Bolero 3.1

Next Generation Wireless

User Manual

03-000HB01EG-F00

03-000HB01EG-F00
Bolero 3.1 User Manual

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 etre place au meme endroit ou utilise simultanement 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 n°. 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 radiofreqüência de acordo com as Resoluções n°. 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。

CE

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

FC

- 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)

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

Industry Canada

- 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

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

Singapore: Complies with IMDA Standards DB105184

Taiwan: Complies with BSMI Standards

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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.

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, could result in death or 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. In order to ensure air transport safety, the Bolero Battery Pack is tested according to UN 38.3 – Transport of dangerous goods.

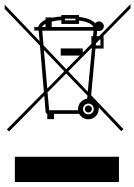
Warning	
	There is a risk of fire and burns if the battery pack is handled improperly. • **Do not short-circuit.** • **Do not dismantle, open, crush, heat above 60°C (140°F) or incinerate.** • **Recycle or Dispose of property.** • **Charge before initial use.** • **Use the specified Riedel Bolero Charger 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 3.1 This user manual contains following changes:

2.4 GHz Beltpacks and Antennas

The Bolero product portfolio has been expanded by a 2.4GHz type Antenna and 2.4GHz-Beltpacks that operate exclusively in the 2.4 GHz range.
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. 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).
⇨ 'Bolero Beltpack'
⇨ 'Bolero Antenna'

- **Retransmit**
  Defines the maximum number of repetitions (only for Bolero-2.4GHz) when the signal is disturbed.
  ⇨ 'Features in Detail > Web Interface > Antennas > Action Button (Antennas) > General Settings: Edit Network Space'
- **Frequency Hopping Mode**
  The frequency hopping mode of several Bolero systems in the same radio range and the same PTP Grand Master must be different to avoid interference between the systems.
  The setting is normally done automatically.
  ⇨ 'Features in Detail > Web Interface > Antennas > Action Button (Antennas) > General Settings: Edit Network Space'
- **Bluetooth**
  Bluetooth is not supported for 2.4GHz-Beltpacks.
  ⇨ 'Features in Detail > Web Interface > Beltpacks > Edit (Beltpacks)'
  ⇨ 'Bolero Beltpack > Main Menu'
  ⇨ 'Bolero Beltpack > Main Menu > Bluetooth'
  ⇨ 'Bolero Beltpack > Features in Detail > Bluetooth'
  ⇨ 'Bolero Beltpack > Technical Specifications'
- **Walk Test**
  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.
  ⇨ 'Bolero Beltpack > Main Menu > Service'
  ⇨ 'Bolero Beltpack > Features in Detail > Walk Test'

Override & Net Override

Force Beltpack settings while the Beltpack is connected to a specific Antenna or to the Network Space.
⇨ 'Features in Detail > Web Interface > Antennas > Action Button (Antennas) > Edit Network Space > Net Override'
⇨ 'Features in Detail > Web Interface > Antennas > Edit (Antennas) > Override'

Noise Gate

The audio is only forwarded to the system when the VOX is active.
⇨ 'Features in Detail > Web Interface > Beltpacks >Edit (Beltpacks): Microphone VOX'
⇨ 'Features in Detail > Web Interface > Audio Channels >Edit (Audio channels): VOX'

Reply Feature

The Reply functionality can be adjusted for Beltpacks and Partylines in the System Modes '**Standalone/AES67**' and '**Standalone/Link**'.

- The Reply function can be deactivated for Partylines.
  ⇨ 'Features in Detail > Web Interface > Partylines > Edit (Partylines)'
- The Reply key can be used to reply only to the Beltpack that last spoke into the Partyline, instead of speaking into the entire Partyline.
  ⇨ 'Features in Detail > Web Interface > Beltpacks > Edit (Beltpacks)'

Change Beltpack Name via Profile

In profile editing, it is now possible to set the names of all Beltpacks of a profile at the same time. Additionally, an incremental ID can be added for Beltpacks that are linked to the profile.
⇨ 'Features in Detail > Web Interface > Profiles > Edit (Profils)'

Beltpack Language: Chinese

A Chinese translation of all Beltpack menus is now available and can be activated using the Language setting in the Web Interface or on the Beltpack.
⇨ 'Features in Detail > Web Interface > Beltpacks > Edit (Beltpacks)'
⇨ 'Bolero Beltpack > Main Menu > General Settings > Language'

Control Multicast IP

Bolero uses an IP multicast group to exchange control data between Antennas in a Network Space. This multicast group can now be changed for each Antenna.
Please note: All Antennas in the Network Space must use the same Control Multicast IP address, otherwise the Antennas cannot communicate properly and will not be displayed in the Antenna list.
Note: Under normal circumstances it is not necessary to change this setting.
⇨ 'Features in Detail > Web Interface > Antennas > Edit (Antennas)'

New Feature: Master Priority "None"

A new master priority setting "None (X)" has been added to the Antenna Settings view.
This setting can be used to prevent certain Antennas from becoming the radio master even if the real master Antenna is down or currently unreachable. In particular, this prevents Antennas with insecure Ethernet connections (e.g. via media converters) from establishing their own "one-Antenna network space", i.e. from taking over the role of radio master, just because they cannot communicate with the real radio master at the moment.
⇨ 'Features in Detail > Web Interface > Antennas > Edit (Antennas) > General'

Web Interface Improvements

- **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.
  ⇨ 'Features in Detail > Web Interface > Beltpacks > Action-Button (Beltpacks)'
- **Device Description**
  You can add a description to an Antenna or IO device.
  ⇨ 'Features in Detail > Web Interface > Antennas > Edit (Antennas)'
  ⇨ 'Features in Detail > Web Interface > Antennas > Info (Antennas)'
  ⇨ 'Features in Detail > Web Interface > IO Devices > Edit (IO-Devices)'
  ⇨ 'Features in Detail > Web Interface > IO Devices > Info (IO-Devices)'
- **Highlighting configuration changes**
  Changed settings are now highlighted in all configuration views.
- **Antenna information view**
  A reduced view of Antenna information is now displayed for unassigned Antennas.
- **Advanced Radio Monitoring**
  The measurement data can now also be retrieved via the Action Button of the Antenna or Beltpack.
  This shows the measured data directly in the browser (or in a separate browser window) and not in the popup window. This allows system changes to be made at the same time as viewing the measurement results.
  - Action Button (Antennas): Open Radio Scanner
    ⇨ 'Features in Detail > Web Interface > Antennas > Action Button (Antennas)'
    ⇨ 'Features in Detail > Advanced Radio Monitoring > Antenna Radio Scanner'
  - Action Button (Beltpacks): Open Beltpack Monitor
    ⇨ 'Features in Detail > Web Interface > Beltpacks > Action Button (Beltpacks)'
    ⇨ 'Features in Detail > Advanced Radio Monitoring > Beltpack Radio Monitoring'

Network Requirements

A table of network requirements that must be considered when restricting multicast traffic to and from the Antennas.
⇨ 'Features in Detail > Network Requirements'

PTP Grandmaster Selection

New chapter with a description of the PTP grandmaster selection used by Bolero.
⇨ 'Features in Detail > PTP Grandmaster Selection'

Status Indication

- **Bolero S-Beltpack**
  Status display of a firmware update via the key LEDs 1+2.
  ⇨ 'Bolero S-Beltpack > Firmware Update'
  ⇨ 'Bolero Charger > Firmware Update'
- **Bolero Charger**
  Status display of the battery life.
  ⇨ 'Bolero Charger > Status LEDs'

1.3 Package Version

This manual refers to Package version **3.1**.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.

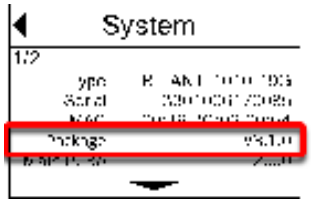


figure 2: package version (Antenna)

Web Interface

- Enter the IP address of a Bolero Antenna 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** shows of all Bolero Antennas within 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'.

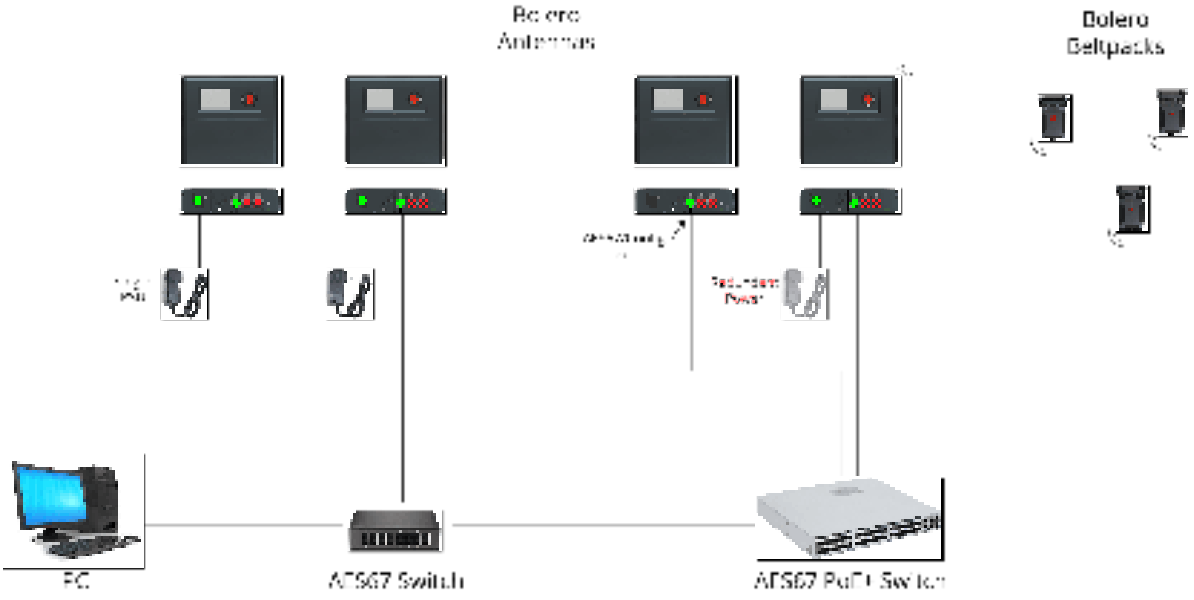


Figure 4: Standalone/AES67 (2110)

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'.

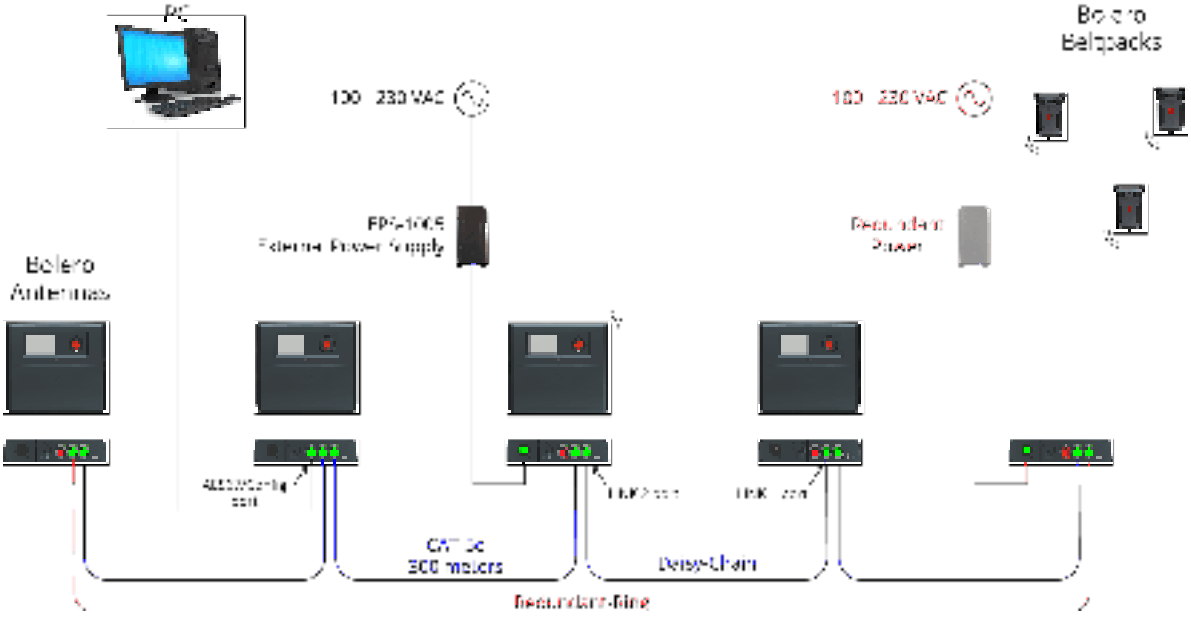


Figure 5: Standalone/Link

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'.

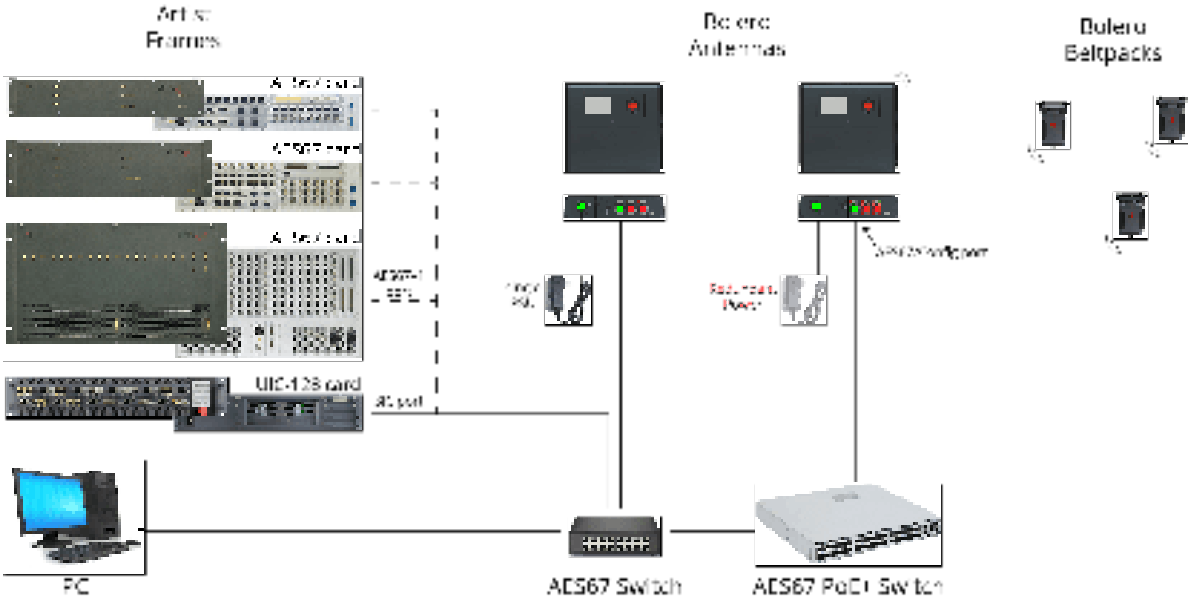


Figure 6: Integrated/Artist

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'.

- 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.

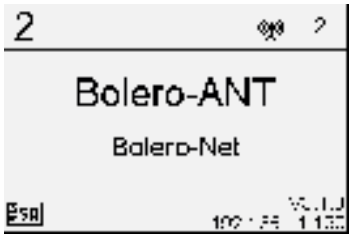


Figure 7: Antenna Display

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.

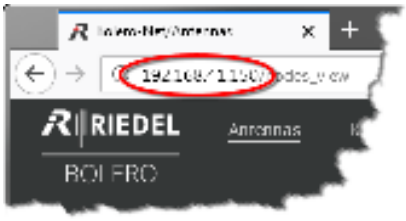


Figure 8: Web interface of the Antenna

- Select the unassigned Antenna(s) by left clicking.

Selected elements will be highlighted.

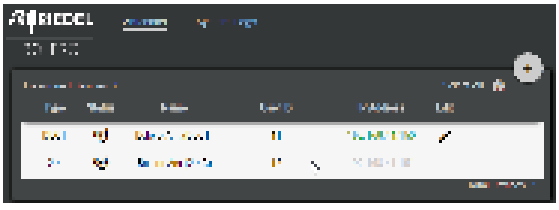


Figure 9: Selected Antennas

- 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. Bolero-Net).
- Select the system mode **Standalone/Link**.
- Define an **Admin PIN** (4 digits, 0–9).
- **Apply** the entries.

Figure 11: Dialog – Create Network Space

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

Figure 12: Assigned Antenna

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

A dialog is opened to enter the registration options.

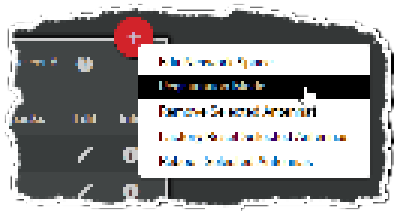


Figure 13: Registration Mode

- 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.

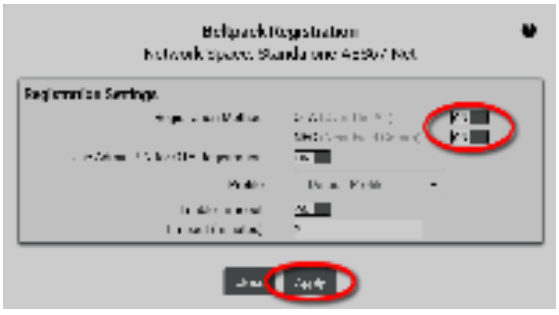


Figure 14: Dialog – Beltpack Registration

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

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))

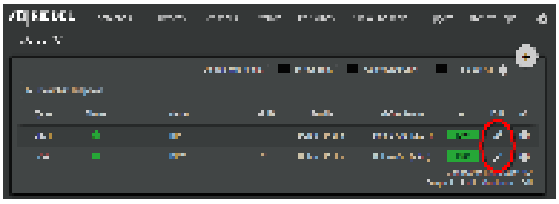


Figure 17: Registered Beltpacks

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

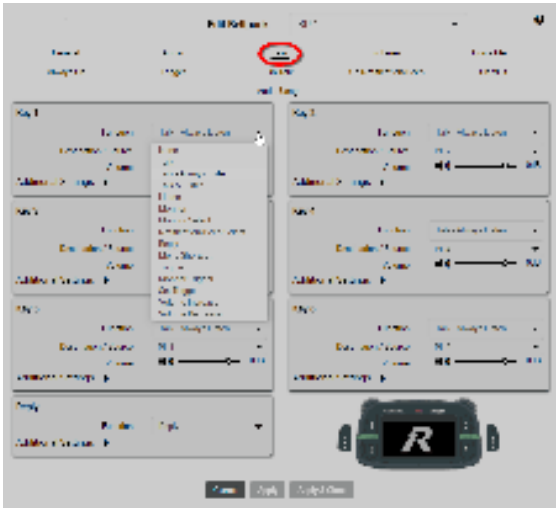


Figure 18: edit Beltpacks – Keys

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 Bolero-Power-Supply 'BL-EPS-1005-00' or 'BL-EPS-1001-00'.

- 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.

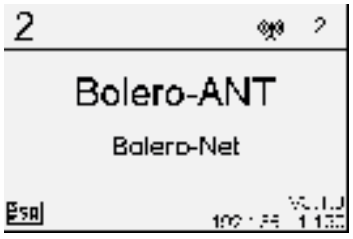


Figure 19: Antenna Display

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.

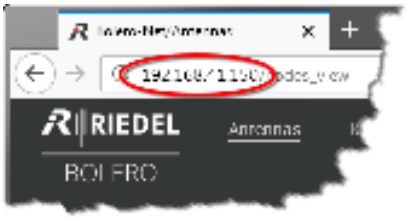


Figure 20: Web interface of the Antenna

- Select the unassigned Antenna(s) by left clicking.

Selected elements will be highlighted.

Figure 21: Selected Antennas

- 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. Bolero-Net).
- Select the system mode **Standalone/Link**.
- Define an **Admin PIN** (4 digits, 0–9).
- **Apply** the entries.

Figure 23: Dialog – Create Network Space

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

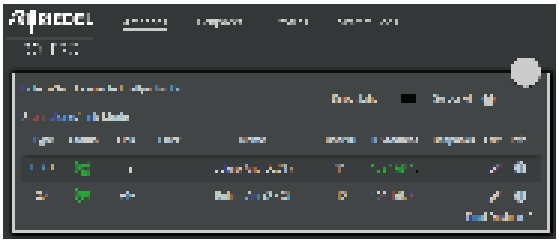


Figure 24: Assigned Antenna

> 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.

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

A dialog is opened to enter the registration options.

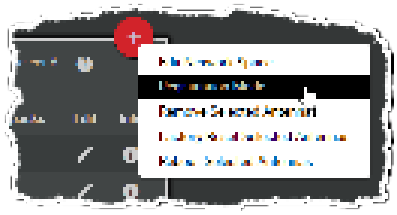


Figure 25: Registration Mode

- 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.

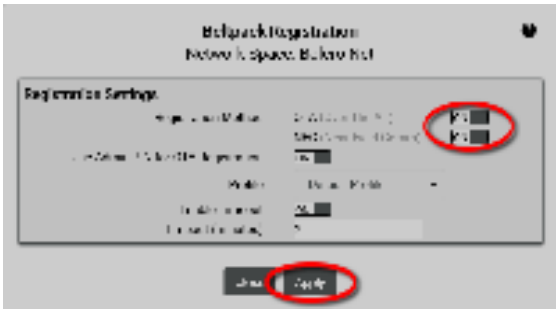


Figure 26: Dialog – Beltpack Registration

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

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.

ℹ	Use the **Profiles** page to configure all Beltpacks assigned to the profile in one step. (⇨Profiles (User Rights))

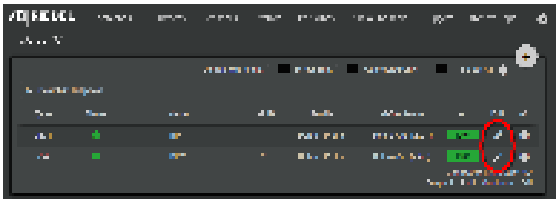


Figure 29: Registered Beltpacks

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

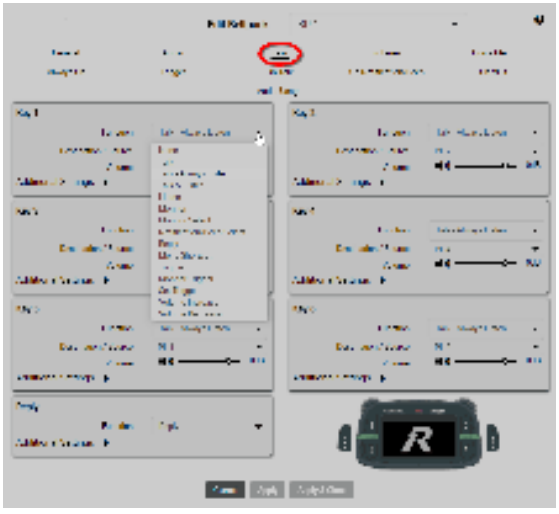


Figure 30: edit Beltpacks – Keys

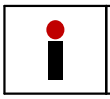
After this configuration the Beltpacks are able to communicate to other Beltpacks as well as to the audio channels of the IO devices.

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'.

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.

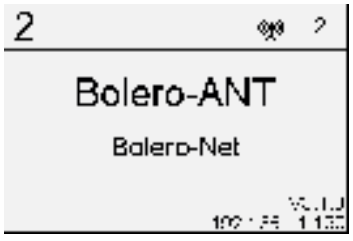


Figure 31: Antenna Display

- 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.
- Open the AES67 properties by right clicking on the respective card and choosing "**Properties**".

Figure 32: Open the AES67 card properties

Bolero traffic can be routed between different subnets. Hence, client cards and Antennas don't 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.

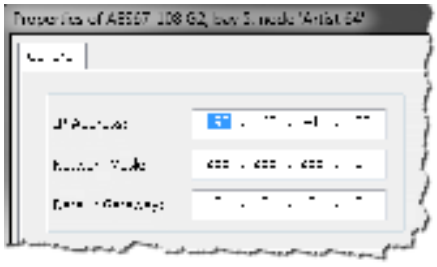


Figure 33: Properties of the AES67 card

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.

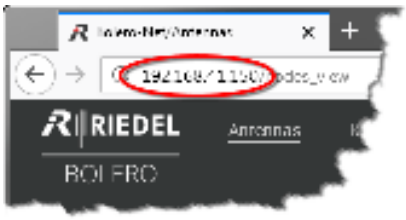


Figure 34: Web interface of the Antenna

- Select the unassigned Antenna(s) by left clicking.

Selected elements will be highlighted.

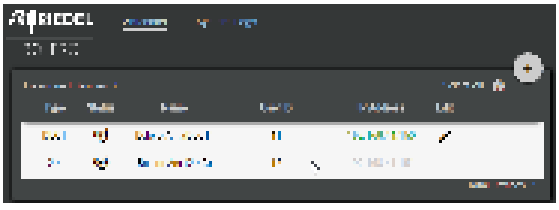


Figure 35: Selected Antennas and AES67 cards

- 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. Bolero-Net).
- Select the system mode **Integrated/Artist**.
- Define an **Admin PIN** (4 digits, 0–9).
- **Apply** the entries.

Figure 37: Dialog – Create Network Space

This example shows the new created Network Space called **Bolero-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.

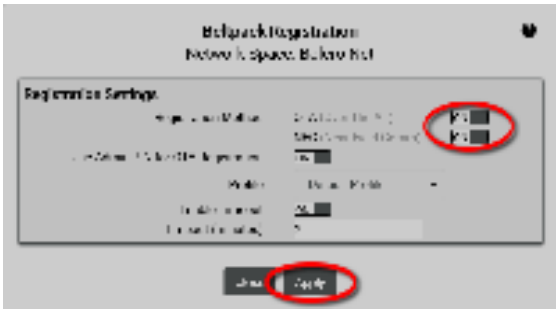


Figure 40: Dialog – Beltpack Registration

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

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).

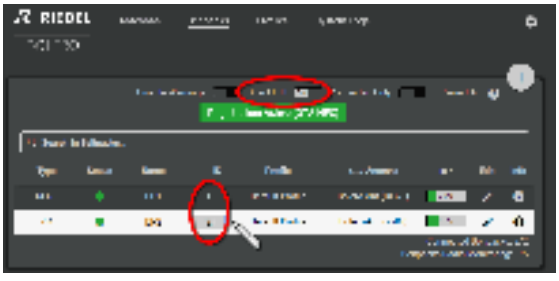


Figure 42: Registered Beltpacks

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

The Web Interface is opened by entering the IP address of an Antenna (e.g. 192.168.41.150).

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

	The user must be logged in the Net to be able to change settings. (⇨'Login/Logout')

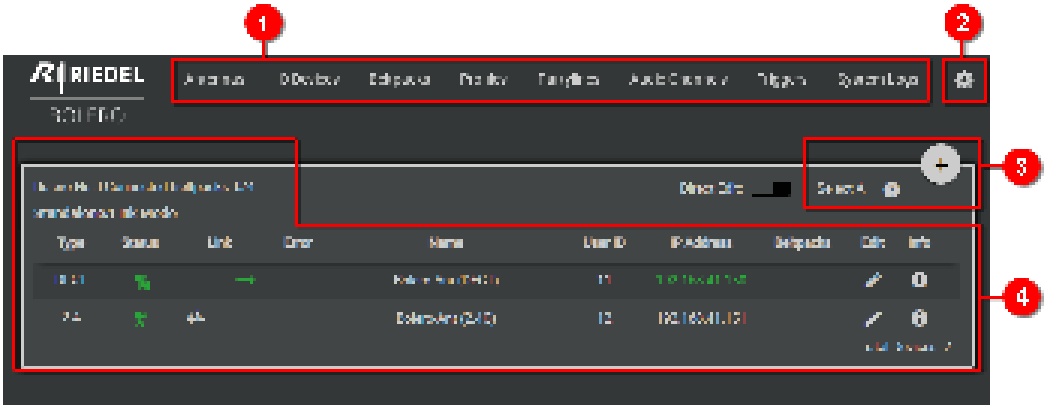


Figure 45: Antenna – Web-Interface (example: Standalone/Link mode)

The web interface is divided in following regions:

1	**Page Selection** The selected page is underlined.	
	Antennas	Basic setup of the Bolero-Net and settings of Antennas.
	IO Devices NSA	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 NSA	Creation and maintenance of Partylines.
	Audio Channels NSA	Settings of audio channels of NSAs those are included in the Bolero-Net.
	Triggers NSA	Settings of GPIs of NSAs those are included in the Bolero-Net.
	System Logs	Listing of system errors and events.
2	**Settings** The gear wheel opens the menu with the basic settings.	
3	**Basic Functions** These functions are identically in all views.	
	Select All	**Button**	Selects (deselects) all devices.
	?	**Help button**	Opens brief description of the current user interface.
	🔒	**Lock symbol** *1	Clicking this button opens the Login dialog.
	+	**Action Button** *2	Clicking the action button offers different features in the current view. The dialog can be closed by pressing the ESC key or by clicking on another region in the window.
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.	

*1 if *no* user is logged in
*2 if a user is logged in
NSA if **System Mode** = **Standalone/AES67** or **Standalone/Link**

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 Antennas

The **Antennas** window 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 to Nets
- General settings of Nets
- Defining the registration method of Beltpacks

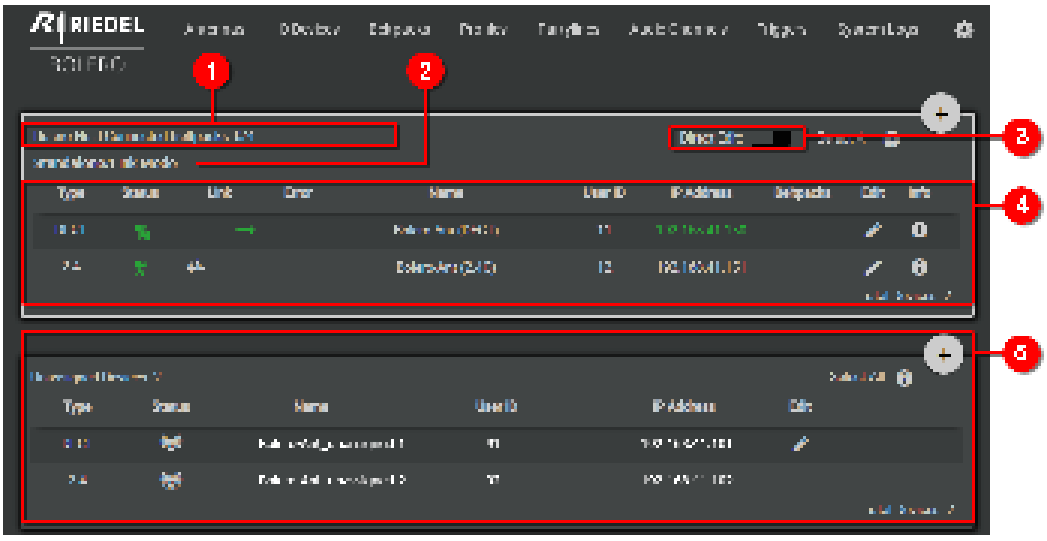


Figure 51: Web-Interface – Antennas

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: ON	If the switch is enabled (**On**), the **Name**, **User-ID** and **IP-Address** of an Antenna are directly editable in the **Antennas** window by clicking on the desired entry.
4	**Network Space** The network space is a collection of one or more Bolero Antenna(s). These Antennas are working together to provide increased coverage or capacity for Bolero 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 Antennas 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 **Antennas** window.	
	Type	Displays the Antenna type (frequency range in which the Antenna operates):
		2.4GHz-Antenna (2.403 ... 2.479 GHz) **2.4**
		DECT Antenna (1.880 ... 1.930 GHz) **DECT**
	Status	Indicates the state of the radio:
		The radio is switched off.
		The radio is switched on.
		Character 'M' next to the Antenna 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.

4	**Link**	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-Master-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 Master priority.	- 1 2 3
	PTP *1	The Antenna receives a valid PTP and is synchronized.	
		The antenna is sync master.	
		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 Antennas/AES67 client cards are Bolero devices that are currently not part of any network space. The list can include both Bolero Antennas and Artist Matrix AES67 cards. Devices in this list can be used to create a new network space or can be added to an existing one.		

*1 not in '**Standalone/Link**' mode

2.3.2.1 Action Button (Antennas)

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

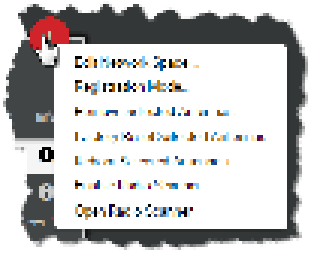


Figure 52: Action Button (Antennas, assigned devices)

Figure 53: Action Button (Antennas, unassigned devices)

Create Network Space with Selected Antennas/Devices

Function in the section **Unassigned Devices** to create a new Network Space with the previous 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')
Admin PIN	Defines the admin PIN that is required to log into the Network Space. (⇨'Login/Logout')

Add Selected Antennas/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.

Select Network Space	Selection of an existing Bolero Net. The previously selected devices are added to the Network Space without confirmation.

Edit Network Space

General

Change general settings of the Network Space.

Figure 54: 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')
	RF Strength Level	Selection of the radio power (**Normal**, **Low**, **Ultralow**).
	New in 3.1 **Radio Retransmit Level**	Defines the maximum number of repetitions (only for Bolero-2.4GHz) when the signal is disturbed. (**Very High**, **High**, **Medium**, **Low**)
	New in 3.1 **Frequency Hopping Mode**	The frequency hopping mode must be unique if multiple Bolero systems operate in the same radio range and use the same PTP grandmaster. (only for Bolero-2.4GHz)
	Enable Network Space RF	Enabling/Disabling the radio of the Antenna.

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".	
	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).
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.
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 Slave Only *4	Forces the Bolero Net to use an external grandmaster. Note: The system will not work if no external PTP master is present.
Beltpack Radio Monitoring *5	**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 Beltpack list. The Beltpacks' status symbols change from green to orange or flash orange.	

*1 if **System Mode** = Standalone/AES67
*2 if **Time-Source** = Internal
*3 if **Time-Source** = NTP
*4 not if **System-Mode** = Standalone/Link
*5 AM Advanced Monitoring License necessary

New in 3.1 Net Override

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

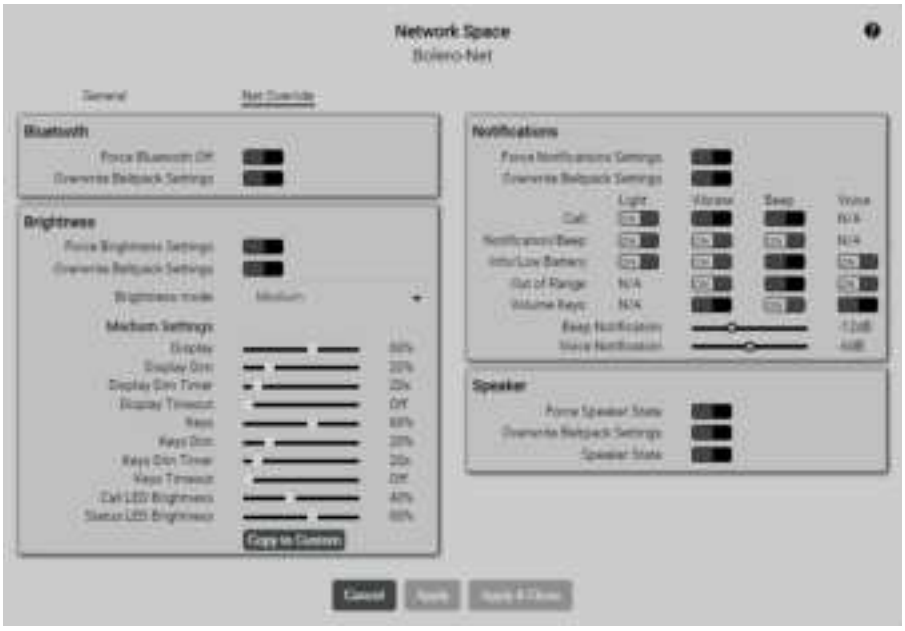


Figure 55: Edit (Network Space) – Net Override

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.

Remove Selected Antennas/Devices

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

Factory Reset Selected Antennas/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.

Registration Mode

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

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 *Admin PIN* 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, that will be assigned to a new 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.	

Reboot Selected Antennas/Devices

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

Enable/Disable Radio Scanner (DECT only)

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.

New in 3.1 **Open Radio Scanner (DECT only)**

Displays the measured '[Radio Scanner]' data of the selected DECT-Antenna.

2.3.2.2 Edit (Antennas)

Clicking the Edit symbol opens a dialog to edit Antenna (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 Antenna**' view of another Antenna.

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

General

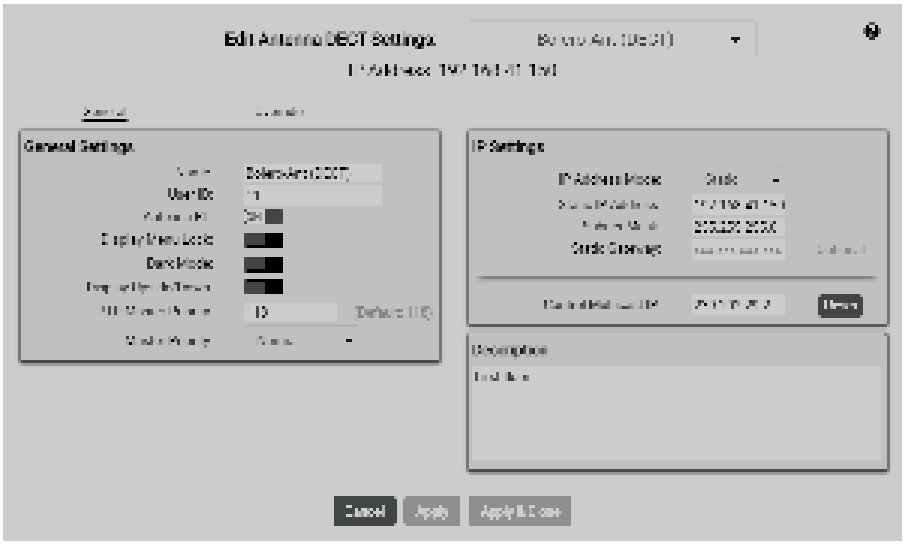


Figure 56: Edit (Antennas) – General

General Settings

Name	Name of the Antenna.
User ID	Unique ID of the Antenna.
Antenna RF	Enabling/Disabling the radio of the Antenna.
Display Menu Lock	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.
Dark Mode	Enabling/disabling all LEDs except the DC and PoE+ Power LEDs next to the sockets at the bottom.
Display Upside/Down	Display upside down.
PTP Master Priority	To synchronize all components, Bolero uses PTP (**P**recision **T**ime **P**rotocol). The **PTP Master Priority** setting (0...255, default: 118; corresponding to the 'PTP Priority 2' attribute of the local clock) can be used to select an internal grandmaster for the net. Smaller numeric values indicate higher priority, i.e. the device with the lowest number will become master. Note that 'PTP Priority 1' is always set to 128 for all Antennas.
Radio Master Priority	Defines the priority of an Antenna becoming master for the entire system. In **Standalone/Link** mode, this includes the master as well as the internal synchronization master. In the other modes, this only affects the master, as the synchronization master 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 master. (**Primary (1)**, **Secondary (2)**, **Normal**, **Low (-)**, **None (x)**) ***New in 3.1*** The new master priority setting "**None (X)**" can be used to prevent the Antenna from becoming the radio master even if the actual master Antenna cannot be reached.

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.	
New in 3.1 **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

New in 3.1 **Description**

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

New in 3.1 Override

Force Beltpack settings while the Beltpack is connected to a specific Antenna.

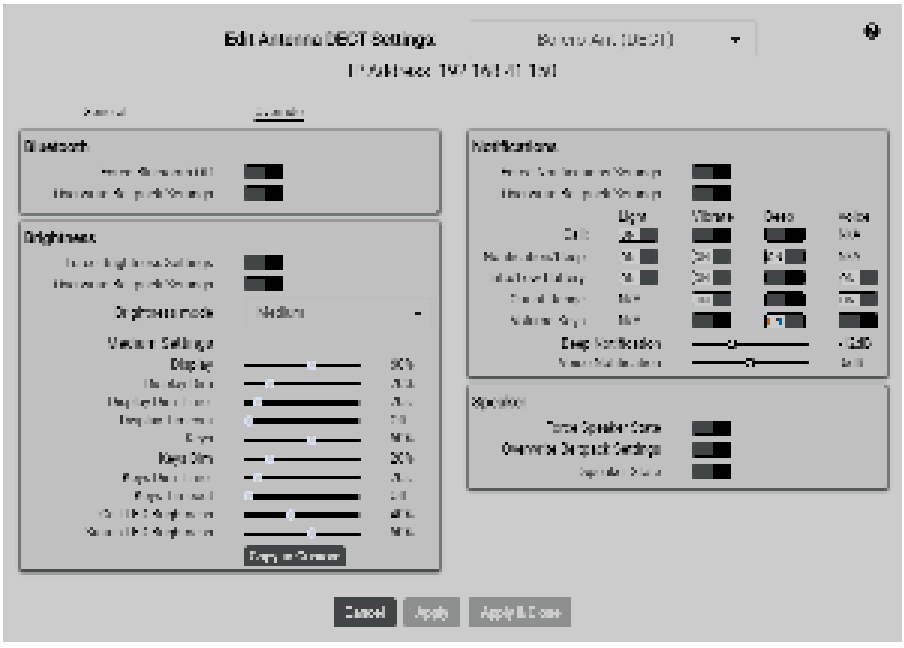


Figure 57: Edit (Antennas) – Override

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.

2.3.2.3 Info (Antennas)

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.

The left side displays generally valid device information (**Device Status**) and the right side displays operating mode specific information (**Standalone/AES67** and **Integrated/Artist** mode: **PTP Status**;
Standalone/Link mode: **Standalone Status** and **LINK 1/2**).

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.
Stored Licenses	Licenses, that are stored on the device.
Active Licenses	Licenses, that are currently found in the Network Space and activated on the device.
Temperature	Current temperature inside the device.
Power Source	Terminal, that is used to power the device.
Ethernet Link Speed	Bandwidth of the AES67/Config connector.
Radio Activated	Shows if the radio operation is enabled.

New in 3.1 **Description**

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

Standalone/AES67 & Integrated/Artist Mode

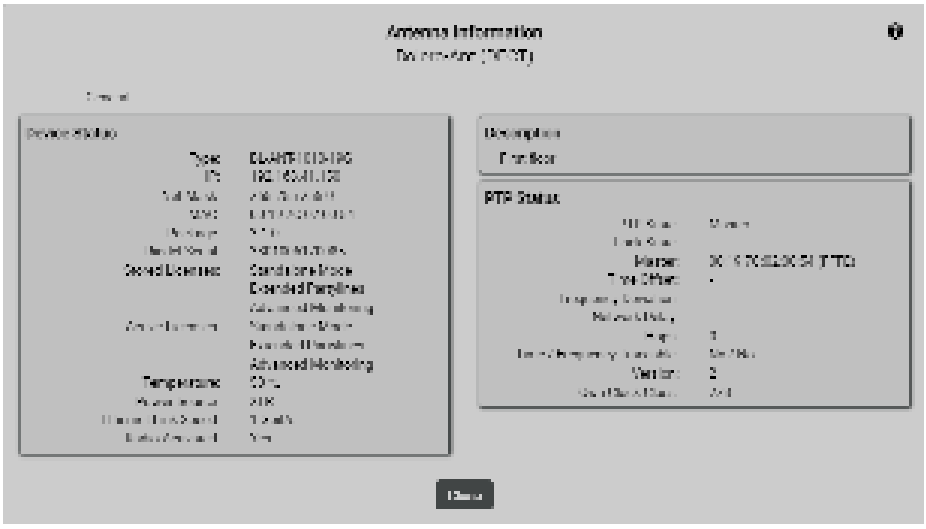


Figure 58: Info (Antennas) – General (AES67-Mode)

PTP Status

PTP State	Shows the current state of PTP (Off, Unlocked, Slave, Master).
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.
Master	Shows the MAC address of the PTP master device.
Time Offset	Shows the magnitude of the PTP offset in nanoseconds, averaged over the last couple of minutes.
Frequency Deviation	Shows the magnitude of the frequency deviation 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 sync master device.
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 master. The lower the clock class, the more accurate the clock.

Standalone/Link Mode

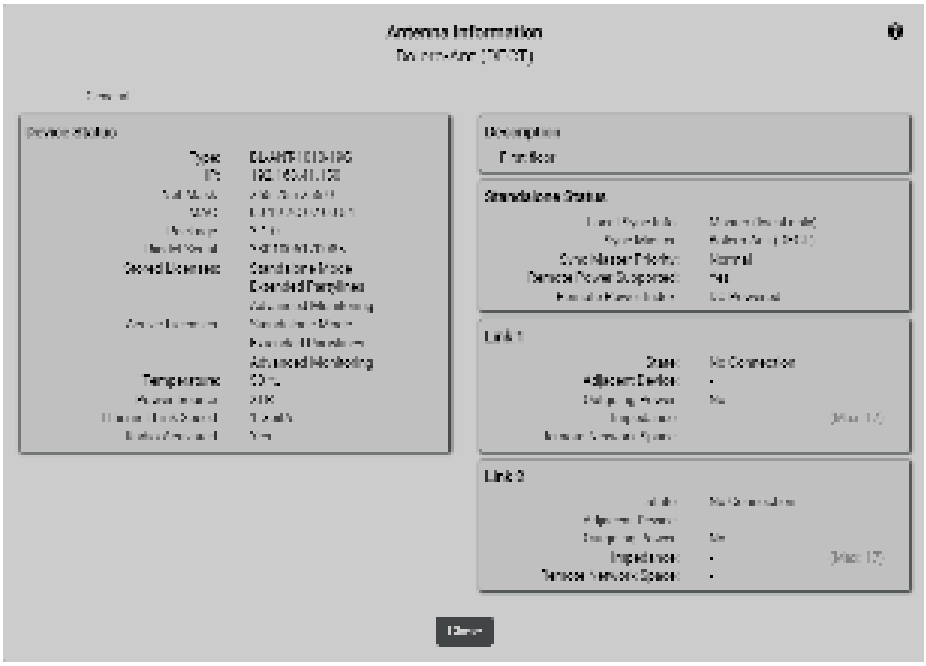


Figure 59: Info (Antennas) – General (Link-Mode)

Standalone Status

Local Sync Info	Shows if the Antenna is sync master or slave. In case of slave, it is also indicated to which of the two links (Link 1/2) the device is synchronized.
Sync Master	The name of the antenna which currently acts as synchronization master. Notice that in standalone mode, the synchronization master can change without affecting the running system.
Sync Master Priority	Shows the configured priority of the current sync master.
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.	

2.3.3 IO Devices

The **IO Devices** window displays NSA-002A devices attached at Bolero Antennas.
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 in a different net, you can make a device available by selecting the menu item 'Clear Assigned Net'.

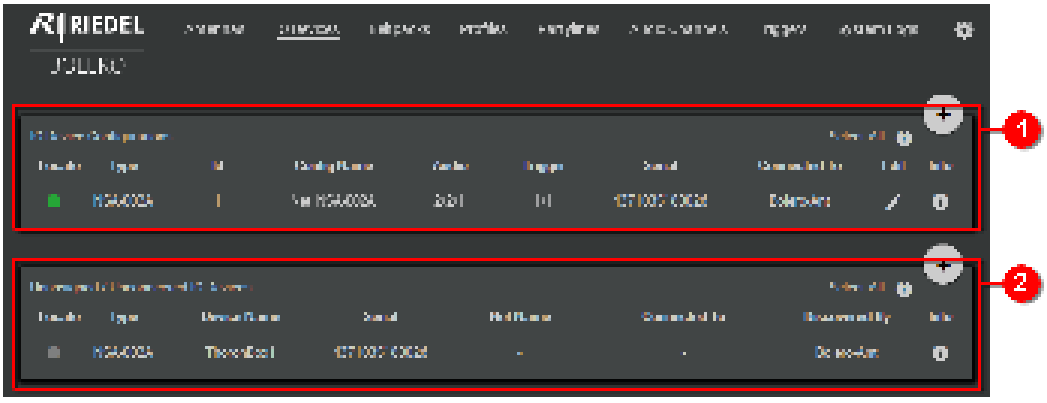


Figure 60: Web-Interface – IO Devices

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 61: Action Button (IO Device Configurations)

Figure 62: Action Button (Unassigned / Unconnected IO Devices)

Create IO Device Configuration

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

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.

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

Pair 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.	

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.

Select IO Device Config	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.

Select Hardware to assign	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.

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.

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.

Reboot Selected IO Devices

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

Change Device Name

Function that allows changing the name of IO devices.

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 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. 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 dialog.

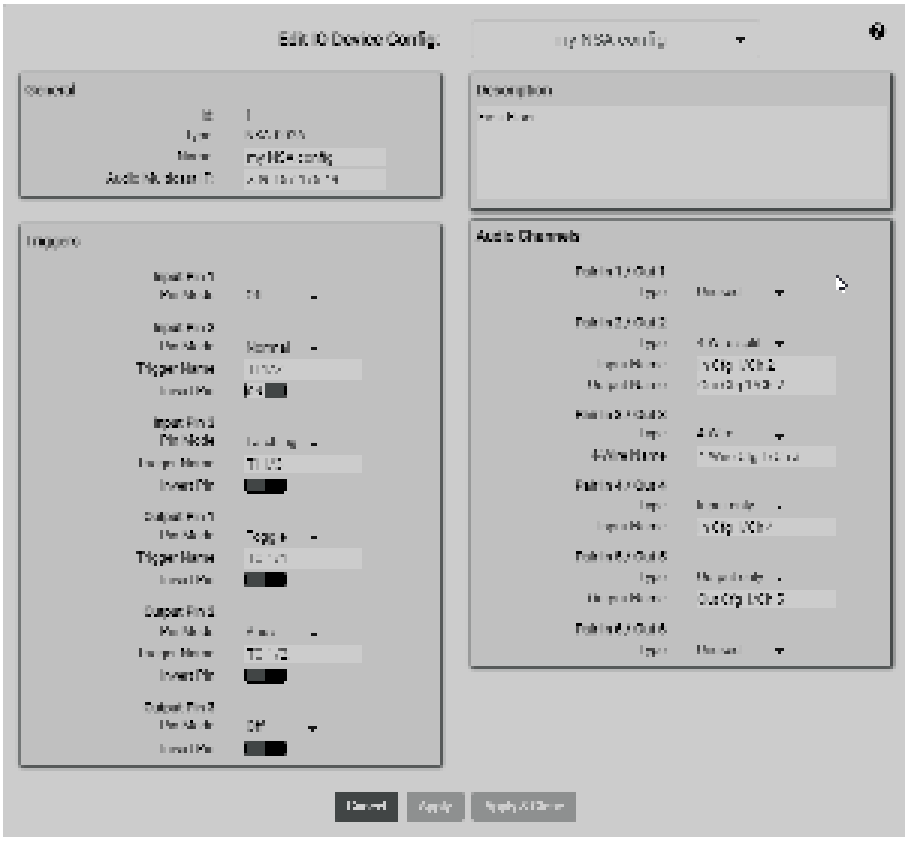


Figure 63: Edit (IO Devices)

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.

New in 3.1 **Description**

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

GPI/O to Trigger Mapping

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

Pair 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.

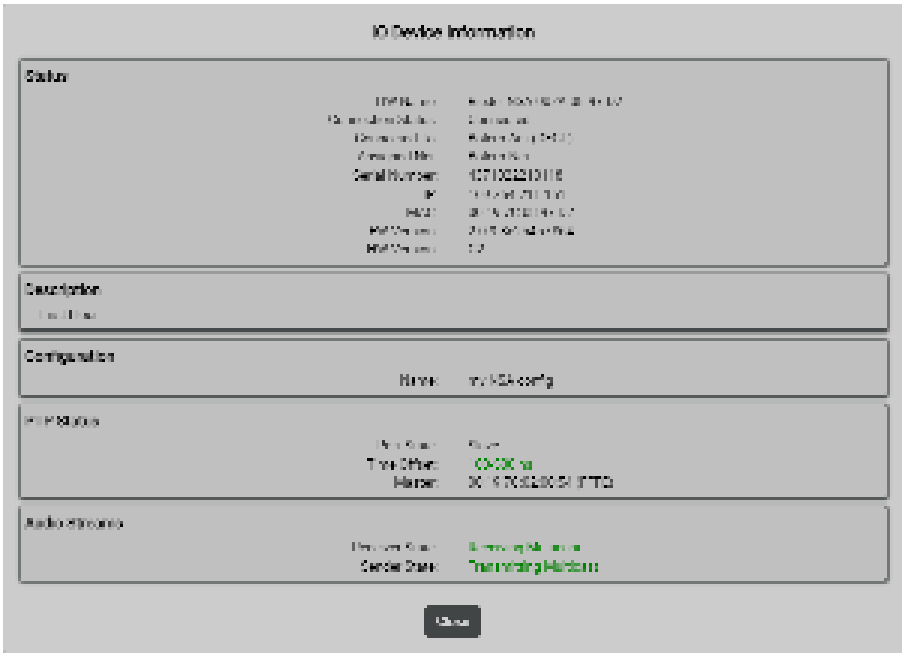


Figure 64: Info (IO-Device Configurations)

Status

HW 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	Shows the IP address of the IO Device.
MAC	Shows the MAC address of the IO Device.
FW Version	Shows the Package version of the IO Device.
HW Version	Shows the hardware version of the IO Device.

New in 3.1 **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, Slave, Master).
Time Offset	Shows the magnitude of the PTP offset in nanoseconds, averaged over the last couple of minutes.
Master	Shows the MAC-address of the sync-master.

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 registered Beltpacks of the active network space.

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.

The **Registered Beltpacks** window features the following functions:

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

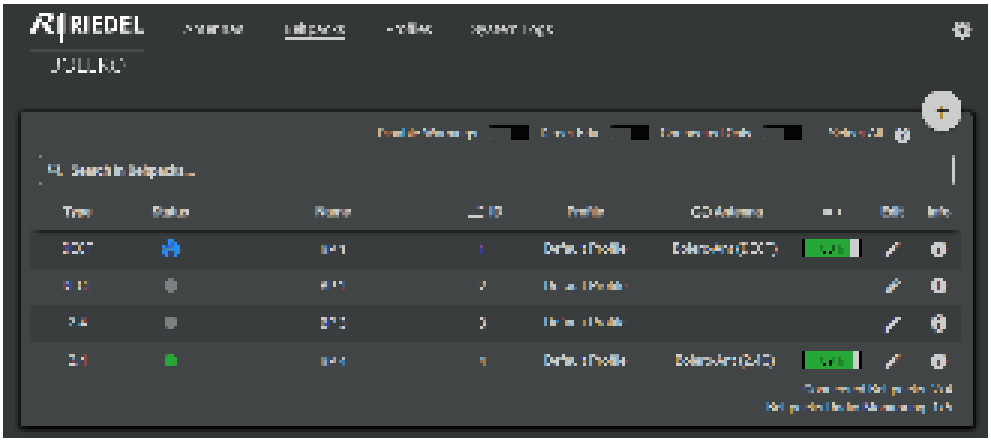


Figure 65: Web-Interface – Beltpacks

Disable Warnings: On *1	If the Beltpack 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: On	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.	
Connected Only: On	If the switch is enabled (**On**), unconnected Beltpacks are hidden in the list.	
Select All	Selects all Beltpacks in the list.	
Search in Beltpacks...	Only Beltpacks that contain the search text in the **Type**, **Name**, **ID**, **Profile** or **Antenna** field are displayed (case sensitivity is ignored).	
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	
Name *2	Name of the Beltpack.	
ID *2	Unique ID of the Beltpack.	
Profile *2	Name of the assigned Profile.	
Last Conn.	Date and time of last connection.	
Antenna	Name of the Antenna to which the Beltpack is connected.	
Battery	State of battery of the Beltpack.	
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 AM Advanced Monitoring 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.

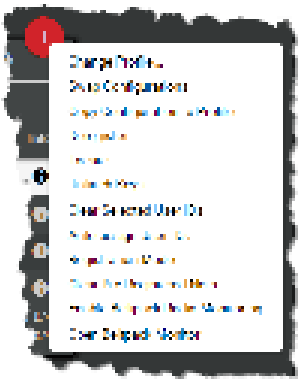


Figure 66: Action Button (Beltpacks)

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.

Swap Configurations

Allows swapping the Beltpack configuration of two selected Beltpacks.

New in 3.1 **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.

Deregister

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

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.

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").

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.

Enable/Disable Beltpack Radio Monitoring

To change a Beltpack to the detailed monitoring mode, select the Beltpack in the Beltpack 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.

New in 3.1 **Open Beltpack Monitor (DECT only)**

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.

Cancel	Discards all changes.
Apply	Stores all changes.
Apply & Close	Stores all changes and closes dialog.

General

This view is used for editing general Beltpack settings.

Figure 67: Edit (Beltpacks) – General

Name

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

General

Headset Type	Auto, Dynamic Detect, Electret Detect, Dynamic, Electret. (⇨'Headset Type')
Display Mode	Selection of the display mode. (⇨'Display Mode') Standard, Alternative, Standard Flip, Alternative Flip
Language	Selection of a pre-programmed Beltpack language English and German. ***New in 3.1*** Besides German and English, a Chinese translation of all Beltpack menus is now available.
Silent Mode	If the Silent Mode is activated, speaker and vibration are disabled.
New in 3.1 **Show on Reply** *1 ***New in 3.1*** **Partyline 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 ignored 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 not 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.

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

Notification

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

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 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).

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, *Medium*, High, Custom (see Beltpack **Brightness Mode**)	
Custom 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	On: (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 form the list will be automatically deleted. **Off**: 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	Off: The Beltpack will only connect to the last connected Net. **On**: 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.

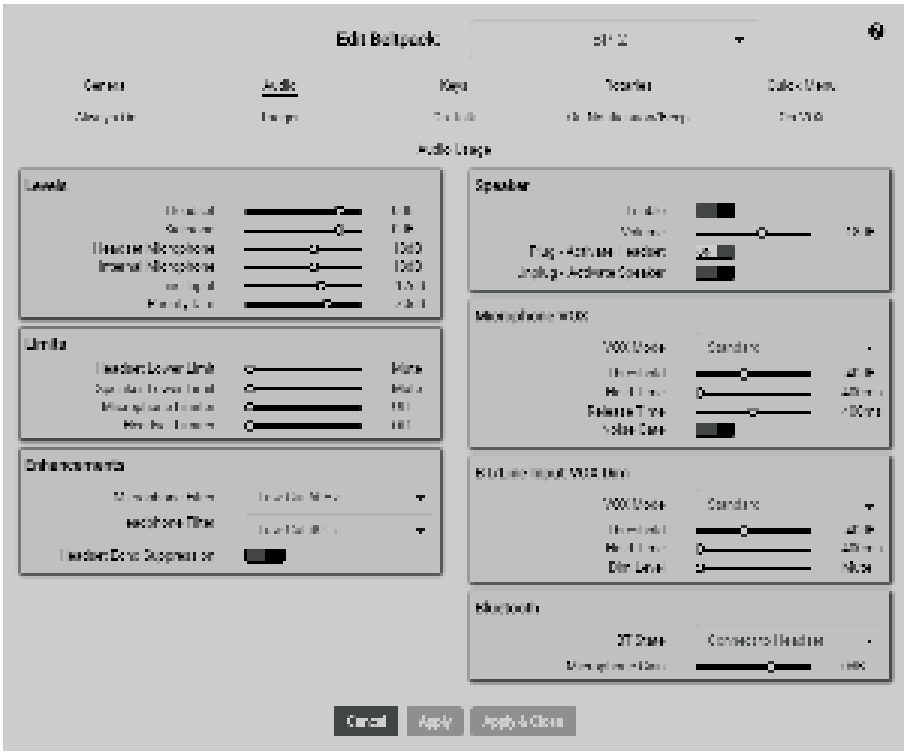


Figure 68: Edit (Beltpacks) – Audio

Levels

Headset	Adjustment of the headset volume.
Sidetone	Adjustment of the sidetone volume.
Headset Mic	Adjustment of the gain of the headset microphone.
Internal Mic	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 Limit	Slider to adjust the lowest headset volume.
Speaker Lower Limit	Slider to adjust the lowest speaker volume.
Mic Limiter	Slider to adjust the threshold level of the microphone limiter.
Headset Limiter	Slider to adjust the threshold level of the headset limiter.

Enhancements

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)
Headphone 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.
New in 3.1 **Noise Gate**	The audio is only forwarded to the system when the VOX is active.

*1 if VOX Mode = **Standard**
*2 if VOX Mode = **Adaptive**

BT/Line Input VOX Dim

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

New in 3.1 This menu is not available for 2.4GHz-Beltpacks.

BT State	Activates the Bluetooth functionality: Off, 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 volume.

*1 if BT State = **Connect to Headset**
*2 if BT State = **Connect to Mobile/PC**