervention is required.
- Just hold the NFC contact point of other Beltpacks close to the NFC contact point of the registered Beltpack with active local NFC. These Beltpacks will be registered to the same net that the registered Beltpack belongs to.
- After registration, the Beltpacks will immediately connect to the Bolero net.

	The Beltpack remains in active NFC registration mode until the user exits the "Local Beltpack NFC" menu. (There is no timeout.)
---	--

3.5.11 Remove Beltpacks

To de-register a Beltpack from a Net, choose the Menu 'Registration > Delete pre-registered Net'.

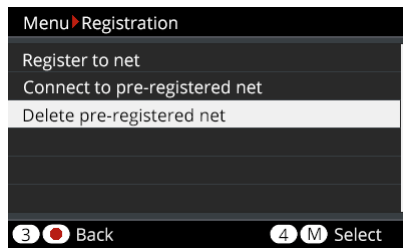


Figure 237: De-Registration

Select the Net to be removed from the list and confirm the de-registration by pressing Key-4. If the Beltpack is connected to this Net, it will be immediately disconnected.

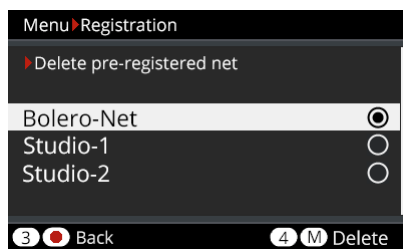


Figure 238: Delete pre-registered net



The De-Registration is also possible via the web interface. (⇒ [Remove Devices > Beltpacks](#))

3.5.12 Walk Test

The Walk Test (Pro) allows the analysis of the link quality to the visible Antennas while traversing the operating range of a Beltpack.

This feature is started in the Beltpack Menu 'Service > Test > Walk Test (Pro)'.

While the Walk Test (Pro) is being performed, the display continuously shows measurement results. Even if the main view of the display is not visible, the keys (1-6) retain their original functionality. This means that calls can be made or stopped and volume changes can be made while the Walk Test data is displayed at the same time. The Reply key is an exception, as it is used to end the range test and therefore does not have the same functionality as in the main view.



If the [Beltpack Monitoring](#) feature is enabled, the Beltpack user can forcefully generate a special measurement (including a marker) by pressing the menu key. The gathered data (including the markers) is presented in the Beltpack information view in the Web Interface (⇒[Info \(Beltpacks\) > Radio Monitoring](#)).

Walk Test

Depending on whether it is a DECT or 2.4GHz-Beltpack, different readings can be seen:

- For DECT Beltpacks, the walk test displays the current signal strength and signal quality of the Antenna to which the beltpack is connected.
- For 2.4GHz-Beltpacks, the Walk Test displays the interference level of all carrier frequencies in green, yellow, orange and red. In addition, the currently used carrier frequencies are displayed with a stripe. Furthermore, the radio and audio error rate for the receive and transmit direction, as well as the number of retransmitted packets are displayed.

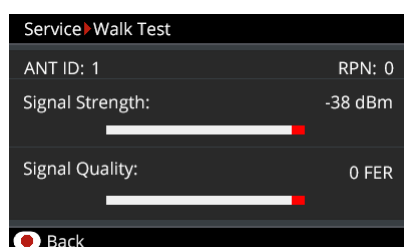


Figure 239: Walk Test (DECT Beltpacks)

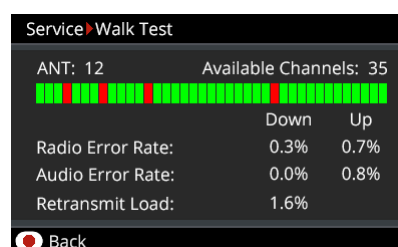


Figure 240: Walk Test (2.4GHz-Beltpacks)

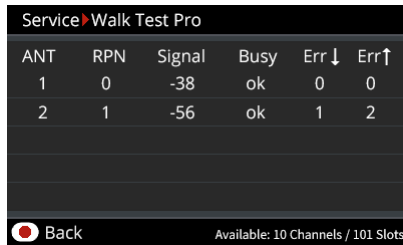
DECT-Antennas	
ANT ID	Antenna ID number.
RPN	Unique number for the Antenna in the network space. The Antenna with RPN 0 is always the TimeTransmitter.
Signal Strength	Current signal strength.
Signal Quality	Current signal quality.
FER	Current number of errors.

2.4GHz-Antennas	
ANT	Antenna ID number.
Available Channels	Number of available channels.
Interference Level	Shows all carrier frequencies in green, yellow, orange and red.
Radio /Audio Error Rate	Radio and Audio error rate for the receive and transmit direction.
Retransmit Load	Number of retransmitted packets.

Walk Test Pro

The Walk Test Pro displays the signal levels of all Antennas that are within sight of the Beltpack. The Antenna to which the Beltpack is connected is highlighted.

There are no differences between the DECT and 2.4GHz-Beltpacks in the Walk Test Pro.



Service ▶ Walk Test Pro					
ANT	RPN	Signal	Busy	Err ↓	Err ↑
1	0	-38	ok	0	0
2	1	-56	ok	1	2
 Back Available: 10 Channels / 101 Slots					

Figure 241: Walk Test Pro (DECT & 2.4GHz-Beltpacks)

ANT	Antenna ID number.
RPN	Unique number for the Antenna in the network space. The Antenna with RPN 0 is always the TimeTransmitter.
Signal	Average number of receive signal strength. The value may vary due to fading.
Busy	Shows if the Antenna is full occupied by Beltpacks.
Error (downlink)	Average number of detected errors in the link from the Antenna to the Beltpack (e.g. sync error or CRC).
Error (uplink)	Average number of detected errors in the link from Beltpack to Antenna.
Phase	Phase difference from the Antenna, the Beltpack is connected to, and a secondary Antenna. This number has to be below ± 2 . If it is outside this range, the clock in the network is not in sync. In this case, handover will not be possible as the Beltpack cannot see other Antennas anymore. The Beltpack clock is always synchronized to the clock of the connected Antenna.
	If an Antenna with a Pro 1 license is present in Bolero-Net, the number of available channels and frequencies is displayed in the bottom line.

3.5.13 Reset

The Beltpack-Menu 'Service > Reset' offers two different ways to reset the Beltpack to factory default settings.

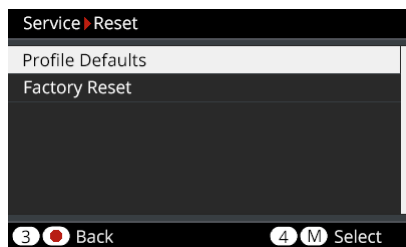


Figure 242: Beltpack menu – Reset

Profile Defaults

This resets the Beltpacks' Profile data the current default settings of the net.
All registration data stays in memory.

Factory Reset

This resets all data and settings to factory default.
All Net lists and registrations data will be deleted.

3.5.14 Opening the USB rubber cover

The USB rubber cover yields protection against ingressing dirt and water inside the Beltpack.
The rubber cover can be removed as follows:

- Turn the Beltpack's rear side upwards.
- Push your fingernail gently in the slit on the top of the rubber cover...
- and pull the rubber cover out of the Beltpack's connectors.
- Take care to seal the Beltpack when the connectors are not in use.



Figure 243: Insert fingernail



Figure 244: Pull rubber cover

3.5.15 Battery

Light and powerful custom lithium rechargeable battery packs are used to operate the Beltpacks. A good battery usually lasts about 500 full charging cycles. If the Beltpack is charged 50% every day, the battery will last for about 3 years.

Batteries can be charged in following ways:

- Beltpack (with battery) in the Bolero-Charger
- Battery (separate, without Beltpack) in the Bolero-Charger
- Beltpack (with battery) via USB device (USB plug power supply, PC/Laptop, etc.)

The charging characteristic depends on the ambient temperature and the Charger:

Temperature		Display	Bolero-Charger	USB device
<0°C	<32°F	too cold !	no charging	
0°...10°C	32°...50°F	cold	gentle charging 1.00 A / 4.06 V	gentle charging 0.50 A / 4.06V
10°...45°C	50°...113°F	normal	normal charging 1.50 A / 4.20 V	normal charging 0.50 A / 4.20 V
45°...60°C	113°...140°F	warm	gentle charging 1.50 A / 4.06 V	gentle charging 0.50 A / 4.06V
>60°C	>140°F	too hot !	no charging	

3.5.15.1 Charging via USB in the Beltpack

- Connect the Beltpack with an USB power supply or an USB connector that has a minimum current supply of 500mA.

During charging the Beltpack is still operable. The main screen shows in the top right the charge icon:

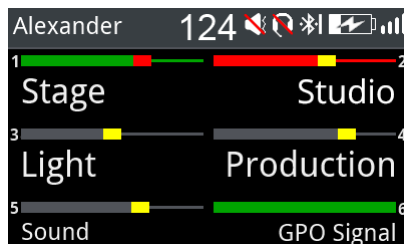


Figure 245: USB Charging view

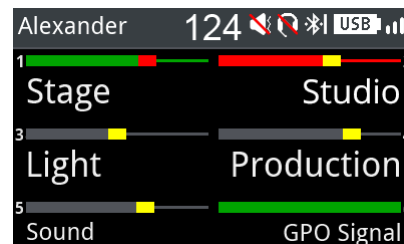


Figure 246: Fully Charged view (USB still connected)

Some USB chargers may not be compatible with Bolero Beltpacks. For example some USB chargers may charge the Beltpack with only 100mA, even though the charger is capable of providing 1A or more. The Beltpack shows an **ERR** in the battery symbol.

More information is displayed in the Beltpack Menu 'Service > Information > Battery':

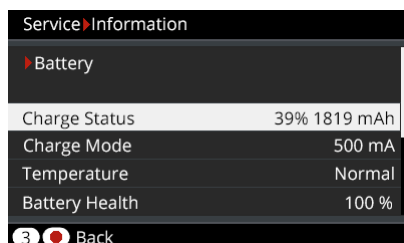


Figure 247: Charging information in the Beltpack menu

3.5.15.2 Charging in the Charger

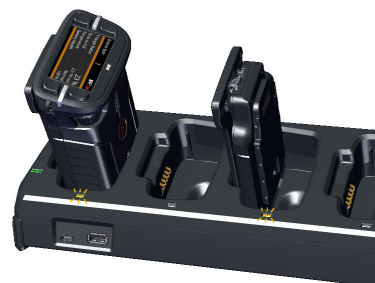
- Plug the Beltack or just the battery itself in an empty position in the Charger.



The radio is switched off when the Beltack is plugged into the Charger.

- The charging procedure will start automatically.
- The corresponding slot LED indicates the charging state:

	red blinking	below 20%
	orange blinking	20 ... 90%
	green blinking	above 90%
	permanent green	100%
	green, orange flashing	100%, battery life <60%



- The Beltack's display shows the charging state.

Bolero-Bpk	1	
Charge Status	23 %	
Time to Full	2 h 19 min	
Temperature	Normal	
Battery Health	100 %	

For further information refer chapter [Bolero Charger](#).

3.5.15.3 Replacing the Battery

The Beltpack battery can be replaced by following these steps:

- Pull the battery release button upwards...
- and push the battery at the belt clip to the bottom side of the Beltpack.
- Lift the battery upwards.
- Insert the battery in the opposite order.



Figure 248: Pull release button



Figure 249: Push battery



Figure 250: Lift battery

3.5.15.4 Removing the Belt Clip

The belt clip can be removed by following these steps:

- Pull the lock clip upwards...
- and push the belt clip to the top side of the battery.
- Insert the belt clip in the opposite order.



Figure 251: Pull lock clip



Figure 252: Push belt clip

3.5.16 Firmware Update (Beltpack)

It is possible to update the firmware of up to five (S-)Beltacks automatically by inserting them in the Bolero Charger.

Any number of (S-)Beltacks can be inserted into the Charger, which are then automatically updated to the Charger's firmware version one after the other.

The update process will take approximately 8 min per (S-)Beltack.

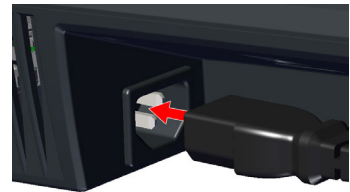
The (S-)Beltacks are charged simultaneously while updating.

	An automatic update must be activated beforehand in the web interface of the respective Charger: Network Devices > Edit Device > Charger > Automatic Beltack Update: On (⇒ Edit (Network Devices))
---	--

The following devices are required:

- ✓ Bolero-Charger (with the desired firmware version (⇒ [Firmware Update \(Network Device\)](#))
- ✓ Bolero-Beltacks/S-Beltacks to be updated

- Connect the Charger to mains.

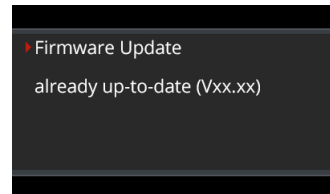


- Put the (S-)Beltacks into any charging slots.
- Take care that the USB rubber cover is not pulled out.
- The charging process is independent of the update procedure and indicated by the respective slot LED.



The Charger checks whether the firmware version of the (S-)Beltack matches the firmware version of the Charger. If the firmware is identical, this is indicated for a few seconds in the Beltack display.

The Beltack continues to charge and the charge status is shown in the display.
 (⇒ [Charging Batteries](#))



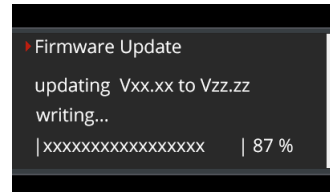
If the firmware of the (S-)Beltack does not match the firmware of the Charger, the (S-)Beltack is updated.

Beltack:

- The current '(Vxx.xx)' firmware version is shown in the display.
- The new '(Vzz.zz)' firmware version is shown in the display.
- The current process (pending, starting, erasing, writing and verifying) and a progress bar is shown in the display.

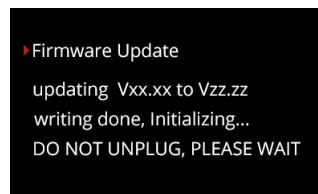
S-Beltack:

- The key LEDs 1+2 are blinking orange alternately.
- The slot LED of the charger still indicates the charging status.

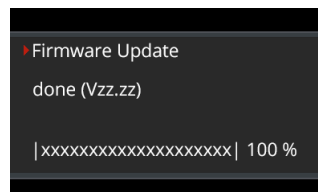


- After that the (S-)Beltack is initialized, restarted and finalized.
 - Beltack:**
 - The current '(Vxx.xx)' firmware version is shown in the display.
 - The new '(Vzz.zz)' firmware version is shown in the display.
 - The current process is shown in the display.
 - S-Beltack:**
 - The key LED 1 or 2 is orange.
- The slot LED of the charger still indicates the charging status.

Caution: Do not remove the (S-)Beltacks from the charging slots during this process.



- The firmware update is terminated.
 - Beltack:**
 - The display shows 'done' and the new firmware version '(Vzz.zz)'.
 - S-Beltack:**
 - The key LEDs 1+2 are green.
- The slot LED of the charger still indicates the charging status.



The (S-)Beltack may now be removed from the charger.

3.6 Bolero Beltack Cover

The Beltacks can be individualized by colored covers, which will be clipped over the display.

Color	Product code
black	BL-BPK-COVER-BLACK
blue	BL-BPK-COVER-BLUE
gray	BL-BPK-COVER-GRAY
green	BL-BPK-COVER-GREEN
red	BL-BPK-COVER-RED
violet	BL-BPK-COVER-VIOLET
white	BL-BPK-COVER-WHITE
yellow	BL-BPK-COVER-YELLOW

3.7 XLR Insert

The Beltpack is shipped with an XLR insert for 4-pin or 7-pin headphone connections. The pre-installed XLR insert can be replaced by the user.

The following table lists the part numbers (versions) of the XLR inserts that are compatible with the Beltpack. The part number/version can be found on the label on the XLR insert. In addition to the compatible XLR insert, the XLR accessory includes an Allen wrench and a spare grub screw.

	XLR Insert		Grub Screw
	XLR4M	6411000 (B00) 9300544 (A00) 9300558 (A00, B00)	M3x3 mm
XLR Accessory: 9301139	XLR7M	9300648 (A00)	M3x3 mm

Replacing the Headset Plug

The XLR insert of the Beltpack can be replaced by the user.

To do this, the Beltpack must be switched off and the battery removed. (⇒ [Replacing the Battery](#))

- Using a Torx driver (T10), loosen the four bottom screws on the underside of the Beltpack by one turn.



- Insert a suitable XLR connector into the XLR insert.



- Using a 1.5 mm Allen wrench, loosen the grub screw on the bottom of the Beltpack above the XLR insert by four turns.



- Pull the XLR insert out of the Beltpack using the XLR connector.



- Insert the desired XLR insert.

	Use a suitable XLR connector to plug in the XLR insert and pay attention to the direction and angle so that the internal pins are not damaged.
---	---



- First tighten the four lower Torx screws by one turn.
- Then tighten the grub screw by four turns with a very low torque of 0.2 Nm. Do not bend the plastic housing.
- Power the Beltpack.

	The new XLR insert is automatically detected by the Beltpack.
---	--



XLR Schematic

XLR4M

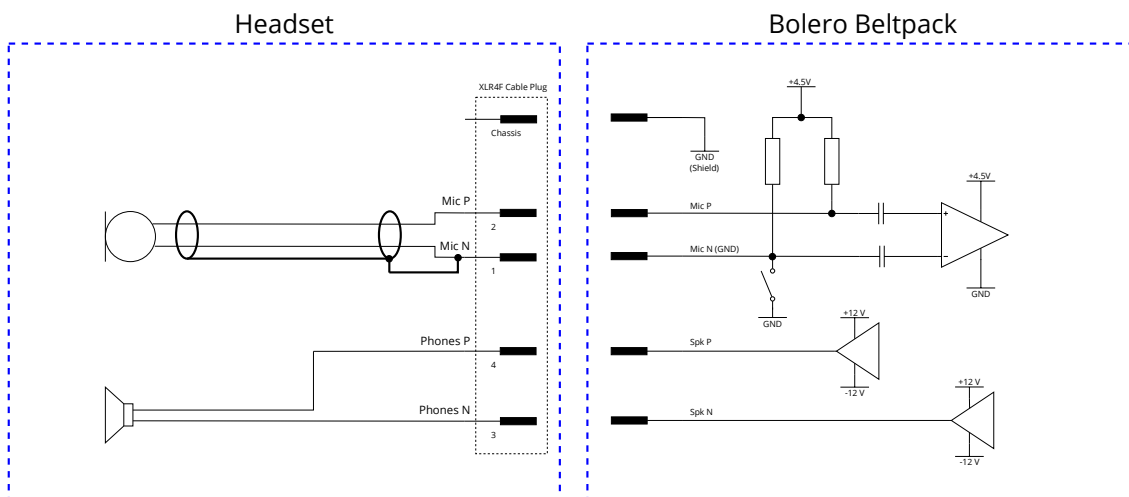


figure 253: XLR4M schematic

XLR7M

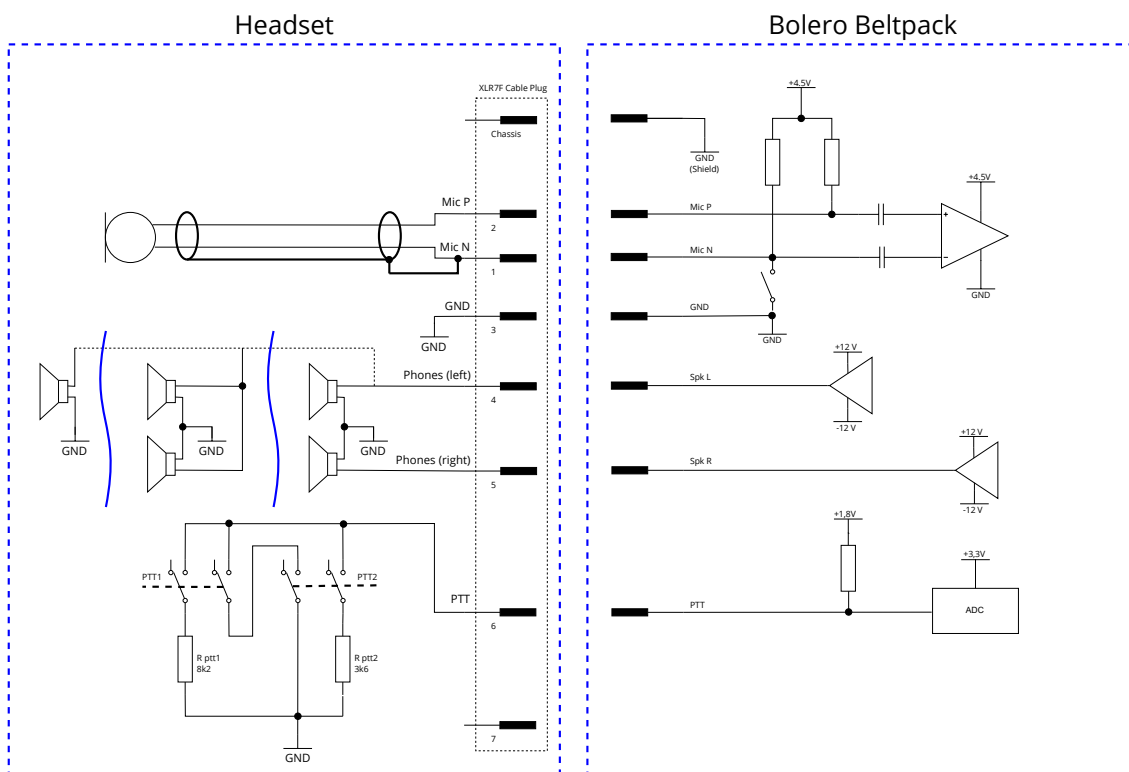


figure 254: XLR7M schematic

3.8 Technical Drawing

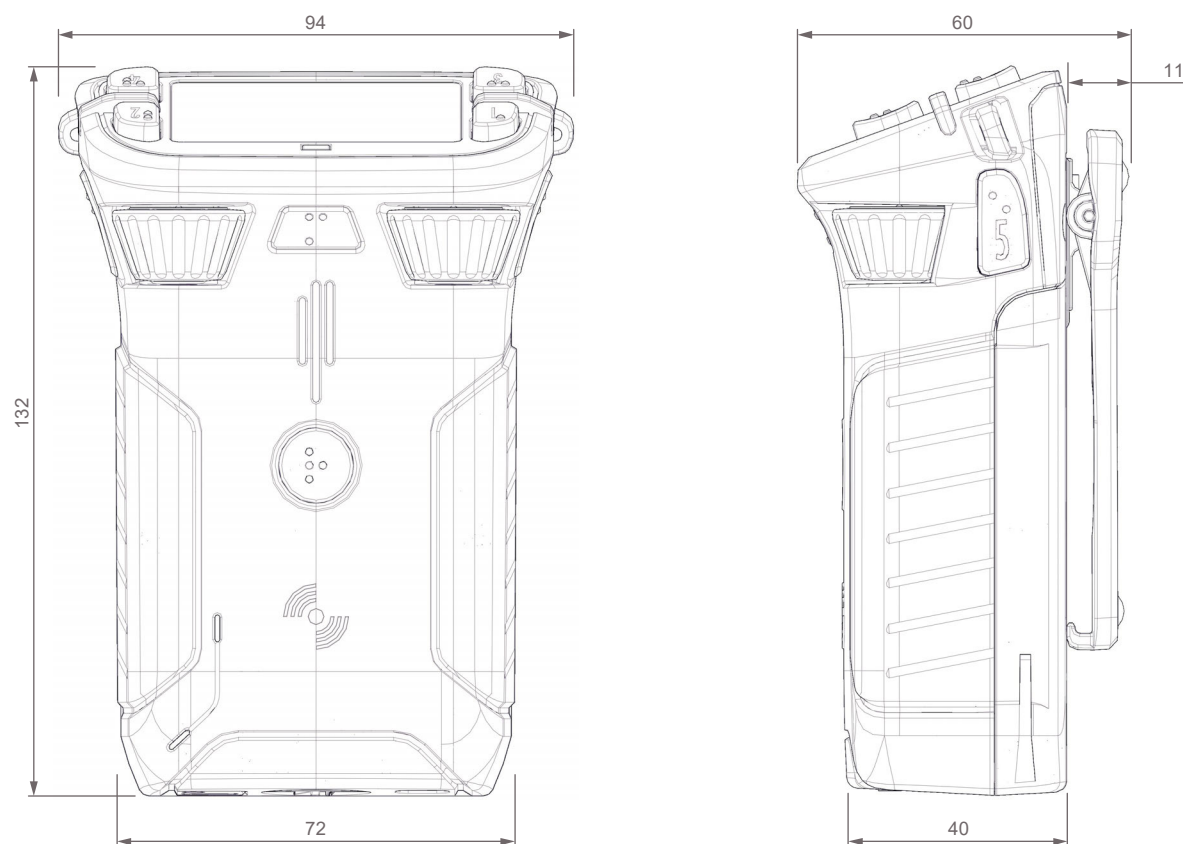


figure 255: Beltpack (front, right), dimensions in millimeter

3.9 Technical Specifications

Beltpack Product Code	DECT	BL-BPK-1006-19
	2.4GHz	BL-BPK-1006-24
Multi-path delay spread protection	Yes, ADR (Advanced DECT Receiver)	
Audio Bandwidth	200 Hz ... 7 kHz (-3dB)	
Mode of Operation	Full-duplex on all routes	
Encryption	AES256 Bit encryption	
Line Input	3.5 mm jack, 40 Hz ... 20 kHz, max. +12 dBu input level (local audio mix only)	
Talk Controls	4x push buttons + 1x reply key + 2x walkie-talkie keys (PTT, Latching & Auto mode)	
Volume / Level Controls	2x rotary encoders + menu navigation	
Display	High contrast sunlight readable full color LCD	
Audio prompts	Out of range, Bluetooth connected / disconnected, battery low, volume change, Beltpack registered / deregistered / not connected	
Number of Full-Duplex Audio Paths	6 with individual level control	
Handheld Operation	Walkie-talkie mode	
Vibrate Module	Programmable vibrate indicates incoming calls, low battery, out of range and other notifications.	
Internal Loudspeaker	Freq. <500Hz ... >7kHz 80dB/SPL/0.5W/1m, @ <5% THD	
Remote Health Monitoring	Battery charge status, via web browser	
Battery	Lithium-Ion external removable battery pack with user removable clip	
USB Charging	USB Type-C connector for Beltpack charging.	
Operation Time	~17 hours typical	
Headset Connector	Pre-installed 4-pin male XLR insert, user exchangeable. (Mono: XLR4M / Stereo: XLR7M)	
Microphone Type	Electret (~5V bias voltage) or dynamic, user selectable or automatic	
Side-tone and microphone gain	Individually adjustable for each Beltpack & via remote control	
Bluetooth	V4.1 (HFP - hands free profile, HSP - headset profile, A2DP - streaming profile) Bluetooth is not supported for 2.4GHz-Beltpacks.	
Bluetooth phone call mix into intercom	Yes	
Lanyard anchor points	Yes	
Dimensions	Width	86 mm / 3.4"
	Height	130 mm / 5.1"
	Depth	48 mm / 1.9"
Weight	420 g (incl. battery and clip)	
Operating Environment	Temperature	-10 ... +40°C (device operating up to 55°C)
	Humidity	20 ... 90 % rel. (non-condensing, Ta=40°C)
Storage Temperature	-20 ... +50°C (long term) / -20 ... +60°C (short term)	

4 Bolero S-Beltpack

The Bolero Wireless S-Beltpack is a very light and compact, digital station with six individually configurable keys for intercom, IFB or GPO triggering use. Two of the keys are able to allow volume-control for each key. Pushing the Talk key toggles talk on/off with momentary or latching operation as well as an Auto mode that combines both functions in one. Activation is indicated by an LED. A vibration motor is able to indicate an incoming call or warnings.

With the new "Touch&Go" Beltpack registration a quick and user-friendly registration is implemented. Just touch the Beltpack to the Antenna and GO.

The Bolero Wireless S-Beltpack has a 6-pin Hirose HR10 socket for headset and a USB port. Bolero S-Beltpacks support Bluetooth 4.1, allowing a Smartphone to be connected. When a Smartphone is connected, the Beltpack can act like a car's "hands free" setup so the user can receive calls on their phone and talk and listen via their Beltpack headset. Users can also inject phone calls directly into the intercom channels, providing new levels of workflow flexibility. A fully charged Bolero-S-Beltpack allows more than 7 hours of operation. The rugged housing houses the internal Antennas.

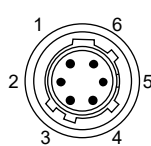
4.1 Operating Elements



Figure 256: S-Beltpack – Operating Elements (front/top, rear/bottom)

A	Key 2 (channel 2, top)
B	Lanyard or safety cord mounting holes
C	NFC contact point
D	Headset connector (Hirose)
E	Key 1 (channel 1, top)
F	Key 3 (channel 3, side)
G	Key 5 (volume down, side)
H	Charging contacts
I	Beltclip (optional)
J	Screw head mount and bottle opener
K	Power button
L	USB Type-C (underneath a rubber cover)
M	Key 6 (volume up, side)
N	Key 4 (channel 4, side)

Hirose (male)



Pin	Description	Pin	Description
1	Microphone + (+5 VDC)	4	Microphone - (shield)
2	PTT (GND)	5	PTT (signal)
3	Earphones +	6	Earphones -

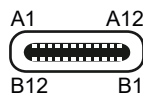
Figure 257: Hirose male

The headset connector is a 6-pole male Hirose connector and supports mono headsets with electret or dynamic microphones, depending on the menu setting.



The microphone power (+5 VDC) will be switched on if the menu setting 'Audio > Headset Type' is set to **Electret**, **Electret detect** or **Auto** and an electret microphone is attached.

USB Type-C



Pin	Description	Pin	Description
1	GND	7	Dn1
2	SSTXp1	8	SBU1
3	SSTXn1	9	VBUS
4	VBUS	10	SSRXn2
5	CC1	11	SSRXp2
6	Dp1	12	GND

Figure 258: USB Type-C

The USB connector is used to charge the Beltpack.



Charging is only possible with >500 mA USB ports. 100 mA are not supported.
The charge current is limited to 500 mA by the Beltpack.

4.2 Status LEDs



Figure 259: S-Beltpack – Status LEDs (top)

1	Status	off	Beltpack is turned off
		green	• Beltpack ready (System ok) • Beltpack off, USB charging, battery full
		green blinking	USB charging, battery level >90%
		red	• Booting • Beltpack not registered/not connected • Low battery level (<15%) • Outside the Antenna coverage area
		red blinking	Critical battery level (<8%)
		red fast blinking	Critical error (no function)
		orange	Mic unmuted, Sidetone on
		orange blinking	USB charging, battery level <90%
		orange fast blinking	Locate function active
		orange-red blinking	• Beltpack not registered, USB charging, battery level <90% • Beltpack registered, Mic unmuted, Sidetone on, critical battery level (<8%)
		green-red blinking	Beltpack not registered, USB charging, battery level >90%
2	Call	off	No active call
		green	Incoming call
		green blinking	Volume changing
		red blinking	Beltpack not registered/connected
		orange	Outgoing call
		orange blinking	Incoming indication (beep)

4.3 Key Functions

While the green status LED indicates ready for operation, users may talk individually or at the same time to all channels.

Pushing one of the four keys allows talking in the respective channel.

The respective Call LED is indicating if one channel is active at least.

The keys 1 to 4 are latching. Push again the key to deactivate the respective channel.

The keys 5 and 6 (-/+) allow adjusting the main volume of the channels.



The key mode (Latching / PTT) is set in Director if the system is set to **Integrated/Artist** mode. For a new configuration in Director, all 6 keys are in PTT mode by default.

4.4 Battery

Light and powerful custom lithium rechargeable battery packs are used to operate the S-Belpacks. Bolero S-Belpacks have half of the capacity of standard Bolero Belpacks.

Batteries can be charged in following ways:

- S-Belpack in the Bolero-Charger
- S-Belpack via USB device (USB plug power supply, PC/Laptop, etc.)

The charging characteristic depends on the ambient temperature and the Charger:

Temperature		Display	Bolero-Charger	USB device
<0°C	<32°F	too cold !	no charging	
0°...10°C	32°...50°F	cold	gentle charging 1.00 A / 4.06 V	gentle charging 0.50 A / 4.06V
10°...45°C	50°...113°F	normal	normal charging 1.50 A / 4.20 V	normal charging 0.50 A / 4.20 V
45°...60°C	113°...140°F	warm	gentle charging 1.50 A / 4.06 V	gentle charging 0.50 A / 4.06V
>60°C	>140°F	too hot !	no charging	

4.4.1 Charging via USB

- Connect the S-Belpack with an USB power supply or an USB connector that has a minimum current supply of 500mA.

During charging the S-Belpack is still operable. The status LED shows the charging information.

S-Belpack connected:

	orange blinking	below 90%
	green blinking	above 90%

S-Belpack not connected:

	orange/red blinking	below 90%
	green/red blinking	above 90%

Some USB chargers may not be compatible with Bolero S-Belpacks. For example some USB chargers may charge the S-Belpack with only 100mA, even though the charger is capable of providing 1A or more.

4.4.2 Charging in the Charger

- Plug the S-Beltack in an empty position in the Charger.

	The radio is switched off when the S-Beltack is plugged into the Charger.
---	---

- The charging procedure will start automatically.

The corresponding slot LED indicates the charging state:

	red blinking	below 20%
	orange blinking	20 ... 90%
	green blinking	above 90%
	permanent green	100%
	green, orange flashing	100%, battery life <60%

For further information refer chapter [Bolero Charger](#).

4.5 External PTT

Two buttons (External Keys) via the headset socket are supported. These External Keys are used to "remote control" other keys on the Beltack. In addition to the existing key modes (Momentary, Latching, Auto), two new modes can be configured for the external keys:

- On only
- Off only

The configuration for these External Keys can be found in the **Rotaries** tab in the 'Beltack Configuration' and 'Profile Configuration' views.

Note that the Beltack hardware has to support the headsets with External Keys (currently the standard Bolero Beltack BL-BPK-1006-19 does not support this feature, only the Bolero S Rev. 12.00 (or higher) Beltack can be used with External Keys at the moment).

4.6 Firmware Update (S-Beltpack)

It is possible to update the firmware of up to five S-Beltpacks in one Bolero-Charger.

Updating the firmware of Bolero Beltpacks and S-Beltpacks is identical and is described in the following chapter:
[Firmware Update \(Beltpack\)](#)

Since S-Beltpacks do not have a display, the update information is indicated via the key LEDs 1+2:

	green (on for 15 seconds, then off)	S-Beltpack runs with the current firmware
	orange alternately blinking	Firmware update in progress
	orange	Update in progress during reboot
	green	Update successfully completed
	red flashing 2x	Update error

The S-Beltpacks are charged simultaneously while updating.

The charging status is displayed via the respective slot LED. (⇒ [Charging in the Charger](#)).

4.7 Technical Drawing

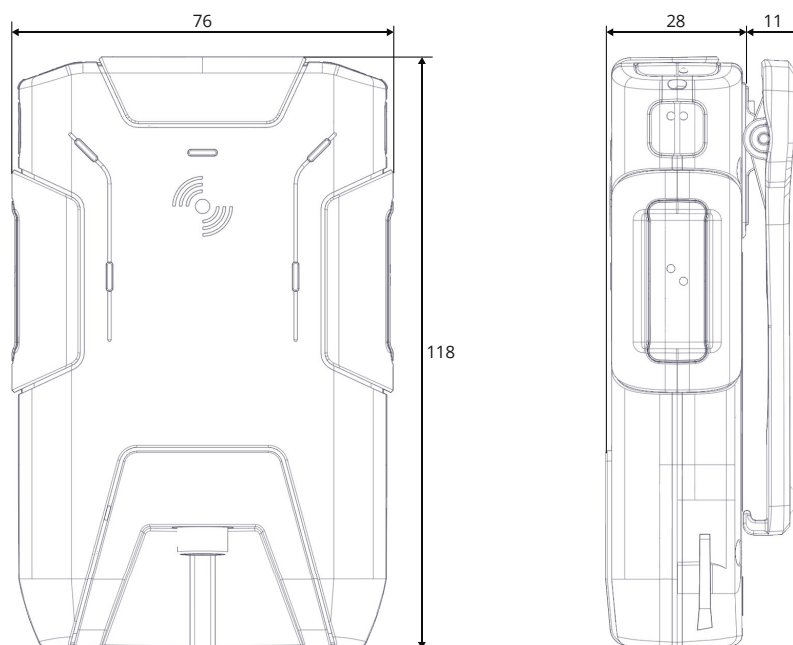


figure 260: S-Beltpack (front, right), dimensions in millimeter

4.8 Technical Specifications

Beltpack Product Code	BL-BPK-1004-19, BL-BPK-1004-24	
Multi-path delay spread protection	Yes, ADR (Advanced DECT Receiver)	
Audio Bandwidth	200 Hz ... 7 kHz (-3dB)	
Mode of Operation	Full-duplex on all routes	
Encryption	AES256 Bit encryption	
Line Input	No	
Talk Controls	4x push buttons (momentary, latching & auto mode) + 2 volume keys	
Volume / Level Controls	Volume keys programmable	
Display	No	
Audio prompts	Out of range, Battery full, Battery good, Battery low, Beltpack registered	
Number of Full-Duplex Audio Paths	4 with individual level control	
Vibrate Module	Vibrate indicates incoming call or silent call is active	
Remote Health Monitoring	Remote via Antenna and computer (Battery remaining time)	
Battery	Lithium-Ion internal battery	
USB Charging	USB Type-C connector for Beltpack charging.	
Operation Time	~7 hours typical	
Headset Connector	6-pin male Hirose HR10	
Microphone Type	Electret (~5V bias voltage) or dynamic, user selectable or automatic	
Side-tone and microphone gain	Individually adjustable for each Beltpack & via remote control	
Bluetooth	V4.1 (HFP - hands free profile, HSP - headset profile, A2DP - streaming profile) Bluetooth is not supported for 2.4GHz-Beltpacks.	
Beltclip	Yes, user removable clip (optional)	
Lanyard anchor points	Yes	
Operating Environment	Temperature	-10 ... +40°C (device operating up to 55°C)
	Humidity	20 ... 90 % rel. (non-condensing, Ta=40°C)
Storage Temperature	-20 ... +50°C (long term) / -20 ... +60°C (short term)	
Dimensions	Width	76 mm / 3.0"
	Height	118 mm / 4.6"
	Depth	28 mm / 1.1"
Weight	165 g / 5.82 oz (without clip)	

5 Bolero Antenna

When used with Artist, Bolero active Antennas run over a standard AES67 IP network. Up to 100 Antennas and 250 Beltpacks are able to connect to a system. The intelligent and highly efficient use of bandwidth results in 10 Beltpacks per Antenna. The decentralized Antennas allow the use of existing standard structured cabling and provide a wide area between the Antennas connected to AES67 capable switches and the Artist frames equipped with AES67 client cards. This provides a fully integrated point-to-point roaming intercom ecosystem. The more decentralized Antennas added, the more robust the network becomes. The Antenna is powered via Power-over-Ethernet (PoE+), simplifying installations by eliminating local power supplies or alternatively via a separate DC supply.

When used in Standalone/Link application, Antennas can be used individually, in a ring structure, or daisy-chained as the situation demands. Also, up to 100 Antennas and 128 audio channels (Beltpacks and NSA-002A) can be integrated into a single system. These Antennas can be placed up to 300 meters apart and up to five can be powered via the CAT5 network using a new external PSU. The system is quickly and easily configured over the IP connection using a web browser. Finally, a throw-down box can be used to interface the standalone Bolero with other intercom systems via 4-wire.

	The radio operation is disabled by default for Antennas configured for countries outside Europe and may only be activated in the respective countries. This is done in the web interface of the respective Antenna: Antennas > Edit (✎) > Radio Transmission (ON ). (⇒ Edit (Antennas))
---	---

Bolero is available in a DECT version and in the 2.4 GHz version.

Each 2.4GHz-Antenna supports up to eight 2.4GHz-Beltpacks. The different Antenna types (2.4GHz and DECT) can be added to the same Network Space. 2.4GHz-Antennas can be configured and used in the same way as DECT-Antennas. The different Antennas can even be used in the same Standalone/Link ring topology. The 2.4GHz-Antennas have the same (remote) power capabilities as the DECT-Antennas.

The Beltpacks also work the same, but 2.4GHz-Beltpacks will only connect to 2.4GHz-Antennas and DECT-Beltpacks will only connect to DECT-Antennas. Talking from a 2.4GHz-Beltpack to a DECT-Beltpack or vice versa works as long as they are both in the same Network Space or connected to the same Artist net.

5.1 Operating Elements

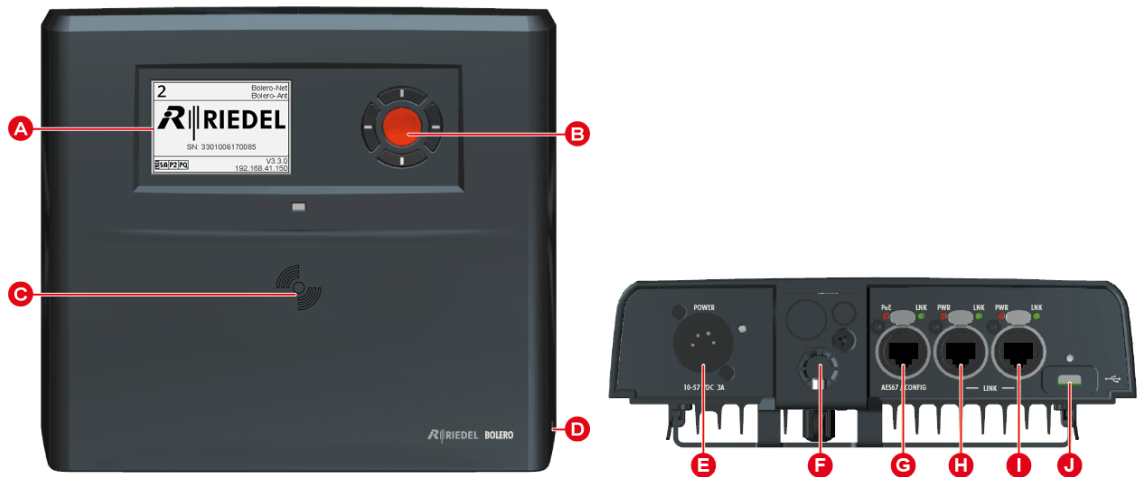


Figure 261: Antenna Operating Elements (front, bottom)

A	E-ink display
B	Navigation buttons (cursor and menu button)
C	NFC contact point
D	Kensington Security Slot
E	DC power supply connector (XLR-4)
F	Mounting element (spigot, 3/8" & 5/8" microphone stand mounting)
G	AES67/Config connector (RJ45 , 1Gbit)
H	LINK connector 1 (RJ45)
I	LINK connector 2 (RJ45)
J	USB connector (USB Type-C)

XLR-4 (male)

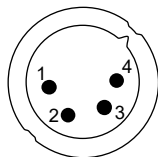


Figure 262: XLR-4 male

Pin	Description
1	-PWR
2	Chassis
3	Data
4	+PWR (10...57 VDC / 3 A)

The length of the DC power cable should not exceed 1.5 meters.

RJ45

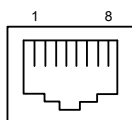


Figure 263: RJ45

Pin	AES67/Config	LINK 1+2
1	D1+ / PoE+ (p)	D1+
2	D1- / PoE+ (p)	D1-
3	D2+ / PoE+ (n)	D2+
4	D3+ / PoE+ (p)	D3+
5	D3- / PoE+ (p)	D3-
6	D2- / PoE+ (n)	D2-
7	D4+ / PoE+ (n)	D4+
8	D4- / PoE+ (n)	D4-

1Gbit Ethernet connection is necessary to operate the Bolero net.

Standalone/AES67 Mode & Integrated/Artist Mode

- The AES67/Config port is connected to the IP net (which also hosts the Artist card in **Integrated Artist mode**).
- The other two ports are not used. If they are connected anyway, an error will be issued and radio transmission will be disabled.



Cable requirements:

Cat-5e / Cat-6 or higher (according to ISO/IEC 11801), S/FTP or higher, up to 100 m.

Make sure ISO/IEC specification applies for the used length of the cable (in particular attenuation).

Standalone/Link Mode

- The AES67/Config port is primarily used as config port, i.e. to provide a connection to the Web-UI.
- One can also directly attach up to two IO Devices (NSA-002A) to this port in a daisy chain as well.
- Link-1 and Link-2 are used to interconnect the Antennas in a daisy chain ("open") or ring ("closed") topology.
 - A closed topology provides redundancy:
 - either **one** cable in the ring can be detached without interrupting audio transmission.
 - In an open topology there is no more redundancy:
 - if a cable is detached, the affected nodes cannot be reached any more.
- Link-1 on the local device must always be connected to Link-2 on the remote device (and vice versa).
- CAT cables with a maximum length of 300 meters are supported.
- With an External Power Supply (EPS), you can power up to 5 Antennas:
 - 2 Antennas over each Link-1 and Link-2 and the center Antenna with the EPS attached.
- It is not possible to use routers, switches or other standard IP devices.



Cable requirements:

Cat-5e / Cat-6 or higher (according to ISO/IEC 11801), S/FTP or higher, up to 300 m.

Make sure ISO/IEC specification applies for the used length of the cable (in particular attenuation).

The cable resistance between two Antennas shall be below 17 Ohm.

USB Type-C

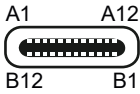


Figure 264: USB Type-C

Pin	Description	Pin	Description
1	GND	7	Dn1
2	SSTXp1	8	SBU1
3	SSTXn1	9	VBUS
4	VBUS	10	SSRXn2
5	CC1	11	SSRXp2
6	Dp1	12	GND

5.2 Status LEDs



Figure 265: Antenna – Status LEDs (front, bottom)

1 Status	off	Not powered
	green	Antenna in operation (radio enabled)
	orange	Antenna in operation (radio disabled)
	orange blinking	Antenna is powering up
	red blinking	Antenna is powering down / firmware not running
2 Power	off	No XLR input power
	green	XLR input power ok
3 AES67-PoE	off	No PoE+ input power
	green	PoE+ input power ok
4 AES67-LNK	off	no Ethernet connection present
	green	Ethernet link ok
5, 7 LINK-PWR	off	No remote power (neither outgoing nor incoming).
	orange	Remote power is provided to power other Antennas (outgoing power).
	green	The Antenna uses remote power as main power-supply (incoming power).
6, 8 LINK-LNK	off	No LINK connection present
	green blinking	LINK connection ok
	orange-yellow	Authentication denied: This occurs when protocol versions of the connected Antennas do not match. It is required to run the same firmware version on all devices.
	orange-yellow blinking	Linkup is pending: Another network space is connected to the Antenna. You can choose to join the local and remote nets.
	red	LINK connection failure: A link has been connected to the same link on another Antenna. (E.g. local Link 1 → remote Link 1). Notice that Link 1 must always be connected to Link 2 (and vice versa) on the remote node.
9 USB	red blinking	The connected Antennas do not run the same firmware version.
	off	No USB input power
	green	USB input power ok
	red	USB input power out of range

5.3 Basic Operation

5.3.1 Startup

The Antenna starts automatically after it is attached to power. The Antenna can be powered either by a separate power supply ([EPS-1001](#)) or by a switch with PoE+ functionality. In Standalone/Link mode, the power supply can also be provided by the high-performance power supply unit ([EPS-1005](#)).

The Antenna displays relevant information both after startup in the Main-View and when the device is switched off:

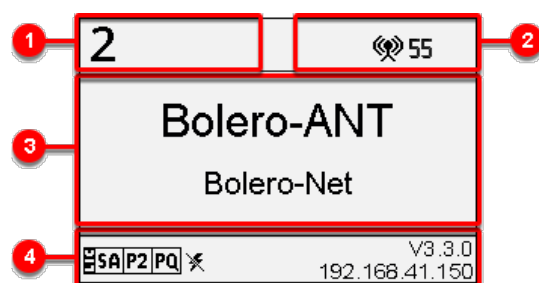


Figure 266: Main-View

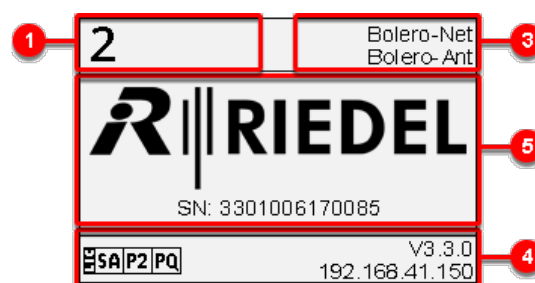


Figure 267: unpowered

1	unique ID of the Antenna	2
2	Registration mode enabled	OTA NFC
	Connection to the Net via AES67 connector	55
	Connection to the Net via LINK connectors (daisy-chain <u>without</u> redundancy)	55
	Connection to the Net via LINK connectors (ring <u>with</u> redundancy)	55
	Warning symbol (optional)	⚠
3	Name of the Antenna	Bolero-ANT
	Name of the Net	Bolero-Net
4	Installed Licenses (Standalone, P1)	5A P2 PQ
	Antenna of a G1 version that does not support power supply via the LINK connectors when a BL-EPS-1005 power supply unit is connected.	⚡
	Firmware version of the Antenna	V3.2.0
	IP address of the Antenna	192.168.41.150
5	Riedel logo with serial number of the Antenna	RIEDEL SN: 3301006170085

5.3.2 Key Functions

The five buttons right beside the display allows displaying system information or editing basic settings. Press any key to enter the Main Menu. The general key functions are as follows:

	• Select the previous menu item • Increase values
	• Select the next menu item • Decrease values
	• Back to parent menu item • Move selection to the left
	• Move selection to the right
	• Enter selected menu item

5.4 Main Menu

The Main-Menu is opened by pressing any key.
Information is displayed and basic settings can be modified:

System Mode *1	Selection of the System mode of the Net. (Standalone/AES67, Standalone/Link, Integrated/Artist)		
IP Settings	Mode	Allows setting the mode of IP address : Static, DHCP, Auto IP	
	IP	Allows setting the IP4.0 address.	If the Mode is set to Static.
	Netmask	Allows setting the IP4.0 netmask.	
	Gateway	Allows setting the IP4.0 gateway.	
Registration *1	Configuration and activation of the registration mode for Beltpacks.		
	OTA	If enabled, Beltpacks are allowed to register via radio to this Net.	
	NFC	If enabled, Beltpacks are allowed to register via Antenna NFC to this Net.	
	Admin PIN (OTA)	If activated (On), the <i>Amin PIN</i> must be entered for registration in the Beltpack.	
	Timeout	Setting of the time in minutes after which the registration is deactivated. When disabled (Off), the Antenna remains in registration mode until it is exited.	
Display	Upside/Down	In the activated upside/down mode (On), the display is mirrored horizontally.	
Information	Antenna Info	Displays Antenna information:	
		Name	Name of the Antenna.
		User ID	User-ID of the Antenna.
		Net	Name of the Net.
		TimeTransmitter	Indicates whether the Antenna is PTP TimeTransmitter. (Yes, No)
		Antenna RF	Indicates whether the radio signal of the Antenna is Enabled or Disabled.
		Area	Display of the region. (Europe, US/Canada, South America, Brazil, Japan, etc.)
		RF Strength	Display of radio power (Normal, Low, Ultralow).
		Local BPs	Number of Beltpacks connected to the Antenna.
		Eth Speed	Speed of the Ethernet interface.
	Net Info	Displays Net information:	
		Name	Name of the Net.
		Sys-Mode	System mode of the Net. (Standalone/AES67, Standalone/Link, Integrated/Artist)
		Antennas	Number of Antennas that are existing in the Net.
		TimeTransmitter	Name of the Antenna that is PTP TimeTransmitter.
		RF Strength	Display of radio power (Normal, Low, Ultralow).
		Conn. BPs	Number of Beltpacks connected to the Net.
		Reg. BPs	Number of Beltpacks registered in the Net.
	System Info	Displays System information:	
		Type	Type of the Antenna.
		Serial	Serial number of the Antenna.
		MAC	MAC-Address of the Antenna.
		Package	Package version of the Antenna.
		Main PCBA	Hardware revision of the mainboard.
		Radio PCBA	Hardware revision of the radio module.
		Display PCBA	Hardware revision of the display.
	Power PCBA	Hardware revision of the power supply.	

System Mode * ¹	Selection of the System mode of the Net. (Standalone/AES67, Standalone/Link, Integrated/Artist)
Leave Net * ¹	De-registration of the Antenna from the current Net.
Factory Reset * ²	- Resets the Antenna to factory default settings. - All Data will be deleted!

*¹ Admin PIN necessary

*² Factory Reset PIN necessary (please consult Riedel Service)

5.5 Firmware Update (Antenna)

The firmware of Antennas can be updated via the web interface. (⇒ [Firmware Update \(Network Device\)](#))

5.6 Technical Drawing

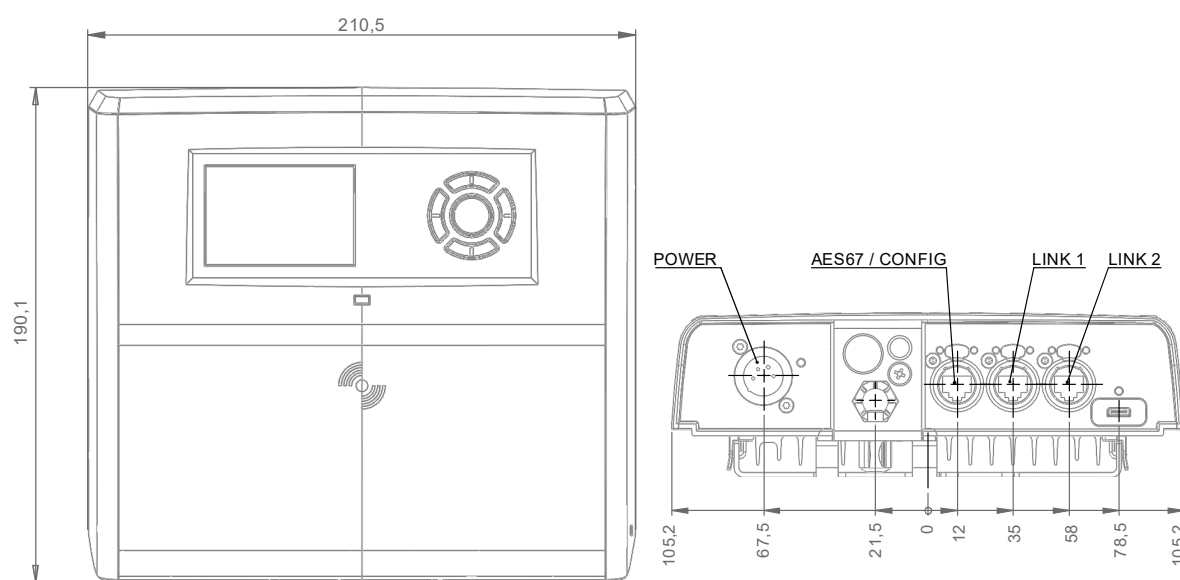


figure 268: Antenna (front, bottom), dimensions in millimeter

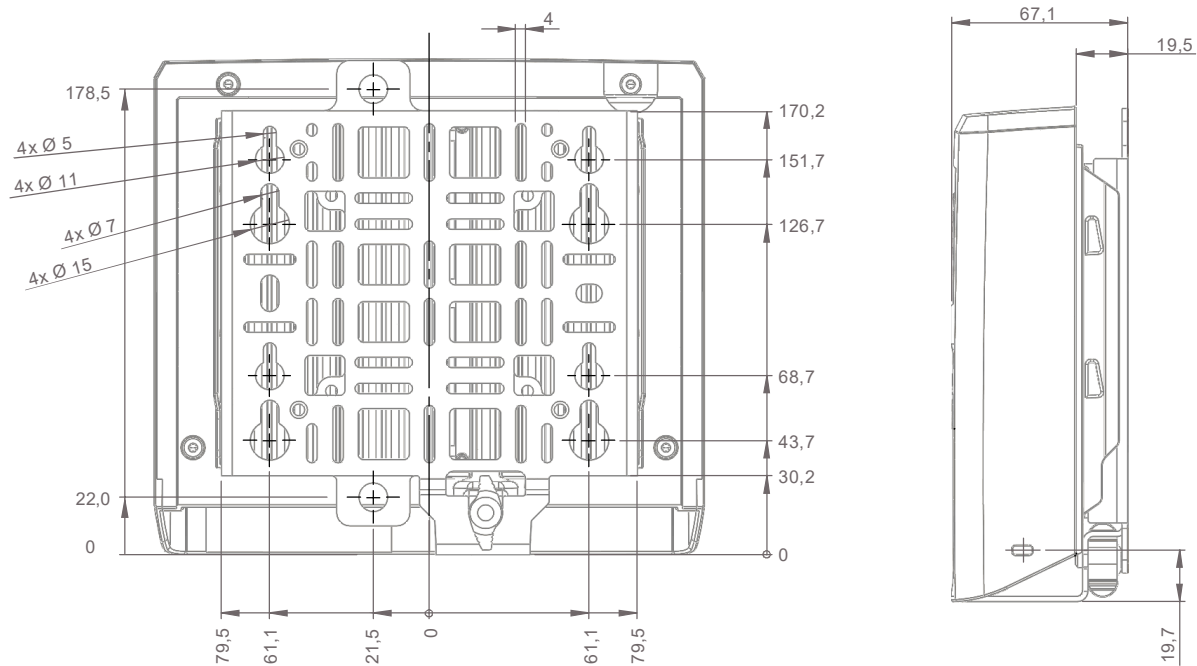


figure 269: Antenna (rear, right), dimensions in millimeter

5.7 Technical Specifications

Antenna Product Code	DECT	BL-ANT-1010-19
	2.4GHz	BL-ANT-1008-24
No of Beltpacks per Antenna	DECT	10
	2.4GHz	8 (7, if the Beltpack Priority is enabled)
DECT Antenna	1.880 ... 1.930 GHz (region dependent, not changeable by the user)	
	Region/ Countries	Frequency range [MHz]
	Europe	1880 ... 1900
	US/Canada	1920 ... 1930
	Latin America	1910 ... 1930
	Taiwan	1880 ... 1895
	Philippines	1880 ... 1890
	Brazil	1910 ... 1920
	Japan	1894 ... 1906
	Thailand	1900 ... 1906
	Macau	1880 ... 1900
2.4G Antenna	Global	2403 ... 2479
RF	Antenna Coverage	Indoor (structure dependent): max. ~200 m
		Outdoor (free line of sight): max. ~300 ... 500 m (environment dependent)
	Beltpack to Antenna range	Indoor (structure dependent): max. ~200 m
		Outdoor (free line of sight): max. ~150 ... 250 m (environment dependent)
Programmable	Yes (country dependent)	
RF Transmission power	Maximum: 24 dBm / 250 mW, average: 10 dBm / 10 mW	
Beltpack Registration	1 touch NFC registration (Beltpack to Antenna, and Beltpack to Beltpack), OTA registration (Over The Air with PIN)	
Network Connection	AES67-IP or proprietary CAT5 for long range (300 m) non IP mode (Daisy chained and closed ring)	
	Network monitoring on Antenna	display IP, daisy chain, closed ring
	Support of Layer 3 networks	yes
	TTL Settings	Adjustable multicast TTL (1 to 255, default 16)
USB Type-C Connection	Service use only	
Display Type	High contrast E-ink display	
Power Supply	PoE+ (802.3at, type 2, class 4, 15 ... 30 W) or 10 ... 57 VDC, 3 A (Bolero-Power-Supply 'BL-EPS-1001-00' or 'BL-EPS-1005-00')	
Power Consumption	15 W, 51 BTU/hr	
Mounting points	Mic stand threaded socket 5/8" & 3/8" inside, spigot adapter with wing screw lock, Kensington lock hole, screw hole for a safety wire mounting	
Dimensions	Width	210 mm / 8.3"
	Height	190 mm / 7.5"
	Depth	66 mm / 2.6"
Weight	1320 g	
Operating Environment	Temperature	-10 ... +45°C
	Humidity	20 ... 90 % rel. (non-condensing, Ta=40°C)
Storage Temperature	-20 ... +70°C	

6 Bolero Charger

The Bolero 5-bay battery Charger has the ability to quickly and safely charge up to 5 Bolero batteries simultaneously. Light and powerful high-performance lithium rechargeable battery packs are used for the Beltpack. Battery packs are able to charge inside the Beltpack as well as separately in the 5-bay Charger.

Via the additional USB Type A and USB Type C connectors on the front side, two additional Bolero Beltpacks or any other USB devices can be charged.

Charging starts automatically after inserting the battery into a charging slot. An empty battery is charged in about 180 minutes. If a Beltpack is in the charging station, the Beltpack automatically shuts down the radio. If a Beltpack is charged via USB connector, the radio is not shut down.

The Bolero Charger can be fully integrated into Network Spaces. Note that a Charger license (part of the **Pro 1** license bundle) is needed to integrate Chargers (⇒ [Licenses](#)).

To integrate a Bolero Charger it has to be connected to the same network as the Bolero Antennas. The Charger will then be listed in the Network Devices list in the Web Interface and can be added to the Network Space the same way Antennas are added.

Per default the Charger is set up to accept a DHCP IP address or use a ZeroConf automatic IP address (129.254.x.x) if no DHCP server is found. Although the ZeroConf address is sufficient for Bolero Antennas on the same network to find a Charger, it is highly recommended to configure the Charger IP address the same way as the Antenna IP address(es) in the Network Space.

Once part of the Network Space, a Charger allows monitoring the Beltpacks inserted into it. The Charger Information view shows the current occupancy of all 5 charger bays in addition to some generic Charger information. The status of registered Beltpacks in a Charger will also be shown in the Beltpack list.

A Charger firmware update from this version to a future or previous version can be done via the Web Interface the same way as an Antenna update. The previous method of updating a charger using an USB stick is also still supported.

6.1 Operating Elements

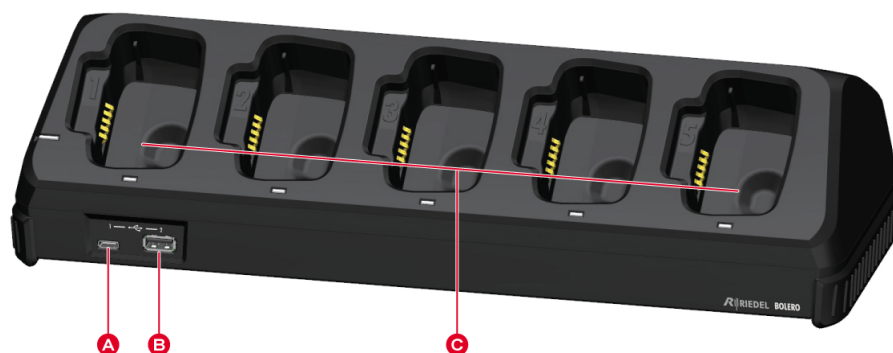


Figure 270: Charger – Operating Elements (top)



Figure 271: Charger – Operating Elements (rear)

A	USB connector (USB Type-C)
B	USB connector (USB Type-A)
C	5× charging slots for Batteries or Beltpacks
D	IEC mains connector
E	Network connector (RJ45)
F	Reset button

USB Type-C

Pin	Description	Pin	Description
1	GND	7	Dn1
2	SSTXp1	8	SBU1
3	SSTXn1	9	VBUS
4	VBUS	10	SSRXn2
5	CC1	11	SSRXp2
6	Dp1	12	GND

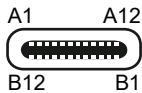


Figure 272: USB Type-C

The USB connector is used to update the firmware and to charge an additional Bolero Beltpack or any other USB device. The maximum output current is 1.5 A.

USB Type-A

Pin	Description
1	VBUS
2	D-
3	D+
4	GND

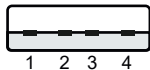


Figure 273: USB Type-A

The USB connector is used to update the firmware and to charge an additional Bolero Beltpack or any other USB device. The maximum output current is 1.5 A.

RJ45

Pin	Description
1	D1+
2	D1-
3	D2+
4	D3+
5	D3-
6	D2-
7	D4+
8	D4-

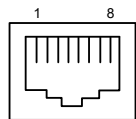


Figure 274: RJ45

The RJ45 port supports links up to 100 Mbps and is reserved for future use.

6.2 Status LEDs

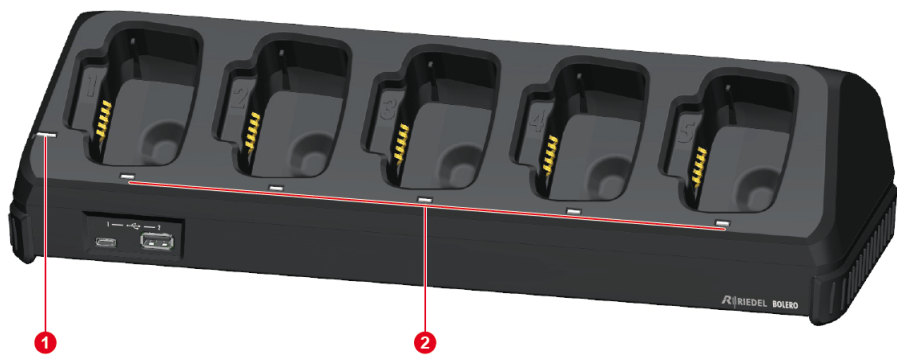


Figure 275: Charger – Status LEDs (top)

1	System	off	No input power
		orange	Booting / rebooting
		green	Charger ready
		green blinking	Firmware update of the <i>Charger</i> in progress
		orange fast blinking (all LEDs)	Charger is reset to factory settings
2	Slot (1 ... 5)	off	Slot empty, not charging
		red blinking	Charging, battery level <20%
		orange blinking	Charging, battery level 20 ... 90%
		green blinking	Charging, battery level >90%
		green	Battery 100% charged
		red flashing	Failure (power off)
		red	Failure (temperature too low/high)
		green, orange flashing	Battery 100% charged, battery life <60%

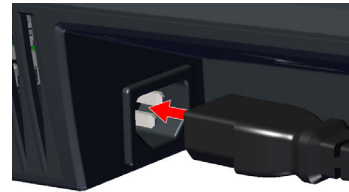


Figure 276: Charger – Status LED (rear)

3	Ethernet	off	No data connection
		green	Data connection ok
		green blinking	Data connection ok, traffic

6.3 Charging Batteries

- Connect the Charger to mains.
The System-LED indicates the overall status.



- Push the Beltpack or the battery in one charging slot.

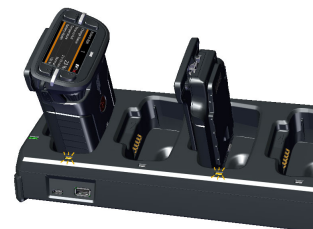


The Beltpacks' radio is switched off when the Beltpack is plugged into the Charger.



- The charging procedure will start automatically.
- The corresponding Slot-LED indicates the charging state:

	red blinking	below 20%
	orange blinking	20 ... 90%
	green blinking	above 90%
	permanent green	100%
	green, orange flashing	100%, battery life <60%



- The Beltpack's display shows the charging state.

The charging time may double or triple if the Beltpack is either too hot or too cold.

Bolero-Bpk	1	
Charge Status	23 %	
Time to Full	2 h 19 min	
Temperature	Normal	
Battery Health	100 %	

- When the Beltpack is fully charged, the display shows the following content.
- Remove the Beltpack or battery out of the Charger.

Bolero-Bpk	1	
Charge Status	100 %	
Time to Full	Done	
Temperature	Normal	
Battery Health	100 %	

6.4 Firmware Update (Charger)

The Charger firmware can be conveniently updated via the web interface.

⇒ [Firmware Update \(Network Device\)](#)

Updating the Chargers and Beltpacks with a USB stick is also supported and is described in the following section.

Firmware update with a USB stick

The following devices are required:

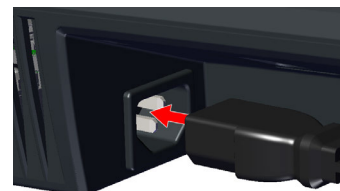
- ✓ Bolero-Charger
- ✓ USB pen drive (Type A or Type C)
- ✓ Beltpack firmware package (for example "bolero_v1.2.3-456.package")
- ✓ Bolero-Beltpacks/S-Beltpacks to be updated

It is possible to update the firmware of up to five (S-)Beltpacks in one Bolero Charger.

As long as a USB flash drive with valid firmware package is connected to the Charger, the Charger functions as an update station. Any number of (S-)Beltpacks can be inserted into the charger, which are then updated one after another. The update process will take approximately 8 min per (S-)Beltpack.

The (S-)Beltpacks are charged simultaneously while updating.

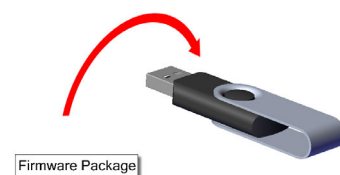
- Connect the Charger to mains.



- Copy the new firmware package to the root directory of a USB pen drive.
- Make sure that the name starts with "Bolero" and ends with ".package".



Only one package is allowed to be stored in the root directory.



- Put the (S-)Beltpacks into any charging slots.
- Take care that the USB rubber cover is not pulled out.
- The charging process is independent of the update procedure and indicated by the respective slot LED.

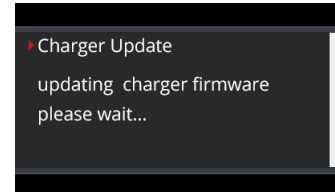


- Plug the pen drive into the respective USB slot (type A or type C) on the front side of the Charger.

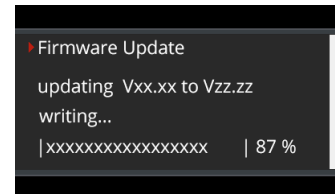


- At first, the **Charger's** firmware will be updated.
During this process the Charger's Status-LED will blink green.
- Then the Charger will be restarted.
During this process the Charger's Status-LED will light orange.
- The current process will be also displayed on the Beltpacks' display.

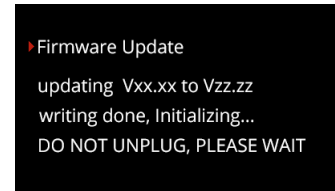
If the firmware update of the **Charger** has been completed, the status LED of the charger lights up green permanently.



- Then, the **(S-)Beltpacks'** firmware will be updated.
Beltpack:
 - The current '(Vxx.xx)' firmware version is shown in the display.
 - The new '(Vzz.zz)' firmware version is shown in the display.
 - The current process (pending, starting, erasing, writing and verifying) and a progress bar is shown in the display.
- **S-Beltpack:**
 - The key LEDs 1+2 are blinking orange alternately.
- The slot LED of the charger still indicates the charging status.

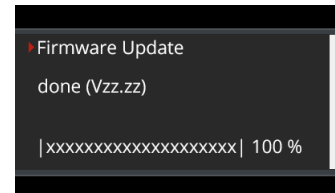


- Finally the (S-)Beltpack will be initialized, restarted and finalized.
Beltpack:
 - The current '(Vxx.xx)' firmware version is shown in the display.
 - The new '(Vzz.zz)' firmware version is shown in the display.
 - The current process is shown in the display.
- **S-Beltpack:**
 - The key LED 1 or 2 is orange.
- The slot LED of the charger still indicates the charging status.



Caution: Do not remove the (S-)Beltpacks from the charging slots during this process.

- The firmware update is terminated.
Beltpack:
 - The display shows 'done' and the new firmware version '(Vzz.zz)'.
- **S-Beltpack:**
 - The key LEDs 1+2 are green.
- The slot LED of the charger still indicates the charging status.



The order of plugging the Beltpacks and the USB stick does not matter.

It may happen that a Bluetooth update starts after removing the Beltpack from the charging slot. This will take a few minutes.

6.5 Technical Drawing

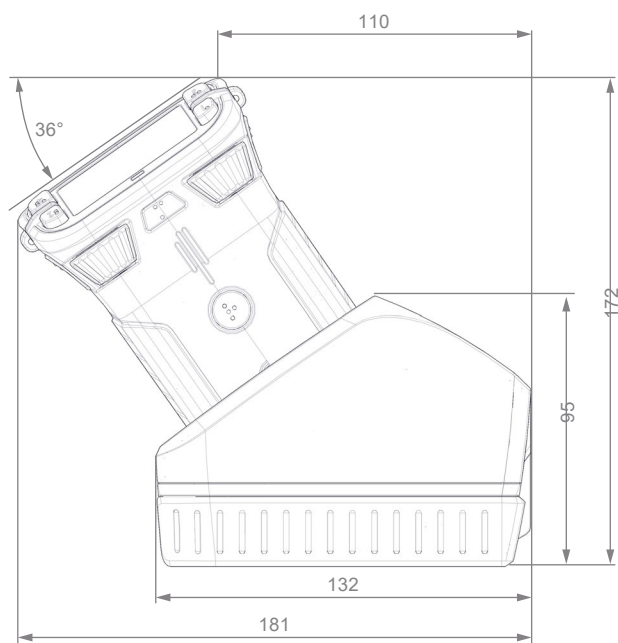


figure 277: Charger (right), dimensions in millimeter

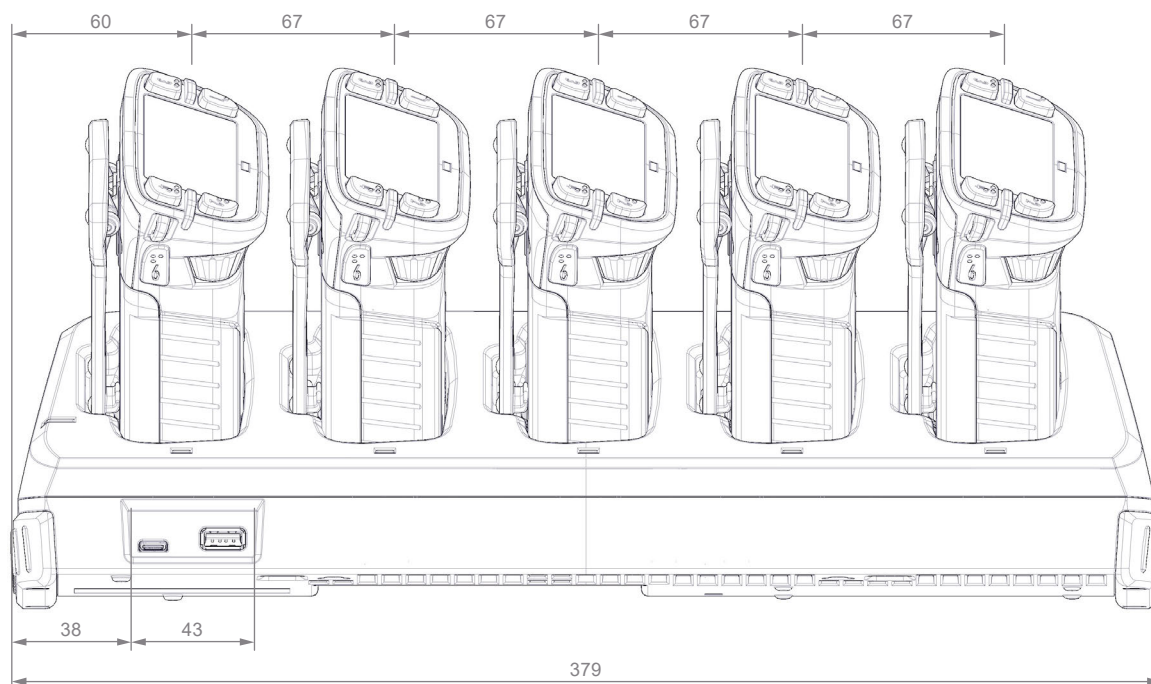


figure 278: Charger (front), dimensions in millimeter

6.6 Technical Specifications

Charger Product Code	BL-CHG-1005-R	
No of Beltpack slots	5	
Beltpack Charge Time	Up to 3 hours	
Charge status LEDs	1 per charge slot	
Beltpack Display	% charged, time to full, temperature, battery health	
Network Connection	To update the firmware of the Bolero Charger (and the Bolero Beltpacks)	
USB Type-A / USB Type-C Connection	• For firmware update • For charging a Beltpack, a phone, etc. via cable • Max. 1.8 A (each port)	
Power Socket	1x IEC	
Power Supply	100 ... 230 VAC / 50 ... 60 Hz	
Power Consumption	≤60 W, ≤205 BTU/hr (charging 5 Beltpacks)	
Heat dissipation	≤20 W, ≤68 BTU/hr (charging 5 Beltpacks)	
Mounting	Stand-alone table mount, 2x wall mounts or 19" rack via optional accessory kit "BL-RMK-1002-01" (1430045)	
Dimensions	Width	380 mm / 15"
	Height	95 mm / 3.8"
	Depth	135 mm / 5.3"
Weight	1140 g	
Operating Environment	Temperature	0 ... +45°C
	Humidity	20 ... 90 % rel. (non-condensing, Ta=40°C)
Storage Temperature	-20 ... +70°C	

7 Bolero EPS-1001

The BL-EPS-1001-0x is an external power supply for a single Bolero Antenna. The 2.5 m XLR power cable of the power supply is attached to the XLR power connector of the Bolero Antenna and can supply only the Antenna where the EPS-1001 is attached.

Protect the device from splash water and moisture. The housing is intended for indoor usage. Included are four interchangeable AC plug types for Europe, US, UK and Australia.



Figure 279: BL-EPS-1001

XLR-4 (female)

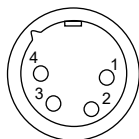


Figure 280: XLR-4 female

Pin	Description
1	-PWR
2	-
3	-
4	+PWR (12 VDC / 1.5 A)

7.1 Technical Specifications

Product code	BL-EPS-1001-00 / BL-EPS-1001-01	
No of supplied Devices	1	
Input	Voltage	100 ... 240 VAC
	Frequency	50 / 60 Hz
	Current	max. 0.7 A / 100 VAC, 0.4 A / 230 VAC
Output	Voltage	12±3% VDC
	Current	BL-EPS-1001-00: 1.5 A BL-EPS-1001-01: 2.0 A
	Power	BL-EPS-1001-00: max. 18 W BL-EPS-1001-01: max. 24 W
Efficiency Level	86%, typical at 230 VAC full load	
Operating Environment	Temperature	-10 ... +50°C
	Humidity	20 ... 90 % rel. (non-condensing, Ta=40°C)
Storage Temperature	-20 ... +85°C	
Dimensions	Width	43 mm / 1.7"
	Height	40.5 mm / 1.6"
	Depth	81 mm / 3.2"
Approvals	BL-EPS-1001-00: CE, FCC, IC, UKCA, C-Tick, CCC, TÜV, CB BL-EPS-1001-01: CE, FCC, IC, UKCA, C-Tick, CCC, TÜV, CB	
Safety	BL-EPS-1001-00: UL, IEC 62368-1, EN 62368-1, AS/NZS 62368.1, PSE, BSMI BL-EPS-1001-01: UL, IEC 62368-1, EN 62368-1, AS/NZS 62368.1, PSE, BSMI, KC, BIS	
Weight	150 g	

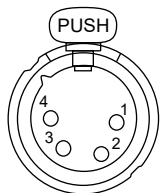
8 Bolero EPS-1005

The BL-EPS-1005 is an external high-performance power supply for Bolero Antennas in Standalone/Link mode. The 2.5 m XLR power cable of the power supply is attached to the middle of up to five Bolero Antenna and can supply two additional daisy-chained Antennas at the CAT5-Link port. The external power supply allows various mounting options like wall-mount, pole-mount and 5/8 thread. The housing is weatherproof for indoor and outdoor usage.



Figure 281: BL-EPS-1005

XLR-4 (female)



Pin	Description
1	GND
2	Data -
3	Data +
4	+PWR (57 VDC / 2.6 A)

Figure 282: XLR-4 female

8.1 Power Concept

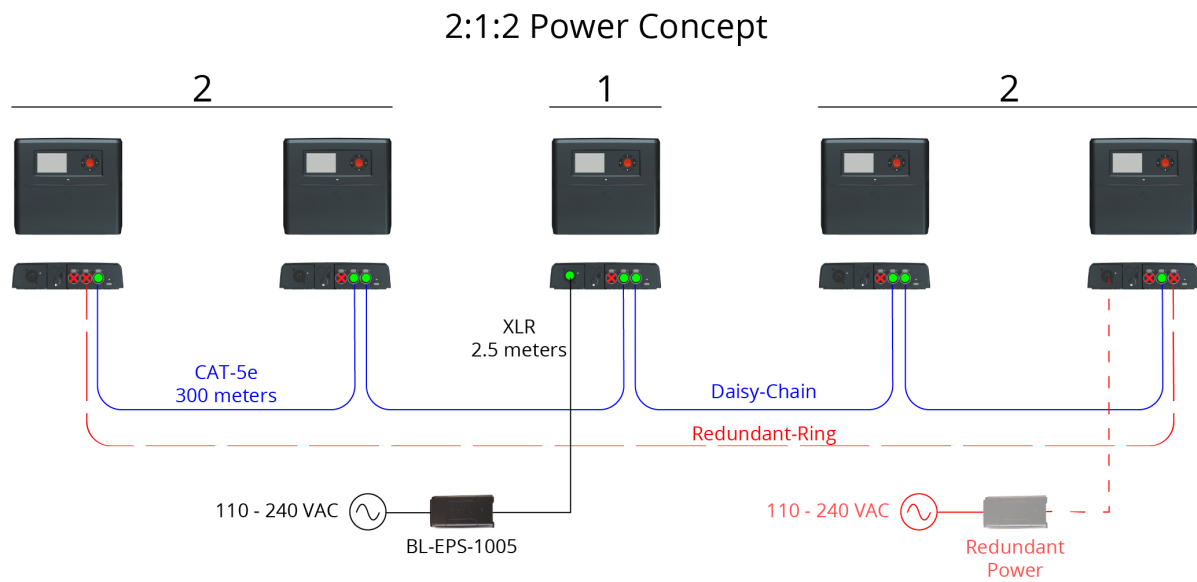


Figure 283: BL-EPS-1005 – Power Concept

Cable Type	Link: CAT-5e / Power: special XLR
Maximum Cable Length	Link: 300 m (1000 feet) / Power: 2.5 m (8 feet)
Maximum Resistance between two Antennas	17 Ohm
Maximum Remote Power Configuration	2:1:2

8.2 Status LEDs



Figure 284: BL-EPS-1005 – Status LED (top)

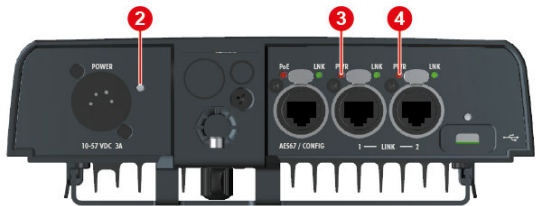


Figure 285: Antenna – Status LEDs (bottom)

1	EPS-1005 Power LED	off	Not connected to mains power.
		green	Power supply provides power for the connected Antenna and up to four remote Antennas.
		orange	Power supply provides power but Antenna is either not connected or did not acknowledge power for remote antennas yet.
		red	Power supply does not provide power although mains power is connected. Check the wiring for short circuits and restart the power supply.
2	Antenna Power LED	off	No XLR input power
		green	XLR input power ok
3, 4	Antenna LINK PWR LED	off	No remote power (neither outgoing nor incoming).
		orange	Remote power is provided to power other Antennas (outgoing power).
		green	The Antenna uses remote power as main power-supply (incoming power).

8.3 Technical Drawing

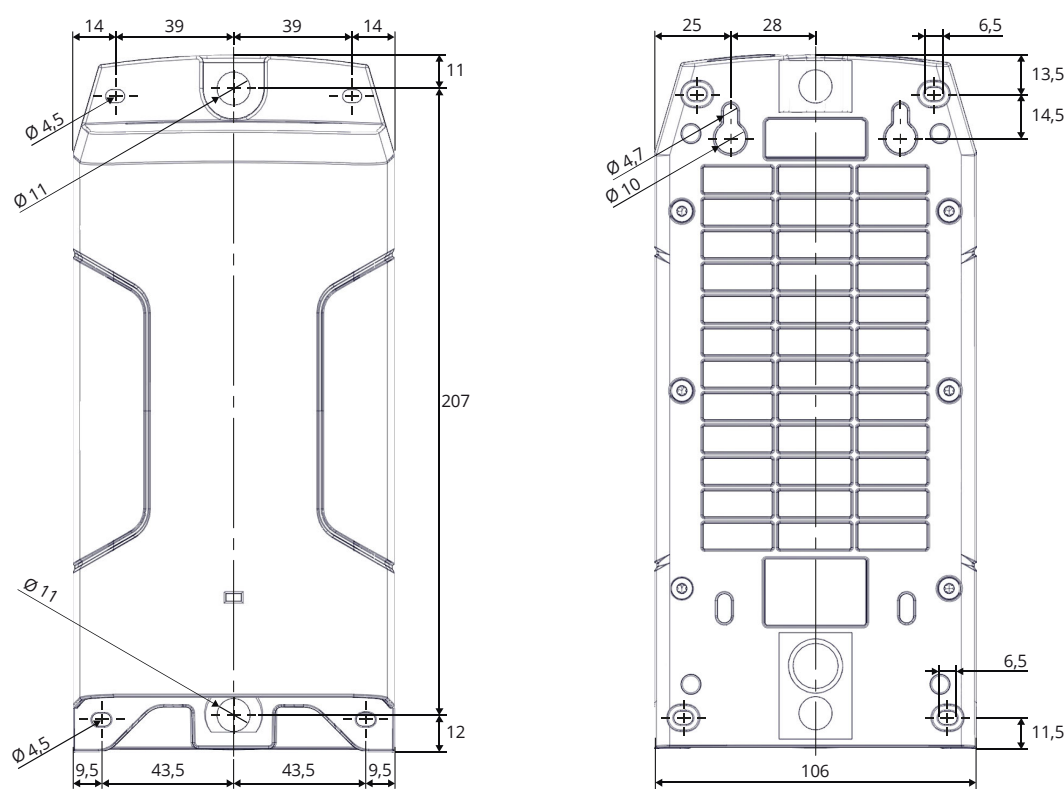


Figure 286: BL-EPS-1005 (top, bottom), dimensions in millimeter

8.4 Technical Specifications

Product code	BL-EPS-1005-00	
No of supplied Devices	5	
Input	Voltage	100 ... 240 VAC
	Frequency	50 / 60 Hz
	Current	max. 2 A / 100 VAC, 0.8 A / 230 VAC
Output	Voltage	57±5% VDC
	Current	1.5 A @ 40°C / max. 2.6 A @ 25°C
	Power	max 85 W @ 40°C / max. 150 W @ 25°C
	Cable / Connectors	Only the original XLR-4 cable may be used. The length of 2.5 meter must not be extended.
Efficiency Level	>90%, typical at 230 VAC full load	
Operating Environment	Temperature	-10 ... +40°C
	Humidity	20 ... 90 % rel. (non-condensing, Ta=40°C)
Storage Temperature	-20 ... +85°C	
Dimensions	Width	106 mm / 4,2"
	Height	230 mm / 9.1"
	Depth	63 mm / 2.5"
Mounting Options	Wall mount, pole mount with clamp (not included), 5/8" thread	
Protection Class	IP53	If mounted vertically, with plugs facing downwards (XLR + IEC plugged).
	IP51	If mounted horizontally, with plugs facing sideways (XLR + IEC plugged).
Approvals	CE, FCC, IC, UKCA, C-Tick, CB	
Safety	ETL, IEC 62368-1, EN 62368-1, AS/NZS 62368.1, PSE, KC, BIS	
Weight	1030 g	

9 Bolero Drawer

The Bolero Drawer is intended for installations in 19" racks and in which two Bolero chargers (BL-CHG-1005-R) can be placed.

9.1 Technical Drawing

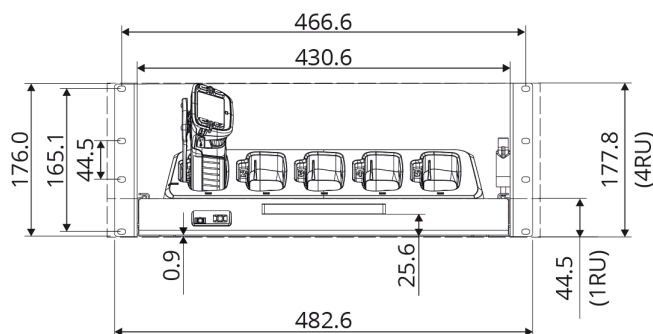


figure 287: Drawer (front), dimensions in millimeter

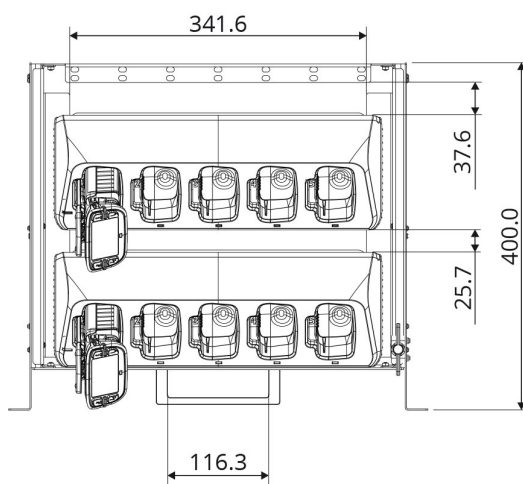


figure 288: Drawer (top, bottom), dimensions in millimeter

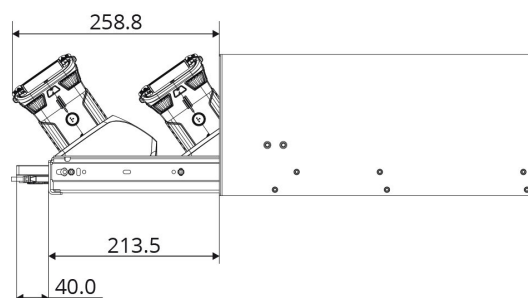
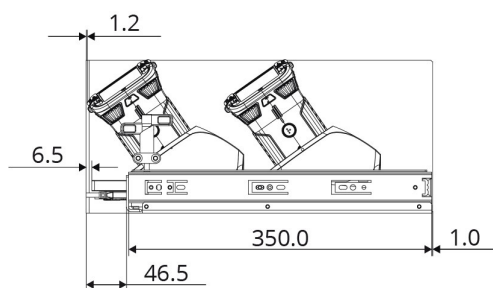
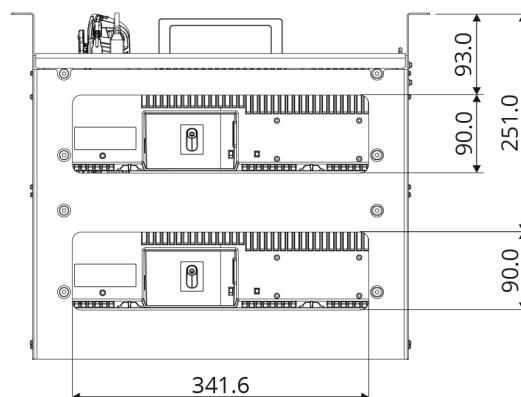


figure 289: Drawer (side retracted, expanded), dimensions in millimeter

9.2 Technical Specifications

Drawer Product code	BL-RMK-1002-00	
Number of chargers per drawer	2	
Operating Environment	Temperature	0 ... +45°C
	Humidity	20 ... 90 % rel. (non-condensing, Ta=40°C)
Dimensions	Width	482.6 mm / 19"
	Height	177.8 mm / 7" (4RU)
	Depth	400 mm / 15.75"
Mounting options	19" rack	
Slider hold in	Rear and front position	
Slider transport lock	Yes	
Approval	CE	
Weight	4.9 kg	

10 Appendix

10.1 Glossary

ANT	Antenna
ARI	A ccess R ight I dentify allows identifying a system or service provider.
BL-EPS	B olero E xternal P ower S upply
BPK	Beltpack
CHG	Charger
DECT	DECT (D igital E nhanced C ordless T elecommunications) is an international standard for cordless radio communications.
DSCP	A DSCP (D ifferentiated S ervices C ode P oint) is a packet header value that can be used to request (for example) high priority delivery for traffic.
NFC	N ear- F ield C ommunication is a transmission standard that enables wireless data transfer.
NTP	N etwork T ime P rotocol is a networking protocol for clock synchronization between computer systems over packet-switched networks.
OTA	O ver T he A ir
PTP	P recision T ime P rotocol is a network protocol for synchronization of clock settings of multiple devices in a network.
RPN	R adio fixed P art N umber
Vox	V oice O perated eX change, is a switch that operates when sound over a certain threshold is detected.

10.2 Maintenance Recommendations

Following points are strongly recommended to prevent malfunction of the system.

Every six months

Charge the batteries at least every six months to avoid deep discharge, which could damage the batteries.

10.3 Service

If you have any further questions, we offer comprehensive customer service options for this product including:

- Telephone Service
- Email Service
- Fax Service
- Configuration Support
- Trainings
- Repair

Your primary point of contact for any service issues is your local dealer.

In addition, Riedel Customer Service in Wuppertal, Germany is also available to assist you.

Telephone: +49 (0) 202 292 9400
(Monday - Friday, 8am – 5pm, Central European Time)

Fax: +49 (0) 202 292 9419

Or use the contact form on our website:

www.riedel.net > Services > Support

For repairs, please contact your local dealer. Your dealer will be able to help process your repair as fast as possible and/or arrange for the delivery of spare parts.

The address for repairs sent directly to Riedel Communications GmbH is:

Riedel Communications GmbH & Co. KG
- Repairs -
Uellendahler Str. 353
D-42109 Wuppertal
Germany

Please add a completed repair form to all your repairs.

The form can be found at the Riedel website:

www.riedel.net > Services > Repairs

10.4 Notes

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