Keys

This view is used for defining the functions of the Beltpack keys 1 to 6 and Reply.

This view is only available in the system modes **Standalone/AES67** and **Standalone/Link**. In this mode, the keys are configured using the **Director** configuration software.
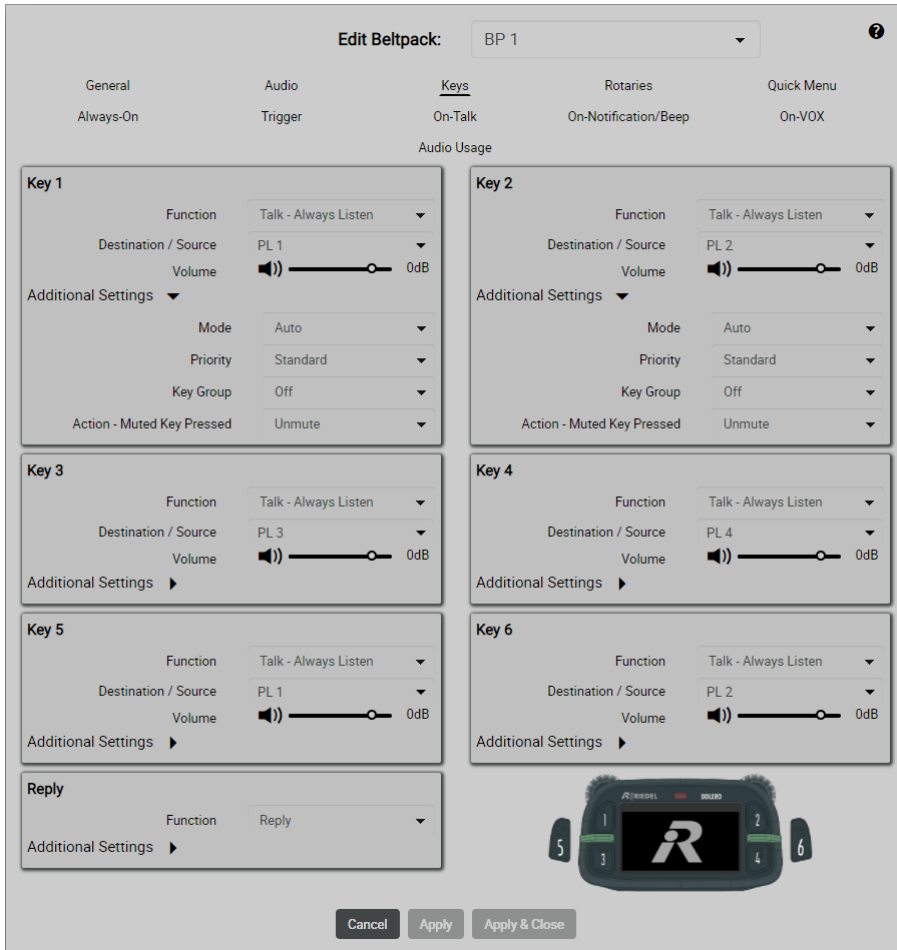

Figure 69: Edit (Beltpacks) – Keys

Key 1 ... 6, Reply

Function	Selection of the function of the respective Beltpack key:	
	None	No function.
	Talk	Beltpack talks to the destination when the key is active.
	Talk - Always Listen	Beltpack talks to the destination when the key is active and listens always to it.
	Talk & Listen	Beltpack talks to the destination and listens to the source when the key is active.
	Listen	The Beltpack will force the selected source microphone open and listens to the source audio if Beltpack key is active; can only be configured in the Web Interface.
	Monitor	The monitor function will only listen to the selected source if the selected source activates its own microphone.
	Monitor Select	Enable monitoring on any Talk key destination.
	Notification / Beep Select	Press and hold this key, then activate a Talk key to initiate a Notification/Beep indication on the Talk key destination (Beltpack, Partyline, Audio Channel).
	Reply	Beltpack talks to the source of the most recent incoming call (Beltpack or Audio Channel) when the key is active; only Point-to-Point calls are considered as reply destinations.
	Menu Shortcut	Jump to a specific entry in the Beltpack menu when pressing the key (e.g. Walk Test Pro, Lock Keys, etc.); same as a Quick Menu entry.
	Toggle	Toggle a setting when pressing the respective Beltpack key. **Echo Suppression**, **Speaker**, **Brightness Mode**, **Silent Mode**, **Display Mode**, **BT: Connect/Disconnect**, **BT: Local/Public**
	Monitor Trigger	Show the state of the Trigger on the Beltpack screen (active: thick white line, inactive: thin gray line).
	Set Trigger	Trigger is active as long as the key is active; Trigger may be active even if the key is released when there is another source activating the Trigger (other key, etc.).
	Volume Increase / Volume Decrease	Increase/decrease the selected volume(s); same as turning a rotary to the right/left.
Destination [*1]	Defines the destination depending on the selected function:	
	Talk	Defines the destination of calls: • Partylines • Beltpacks • Audio Channel (Output, 4-Wire)
	Menu Shortcut	Opens the selected menu by pressing the respective Beltpack key.
	Monitor Trigger	Defines the (physically/virtual) GPIO-input/output to be monitored: • Define Input/Output/Virtual Trigger • Create Virtual Trigger
	Set Trigger	Defines (physically/virtual) GPIO-outputs to be switched: • Define Output/Virtual Trigger • Create Virtual Trigger **Create Virtual Trigger** allows creating a new virtual trigger in the network space. This trigger can be used to trigger events from all devices registered in this network space. Each trigger has a unique ID. The trigger can be toggled normally or forced to a fixed condition (1/0).

[*1] if Function = **Talk**, **Menu Shortcut**, **Set/Monitor Trigger**

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

*2 if Function = **Talk - Always Listen**
*3 if Function = **Listen**, **Monitor**
*4 if Function = **Talk**, **Talk - Always Listen**, **Listen**, **Monitor**, **Reply**, **Set Trigger**
*5 if Function = **Talk**, **Talk - Always Listen**, **Listen**, **Monitor**

Rotaries

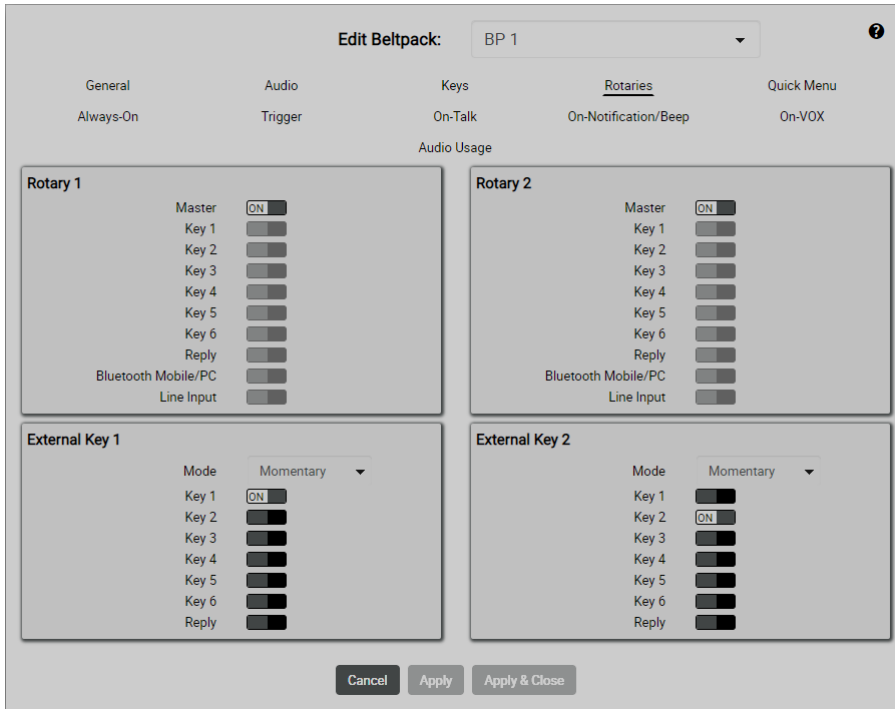This view is used for defining the function of the rotary encoders.

Figure 70: Edit (Beltpacks) – Rotaries

Rotary 1,2

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

*1 not for 2.4GHz-Beltpacks

External Key 1,2

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

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

Quick Menu

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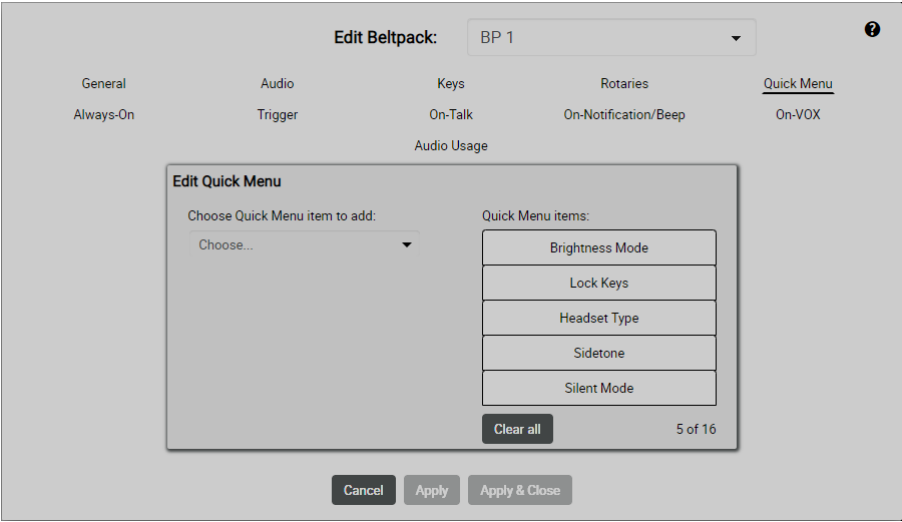

Figure 71: Edit (Beltpacks) – Quick Menu

Select in the drop-down list on the left side (**Choose Quick Menu item to add**) the quick menu item to be added to the respective Beltpack.
On the right side the present quick menu items are displayed. The order of the menu items can be changed by drag and drop. A menu item can be deleted by drag and drop the respective entry outside the window. Clicking the **Clear all** button deletes all entries.

Always-On

This view is used for defining up to five functions that are permanent active, when a Beltpack is connected, without pressing any Beltpack key.
This view is only available in the system modes **Standalone/AES67** and **Standalone/Link**.
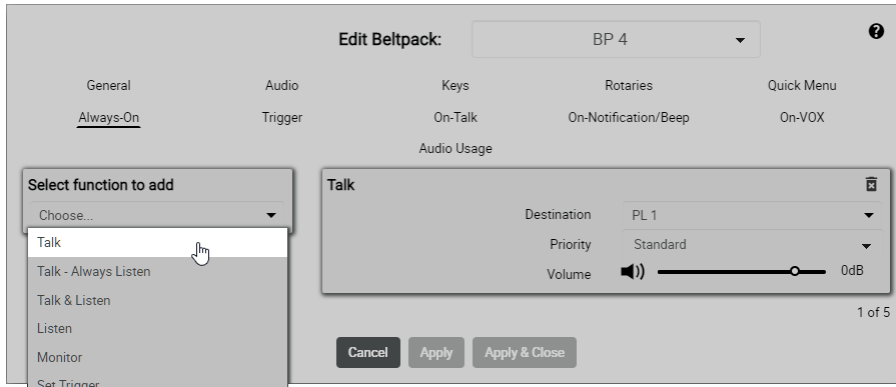

Figure 72: Edit (Beltpacks) – Always-On

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

[*1] not if Function = **Set Trigger**, **Notification/Beep**
[*2] not if Function = **Talk** and Destination = **Audio Channels** > **Ouput Audio Channels**

Trigger

Up to 5 functions can be configured, which are activated when and as long as the selected trigger is in the "high" state.
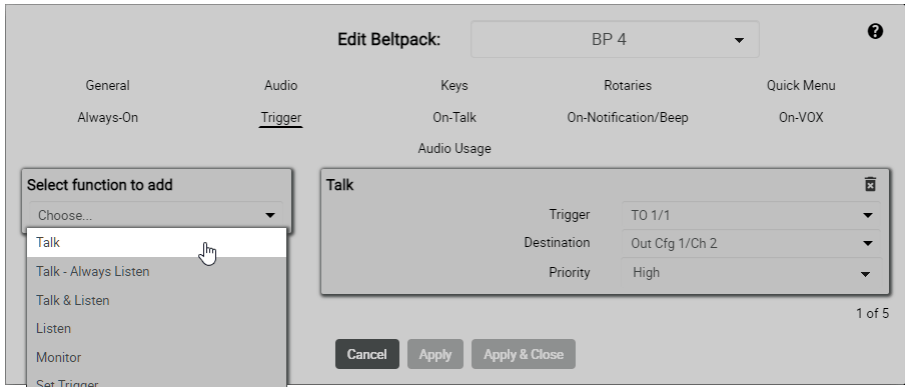This view is only available in the system modes **Standalone/AES67** and **Standalone/Link**.

Figure 73: Edit (Beltpacks) – Trigger

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

[*1] not if Function = **Set Trigger**, **Notification/Beep**
[*2] not if Function = **Talk** and Destination = **Audio Channels > Ouput Audio Channels**

On-Talk

Up to 5 functions can be configured, which are automatically activated when and as long as someone talks to the Beltpack.
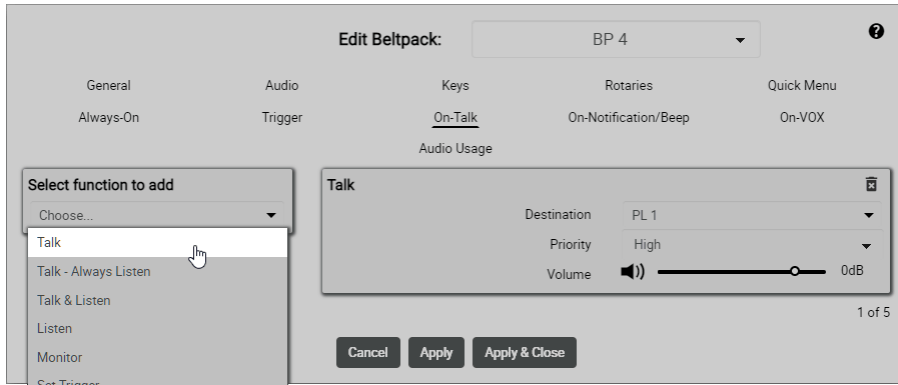This view is only available in the system modes **Standalone/AES67** and **Standalone/Link**.

Figure 74: Edit (Beltpacks) – On-Talk

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

[*1] not if Function = **Set Trigger**, **Notification/Beep**
[*2] not if Function = **Talk** and Destination = **Audio Channels > Ouput Audio Channels**

On-Notification/Beep

Up to 5 functions can be configured, which are automatically activated when and as long as someone "beeps" the Beltpack.
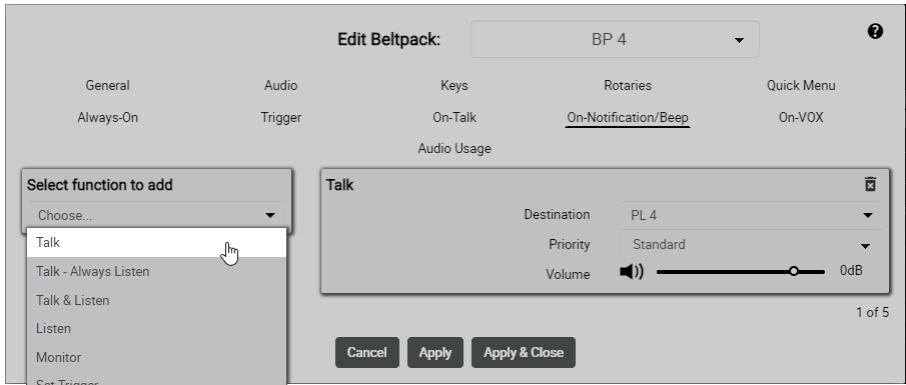This view is only available in the system modes **Standalone/AES67** and **Standalone/Link**.

Figure 75: Edit (Beltpacks) – On-Notification/Beep

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

[*1] not if Function = **Set Trigger**, **Notification/Beep**
[*2] not if Function = **Talk** and Destination = **Audio Channels > Ouput Audio Channels**

On-VOX

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

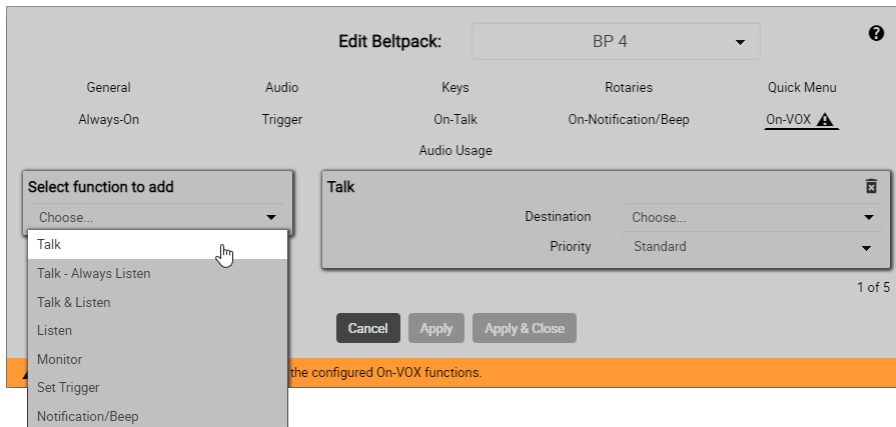|	Please note that the '**Microphone VOX**' function must be activated in the 'Audio' section. The adjustment of the microphone VOX parameters also takes place there.

Figure 76: Edit (Beltpacks) – On-VOX

Function to add	In total, the following functions are available, which are activated when and as long as the Microphone VOX is triggered:	
	Talk	Call to the selected destination.
	Talk - Always Listen	Call to the selected destination and permanently listen to the selected source.
	Talk & Listen	Call to the selected destination and listen to the selected source.
	Listen	Forces the selected source microphone to open and listen to the source.
	Monitor	Listens to the selected source only if it has its own microphone open.
	Set Trigger	Switching of (physical/virtual) GPIO outputs.
	Notification/Beep	Triggering a notification / beep.
Destination /Source	Defines the destination (or source) depending on the selected function:	
	• **Talk** • **Listen** • **Monitor**	Destination (or source) of calls: • present Partylines • present Beltpacks • present Audio Channels
	• **Talk - Always Listen** • **Talk & Listen**	Destination and source of calls: • present Partylines
	• **Set Trigger**	GPIO outputs to be switched (physically/virtual): • Define Output/Virtual Trigger • Create Virtual Trigger
	• **Notification/ Beep**	Destination of beep-tones / voice-notifications: • present Partylines • present Beltpacks • present Audio Channels

Priority *1	Defines the [priority](#) (*Standard*, High, Low) of the function and the resulting dimming of the audio signal.
Volume *1,*2	Volume adjustment.
🗑	A function can be deleted by clicking the trash button.

*1 not if Function = **Set Trigger**, **Notification/Beep**
*2 not if Function = **Talk** and Destination = **Audio Channels > Ouput Audio Channels**

Audio Usage

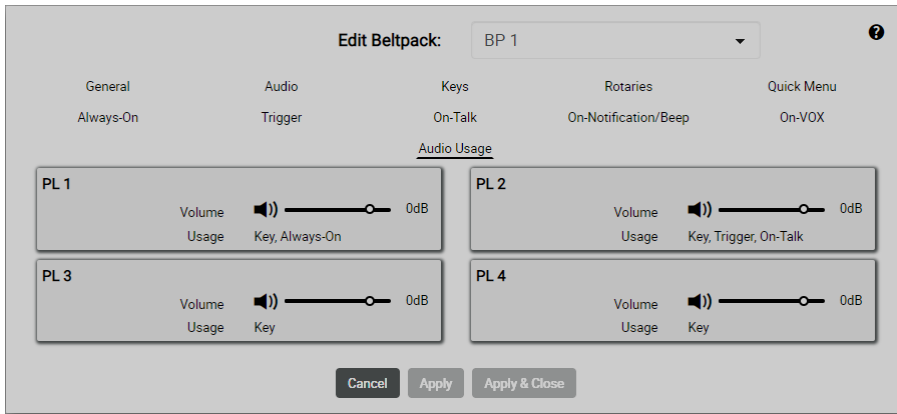This view is only available in the system modes **Standalone/AES67** and **Standalone/Link**.

Figure 77: Edit (Beltpacks) – Audio Usage

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

2.3.4.3 Info (Beltpacks)

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

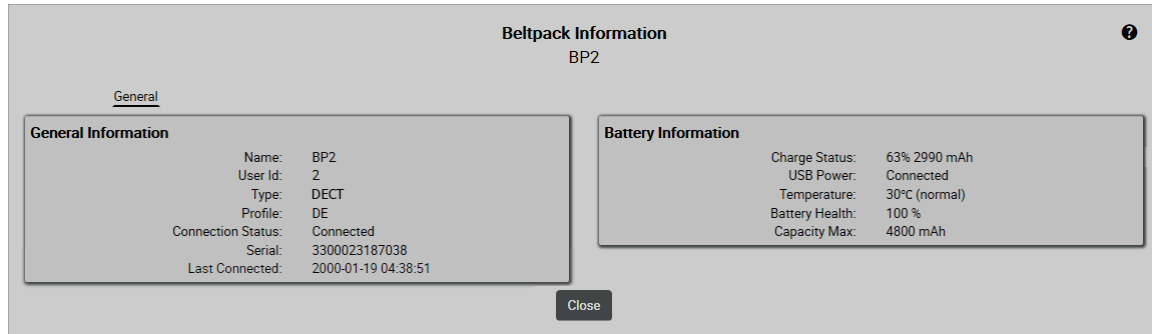| ❓	Opens the online help.
Close	Closes the information.

Figure 78: Info (Beltpacks) – General

General Information

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

Battery Information

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

2.3.5 Profiles (User Rights)

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

Profiles are a collection of Beltpack parameters. To achieve a fast and easy configuration, profiles can be applied to multiple Beltpacks without setting parameters manually in each Beltpack.
Change of a profile parameter will immediately update this parameter in all Beltpacks assigned to this profile.
Allowing the admin to decide if a Beltpack user has the ability to change certain parameters, the profiles also implement user rights.

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

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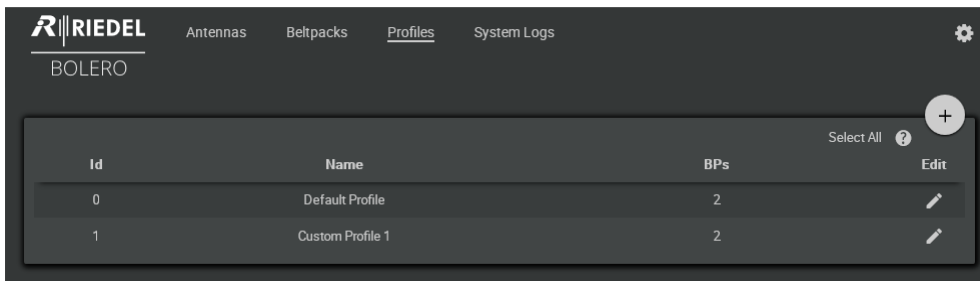- Changing of Profile settings
- Defining of user rights

Figure 79: Web-Interface – Profiles

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

2.3.5.1 Action Button (Profiles)

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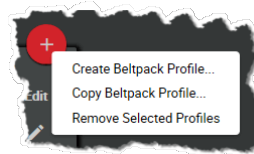The dialog can be closed by pressing the ESC key.

Figure 80: Action Button (Profiles)

Create Beltpack Profile

This function allows creating a new Beltpack profile. All parameters are the same as editing in the Beltpack.
(⇨'Edit (Beltpacks)')

Copy Beltpack Profile

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

Remove Selected Profiles

This function deletes the selected Profile after confirmation.

2.3.5.2 Edit (Profile)

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

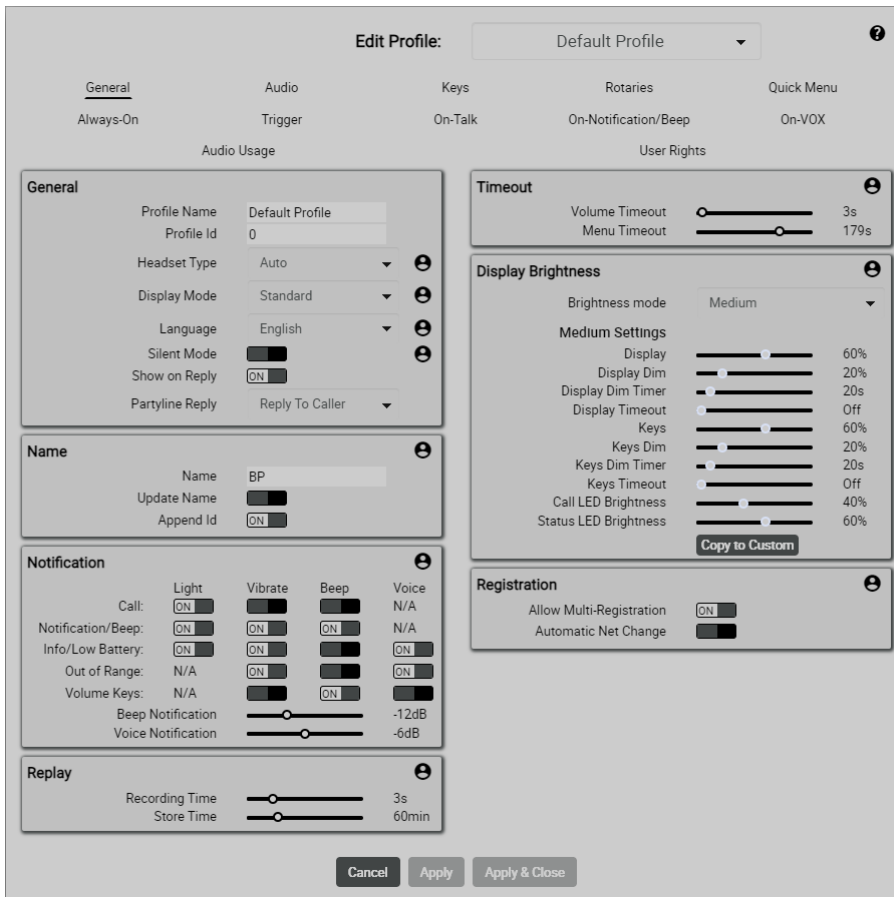|	
Cancel	Discards all changes.
Apply	Stores all changes.
Apply & Close	Stores all changes and closes dialog.

Figure 81: Edit (Profiles)

The parameters are the same as those available when editing Beltpack settings.
(⇨'Features in Detail > Web Interface > Beltpacks > Edit (Beltpacks)')

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

The following entries are an exception:

General

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

Name

Name	Name of the Beltpacks.
(New in 3.1) **Update Name**	If this function is activated, the entered **Name** is set for all Beltpacks using this profile.
Append ID	If this function is activated, an incremental ID of the Beltpack is appended to the name.

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

👤	The Beltpack user has the user right to use this function.
🚫	The Beltpack user has *no* right to use this function. This function is hidden in the Beltpack.

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

General

Change Profile	User right to access the menu '**General Settings** > **Profile**'.
Quick Mute	User right to allow quick mute in the Volume Change menu.
Reset	User right to access the menu '**Service** > **Reset**'.
info	User right to access the menu '**Service** > **Information**'.

System

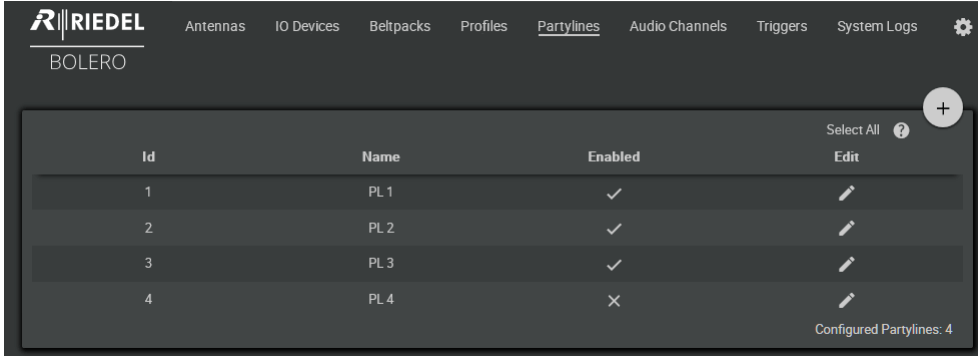|	
Registration	User right to access the menu '**Registration**'.
System Settings	User right to access all sub-menus in the menu '**Admin**' (except **Registration Mode**).
Test	User right to access the menu '**Service** > **Test**'.

Menu

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

2.3.6 Partylines

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

This view allows creating and editing up to 12 Partylines in the active network space.

Figure 82: Web-Interface – Partylines

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

2.3.6.1 Action Button (Partylines)

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

Figure 83: Action Button (Partylines)

Create Partyline

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

Remove selected Partylines

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

2.3.6.2 Edit (Partylines)

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

Cancel	Discards all changes.
Apply	Stores all changes.
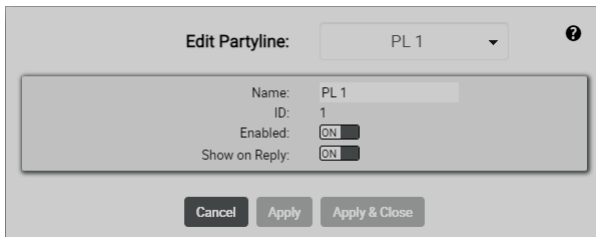
Figure 84: Edit (Partylines)

Name	Name of the Partyline.
Id	Displays the unique ID of the Partyline. (fixed, read only)
Enabled	Switch to enable (**ON**) the Partyline.
(New in 3.1) **Show on Reply**	Switch to enable (**ON**) the Partyline for the Reply function. (When the Beltpack's Reply key is pressed, the Beltpack speaks into the Partyline that spoke last).

2.3.7 Audio Channels

The **Audio Channels** view lists all available audio channels of the active network space.
This view is only available in the system modes '**Standalone/AES67**' and '**Standalone/Link**'.
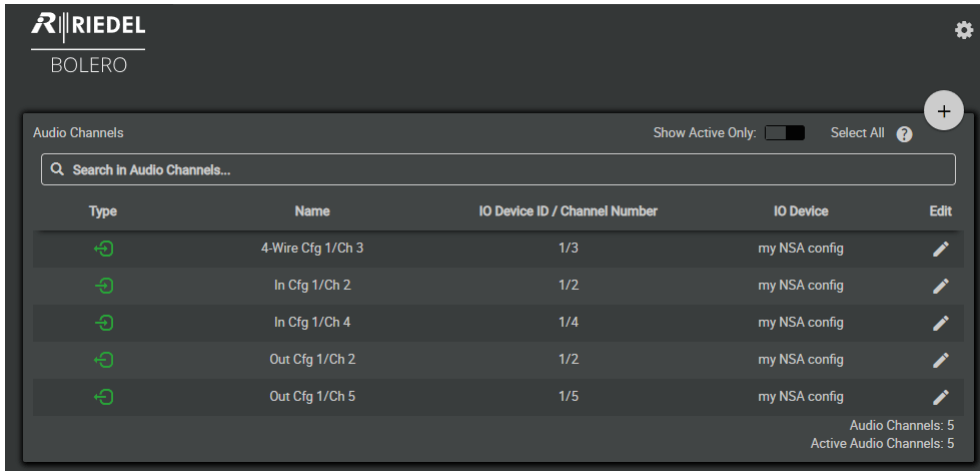**Audio Channels** need to be enabled in the **IO Devices** view first.

Figure 85: Web-Interface – Audio Channels

Show Active Only:	If the switch is enabled (**On**), deactivated elements will be hidden.
Search in Audio Channels...	Only Audio-Channels that contain the search text in the **Name**, **IO-Device-ID/Channel-Number** or **IO-Device** field are displayed (case sensitivity is ignored).

Type	Indicates the type of the Audio Channel. If green, the channel is active.	Input	
		Output	
		4-Wire	
Name	Name of the Audio Channel.		
IO Device ID / Channel Number	ID of the IO Device / Number of the Audio Channel.		
IO Device	Name of the IO Device.		
Edit	Button to edit the Partyline.		

2.3.7.1 Action Button (Audio Channels)

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

Figure 86: Action Button (Audio Channels)

Copy AudioChannels Config

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

Reset to Defaults

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

2.3.7.2 Edit (Audio Channels)

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

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

General
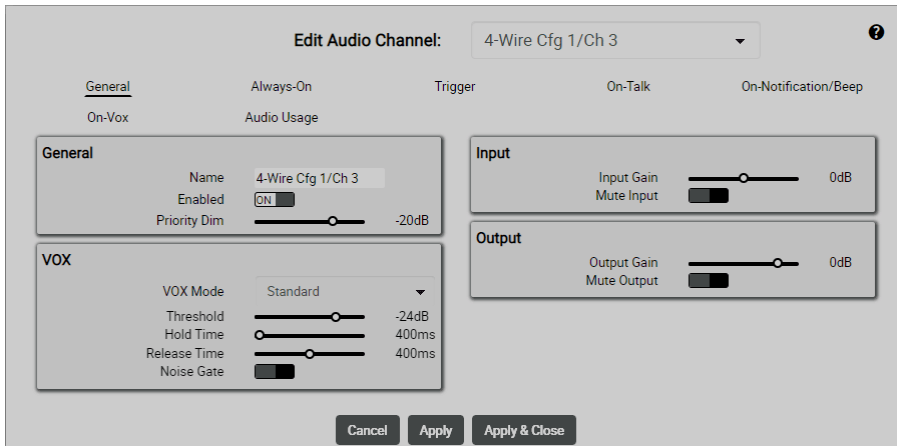
Figure 87: Edit (Audio Channels) – General

General	Name	User configurable name of the audio channel.
	Enabled	Slider to enable/disable the audio channel.
	Priority Dim *2	Slider to adjust the dim level of priority calls: Mute, -72 ... *-20* ... 0 dB
VOX *1		The VOX or voice activation function is one of the most useful features. The VOX is a switch that operates when a sound is detected at the audio inputs and 4-wire and exceeds the defined threshold.
	VOX Mode	**Off**: The VOX functionality is turned off. The audio signal is always going through. **Standard**: The VOX functionality is turned on. The audio signal is switched through depending on the configurable parameters **Threshold**, **Hold Time** and **Release Time**.
	Threshold	Slider to define the audio level that triggers the VOX. The Off threshold is fix 3dB below this adjusted threshold.
	Hold Time	Slider to define the amount of time the VOX remains engaged during brief speech pauses. This also means the last several seconds of each audio transmission is always silence.
	Release Time	Slider to set the time period for the microphone to change from open to fully closed.
	(New in 3.1) **Noise Gate**	The audio is only forwarded to the system when the VOX switch is active.
Input *1	**Input Gain**	Slider to adjust the input gain: -12 ... *0* ... +12 dB
	Mute Input	Slider to mute the input signal.
Output *2	**Output Gain**	Slider to adjust the output gain: Mute: -60 ... *0* ... +12 dB
	Mute Output	Slider to mute the output signal.

*1 audio inputs and 4-wire only
*2 audio outputs and 4-wire only

Always-On

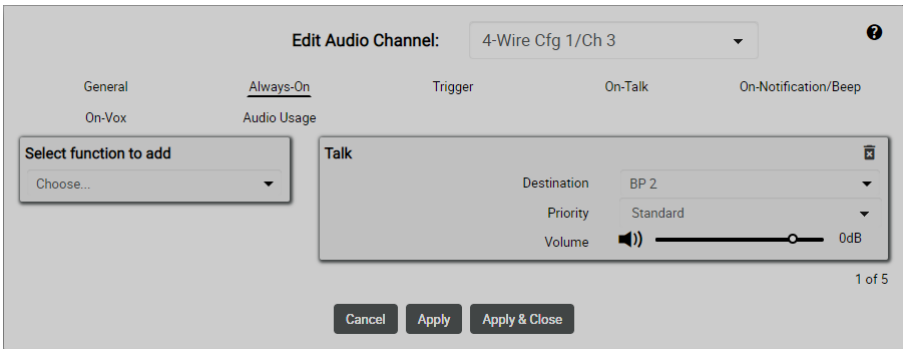*Figure 88: Edit (Audio Channels) – Always On*

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

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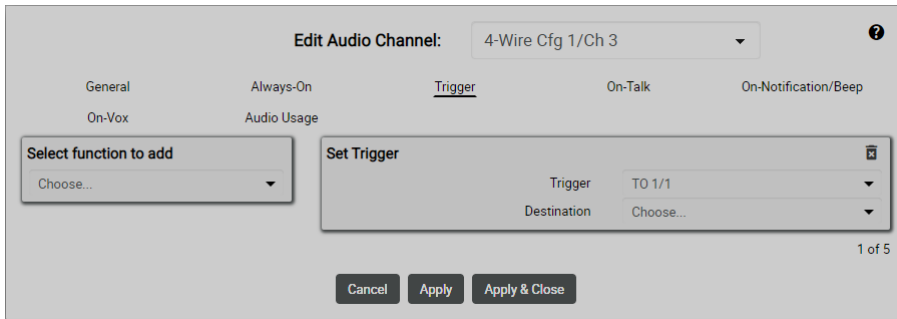*4 not if Function = **Talk** and Destination = **Audio Channels** > **Ouput Audio Channels**

Trigger

Figure 89: Edit (Audio Channels) – Trigger

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

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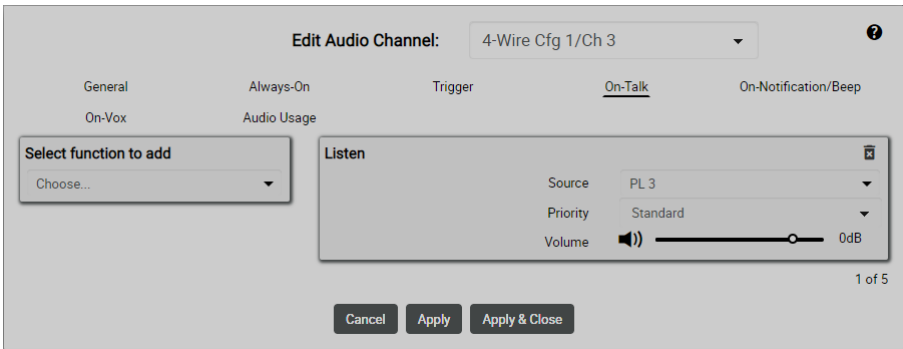
On-Talk

Figure 90: Edit (Audio Channels) – On-Talk

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

*1 not at audio outputs
*2 not at audio inputs
*3 not if Function = **Set Trigger**
*4 not if Function = **Talk** and Destination = **Audio Channels > Ouput Audio Channels**
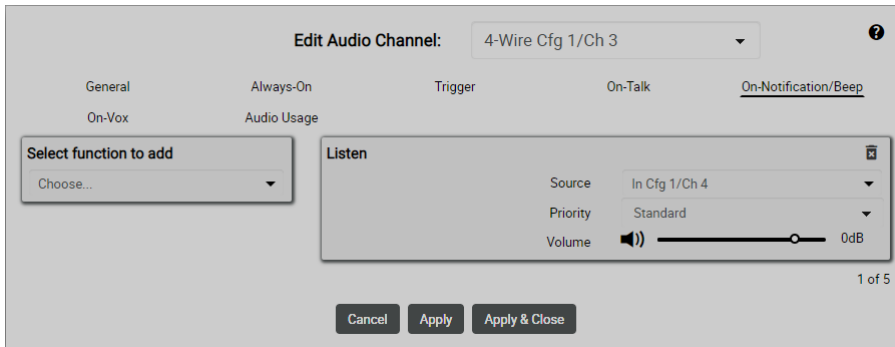
On-Notification/Beep

Figure 91: Edit (Audio Channels) – On-Notification/Beep

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

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

On-Vox

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

> **i** Please note that the '**VOX**' function must be activated in the 'General' section.
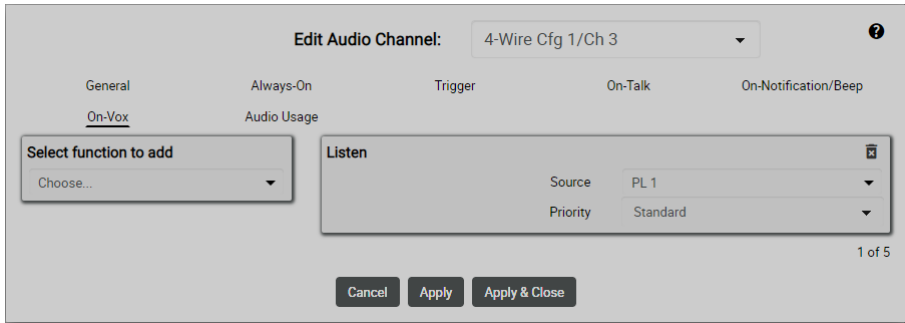> The adjustment of the microphone VOX parameters also takes place there.

Figure 92: Edit (Audio Channels) – On-Vox

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

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

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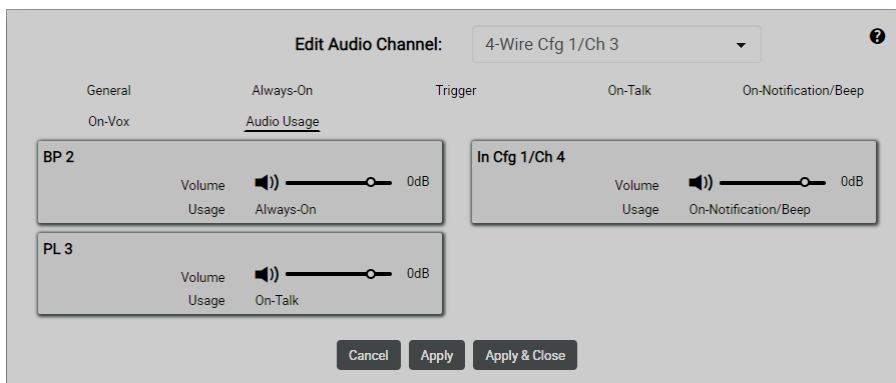
Audio Usage

Figure 93: Edit (Audio Channels) – Audio Usage

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

2.3.8 Triggers

The **Triggers** view lists all available (GPIO) triggers of the active network space.
This view is only available in the system modes '**Standalone/AES67**' and '**Standalone/Link**'.

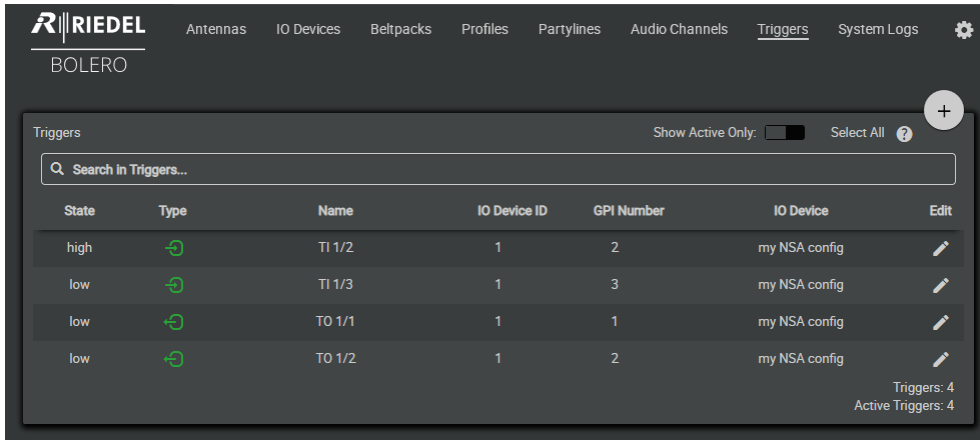Virtual Triggers are 'logical' GPIOs which are not associated with a physical device.

Figure 94: Web-Interface – Triggers

Show Active Only:	If the switch is enabled (**On**), deactivated elements will be hidden.
Search in Triggers...	Only Triggers that contain the search text in the **Name**, **IO-Device-ID**, **GPI-Number** or **IO-Device** field are displayed (case sensitivity is ignored).

State	Indicates the state of the trigger.	not set (0)	**low**
		set (1)	**high**
		deactivated	-
Type	Indicates the type of the trigger. If green, the trigger is active.	input	
		output	
		virtual	
Name	Name of the trigger.		
IO Device ID	ID of the IO device at which the GPI interface is present.		
GPI Number	Number of the trigger at the respective IO device.		
IO Device	Name of the IO device at which the GPI interface is present.		
Edit	Button to edit the trigger.		

2.3.8.1 Action Button (Triggers)

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

Figure 95: Action Button (Triggers)

Create Virtual Trigger

This function allows adding a new Trigger to the list.

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

Remove Virtual Trigger

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

2.3.8.2 Edit (Triggers)

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

Apply	Stores all changes.
Apply & Close	Stores all changes and closes dialog.
Cancel	Discards all changes.
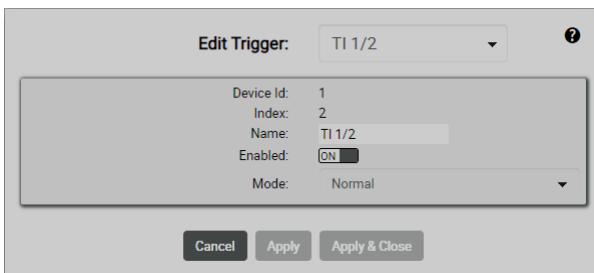
Figure 96: Edit (Triggers)

Device Id	Displays the unique ID of the IO device. (fixed, read only)	
Index	Displays the unique ID of the Trigger of the respective IO device. (fixed, read only)	
Name	Field to edit the name of the Trigger.	
Enabled	Switch to enable (**on**) or disable (**off**) the Trigger.	
Mode	**Normal**	Normal trigger operation.
	Force On	Forces the trigger to static high.
	Force Off	Forces the trigger to static low.

2.3.9 System Logs

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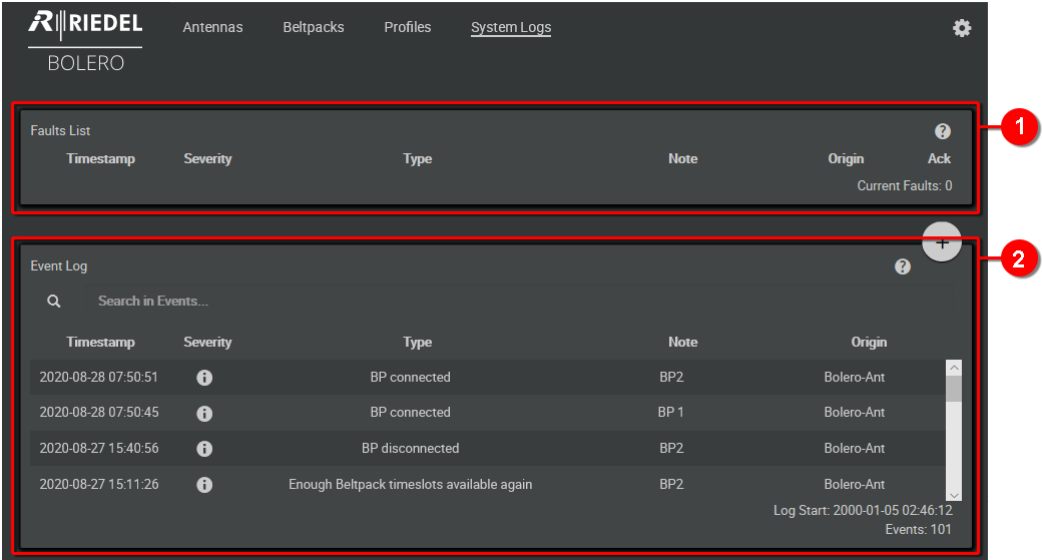

Figure 97: Web-Interface – System Logs

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

2.3.9.1 Action Button (System Logs)

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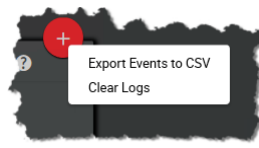The dialog can be closed by pressing the ESC key.

Figure 98: Action Button (System Logs)

Export Events to CSV

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

Clear Logs

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

2.3.10 Settings

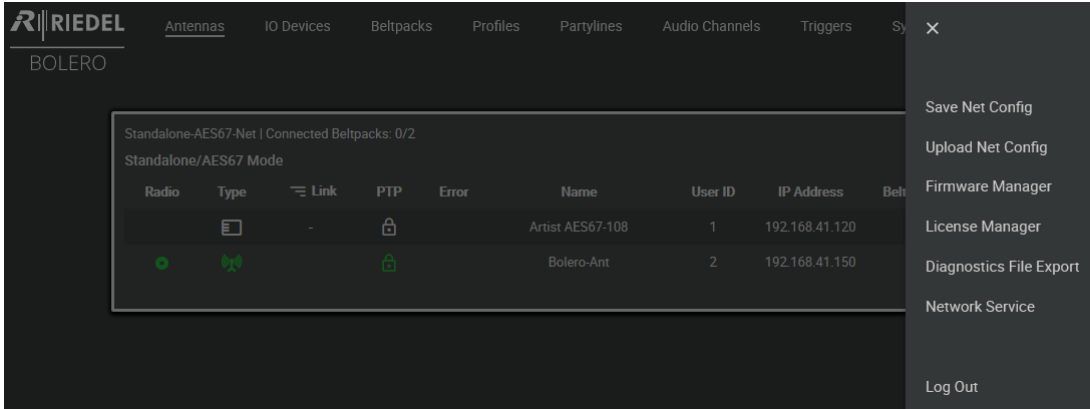The basic settings are accessed via the settings symbol ( ) in the top right-hand corner.

Figure 99: Web-Interface – Settings

Save Net Config *1	Function to backup the configuration of the complete Net.
Upload Net Config *1	Function to recall a previous stored configuration.
Firmware Manager	Function to update the firmware of the devices.
License Manager	Function to upload licenses to the Antennas.
Diagnostics File Export	The diagnostics view allows exporting internal diagnostic information. This data is used by Riedel service to analyze the system.
Network Service	Function to change the DECT-frequencies. Only valid for Riedel service.
Factory Reset *1	Function to reset all devices within the Bolero-Net.
Logout *2	Log off the current user.

*1 if *no* user is logged in
*2 if a user is logged in

2.3.10.1 Save Net Config

This function allows storing the current Net configuration into a file.
After executing this function the configuration is saved in the default download folder of the used browser. The filename is generated out of the Net name, the current date and time and the suffix "NetConfig.bol".
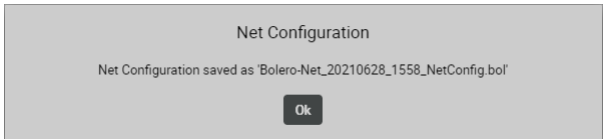

Figure 100: Web-Interface – Save Net Config

2.3.10.2 Upload Net Config

This function allows loading a previous stored Net configuration into the system.
After executing this function a dialog is opened to select the desired ".bol" file.
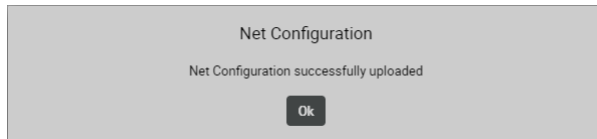The configuration is applied to the Net without confirmation.

Figure 101: Web-Interface – Upload Net Config

2.3.10.3 Firmware Manager

The Firmware of devices can be updated in this tab.
The firmware manager shows current firmware versions of all network space devices along with additional information.
(The country can only be set by Riedel service department.)
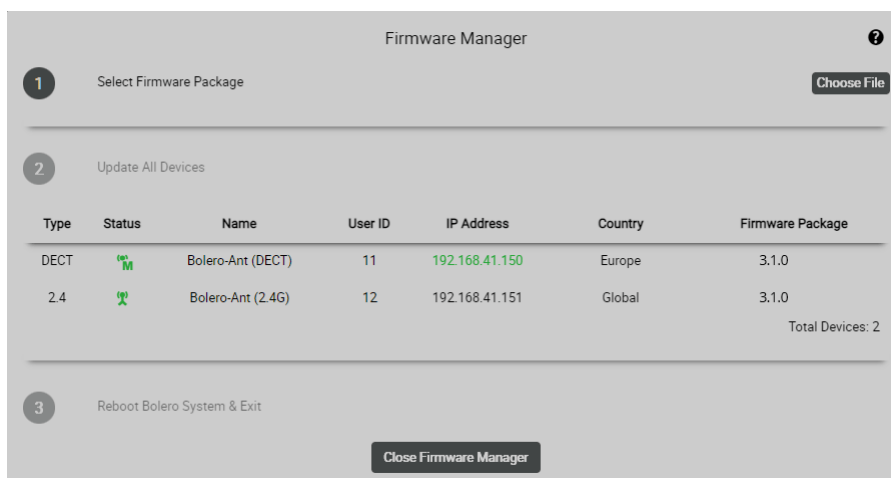To guarantee a stable system, all components must run the same version.

Figure 102: Web-Interface – Firmware

Proceed following steps to update one or multiple devices:

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

See also chapter [Firmware Update](#).

2.3.10.4 License Manager

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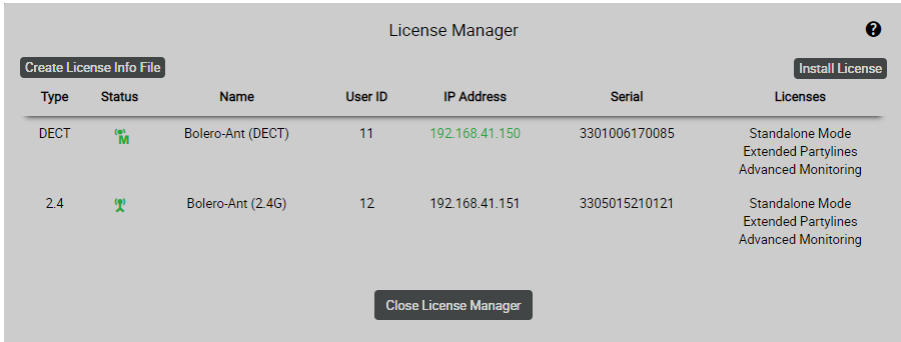

	Type	Status	Name	User ID	IP Address	Serial	Licenses
Create License Info File							**Install License**
	DECT	🗼M	Bolero-Ant (DECT)	11	192.168.41.150	3301006170085	Standalone Mode Extended Partylines Advanced Monitoring
	2.4	🗼	Bolero-Ant (2.4G)	12	192.168.41.151	3305015210121	Standalone Mode Extended Partylines Advanced Monitoring

Figure 103: Web-Interface – License Manager

Steps to get a license:

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

ℹ	Antennas with standalone license show a ⏹SA symbol in the lower left corner of the display.

2.3.10.5 Diagnostics File Export

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

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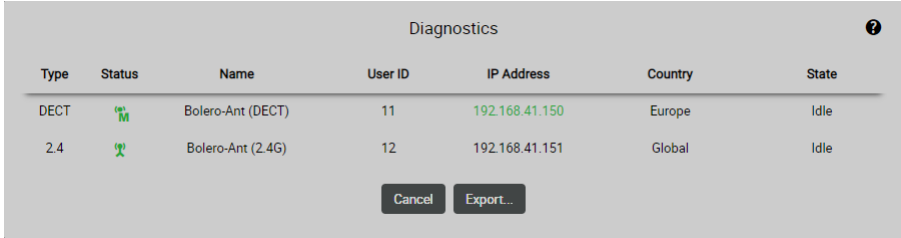

Type	Status	Name	User ID	IP Address	Country	State
DECT	🗼M	Bolero-Ant (DECT)	11	192.168.41.150	Europe	Idle
2.4	🗼	Bolero-Ant (2.4G)	12	192.168.41.151	Global	Idle

Figure 104: Web-Interface – Diagnostics File Export

2.3.10.6 Network Service

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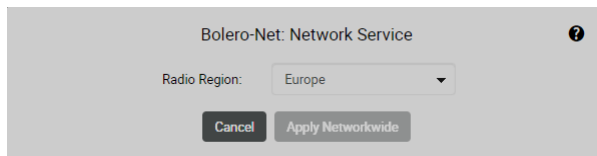These functions are reserved for use by Riedel service personnel only!

Figure 105: Web-Interface – Network Service

2.3.10.7 Logout

A dialog is opened. Click on **OK** to log out of the system.
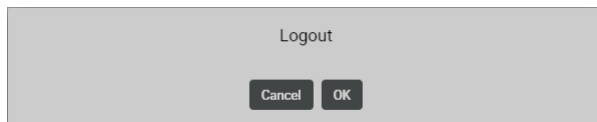

Figure 106: Logout confirmation

2.4 NSA-002A Integration

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

The following devices are required:

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

ℹ	The **NSA-002A** must be operated in Bolero-Mode to be integrated in the Bolero network space. The mode is indicated by the upper device mode LED (blue: Bolero, violet: Manual). The system modes can be toggled by pushing the mode button for more than 5 seconds. Further information can be found in the separate NSA-002A user manual.

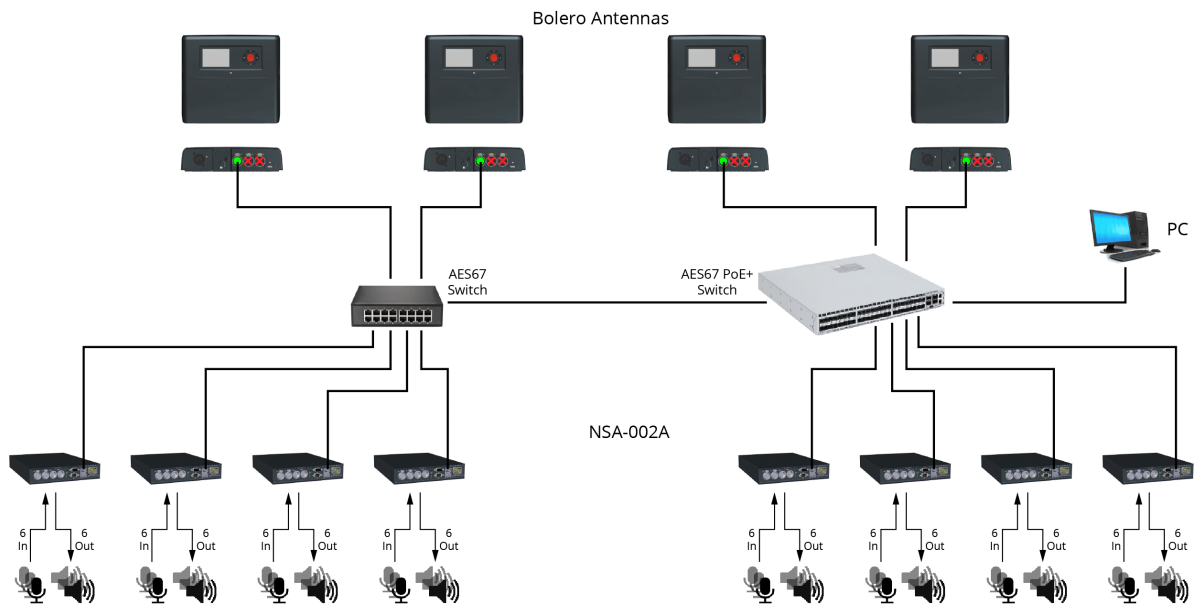|	
ℹ	Up to 10 IO devices and 128 audio channels can be managed in one Network-Space. If 10 NSA-002A with 6 audio channels each are used, 68 audio channels are left for Beltpacks (128 -10 x 6).

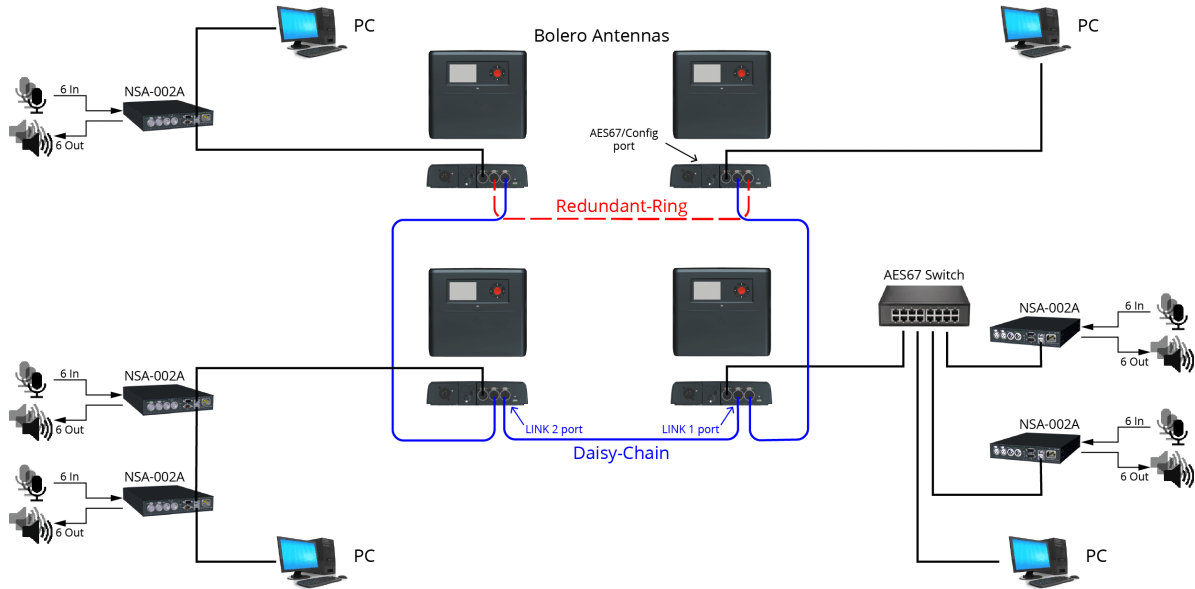Figure 107: IO devices – setup diagram – Standalone/AES67 mode

Figure 108: IO devices – setup diagram – Standalone/Link mode

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

Standalone/AES67 mode:
- Connect the PC to the network switch.
- Connect the **ETH1/2** ports of the IO devices to the network switch.
  - If a PoE+ switch is used, the NSA-002A is also supplied with power.
  - Alternatively (or for additional redundancy), attach a separate DC power supply to the NSA-002A.

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

- Determine the IP address of an antenna 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.
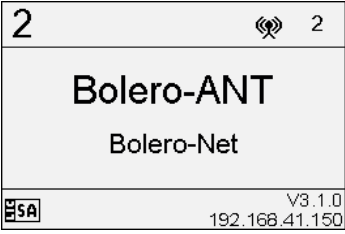

Figure 109: Antenna Display

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).

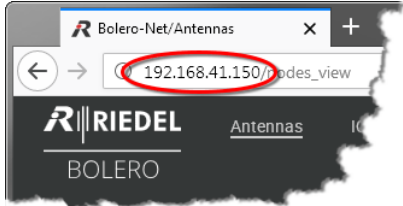The PC must have an IP address within the same subnet.

Figure 110: Web interface of the Antenna

- Open the page **IO Devices**.
- Select the unassigned IO devices by left clicking.
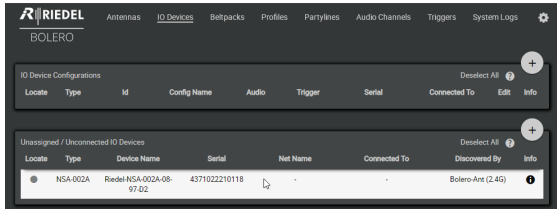
Selected elements will be highlighted.

Figure 111: Selected IO devices

- Click on the plus symbol and select the entry **Add IO Devices**.
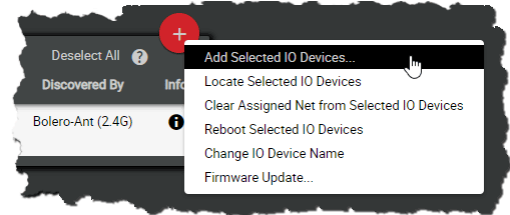
A dialog is opened to enter the device configuration.

Figure 112: Add IO Devices

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

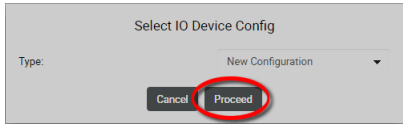A dialog is opened to create the device configuration.

Figure 113: Dialog – Select IO Device Config

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

Figure 114: Dialog – Create IO Device Config

This example shows the new created device configuration called **my NSA config** and the corresponding NSA-002A.
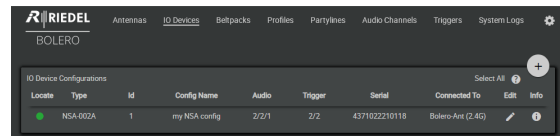
Figure 115: new created device configuration with NSA-002A

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

- Click on the 🖉 button to configure the respective audio channel.
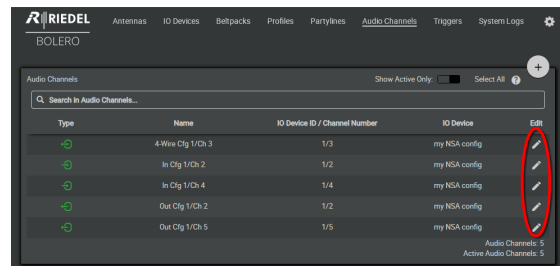
Figure 116: Audio Channels

The views **Always-On**, **Trigger**, **On-Talk**, **On-Notification/Beep** and **On-Vox** allows configuring up to five functions:
- **Talk** to a destination.
- **Talk** to a destination and **Always Listen** a source.
- **Talk** to a destination **& Listen** a source.
- **Listen** a source.
- **Monito**r a source.
- **Set Trigger** – switching a (physical/virtual) GPIO output.
- **Notification/Beep** – sending a beep-tone / voice-notification.

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

Functions in the view…
- **Always-On** are permanently activated.
- **Trigger** are switched by a trigger.
- **On-Talk** are automatically activated if it is talked in the respective channel.
- **On-Notification/Beep** are automatically activated if the respective channel receives a notification/beep.
- **On-Vox** are activated when and as long as the VOX is triggered.
  (The parameters for VOX activation are configurable on the page '[General](#)'.)
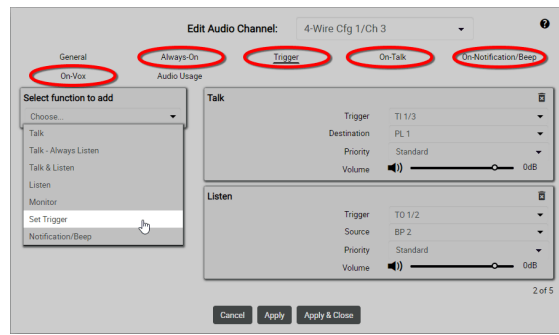
Figure 117: edit audio channel – Trigger

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

- Click the ✎ button to configure the respective Beltpack.

ℹ	Use the **Profiles** page to configure all Beltpacks assigned to the profile in one step. (⇨[Profiles (User Rights)](#))
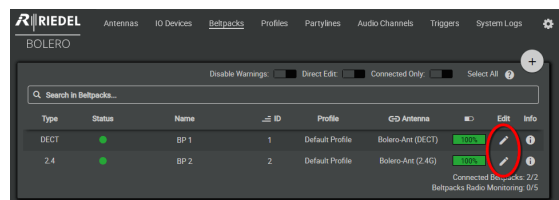
Figure 118: Registered Beltpacks

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

Figure 119: edit Beltpacks – Keys

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

2.5 Add Devices

To add more Antennas to a working **Network Space**, the new Antennas must not be assigned to any other Net. If a new Antenna is already assigned to a Net, see chapter '**Remove Devices > Antennas**' to remove it from the current Net before proceeding the registration.

> ℹ New Antennas have disabled radio, if the Antenna is not known by the matrix.
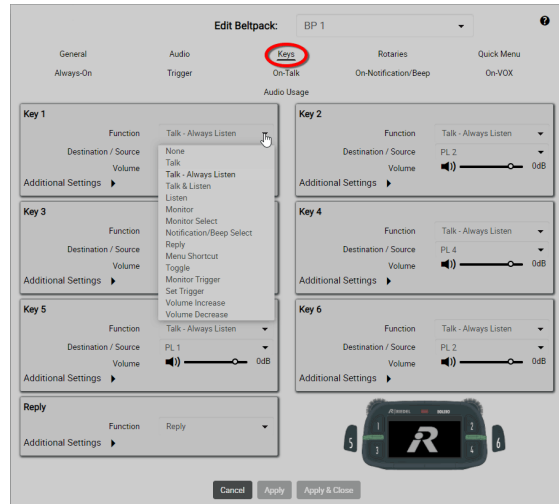
- Connect the Antenna's 'AES67/Config' port to the network switch. If a PoE+ switch is used, the Antenna is also supplied with power.
- Alternatively, attach a separate DC power supply to the Antenna's power connector.

The IP address of the Antenna is shown in the bottom right of the display (e.g. 192.168.41.151).

Figure 120: 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. 192.168.41.151).
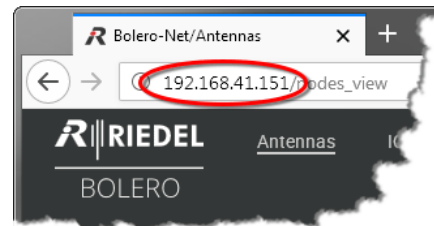
Figure 121: Web interface of the Antenna

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

- Select the unassigned Antenna(s) to be added to an existing **Network Space**.

Selected elements will be highlighted.
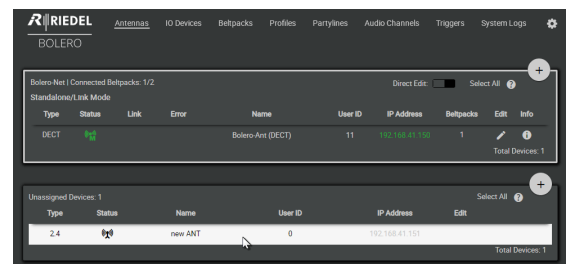
Figure 122: Selected new Antennas

- Click on the plus symbol off the unassigned Antenna(s) and select the entry '**Add Selected Antennas to Network Space…**'.

A dialog is opened to select the Net.
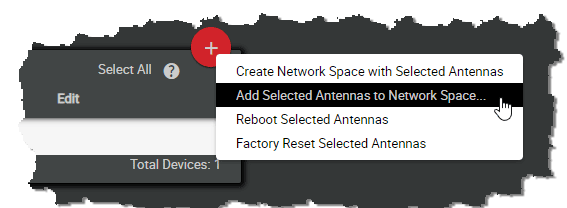
Figure 123: Add to Network Space

- Select in the drop-down menu an existing **Network Space**.
- Click the **Apply** button.
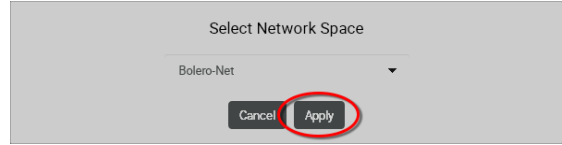
Figure 124: Dialog – Select Network Space

This example shows the new added Antenna in the existing Network Space **Bolero-Net**.
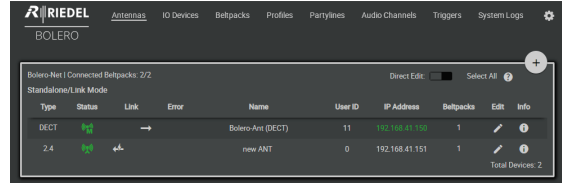
Figure 125: Added new Antenna in the Bolero-Net

Do not forget to assign a unique User ID and a name to the new Antenna.

- Click the ✏ Edit icon of the new Antenna.
- Click the **Apply** button.
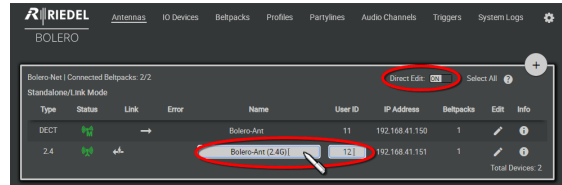
Figure 126: Apply unique User ID

In this example the Network Space consists now of two Antennas.
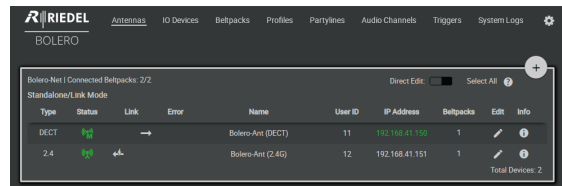
Figure 127: Devices in the Bolero-Net

2.6 Remove Devices

In the Web Interface it is possible to remove registered Antennas as well as registered Beltpacks from a Net.

2.6.1 Antennas

To de-register Antennas from a Net, choose the register '**Antennas**'.
Then select the desired Antennas.
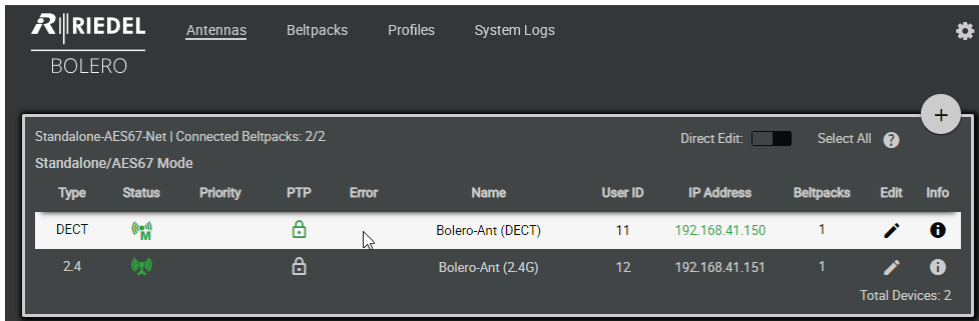
Figure 128: Web Interface – Antennas

Click on the plus symbol and select the item '**Remove Selected Antennas**'.
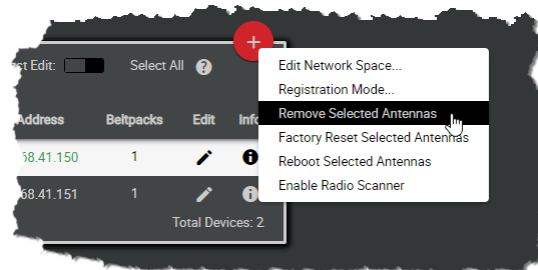
Figure 129: Remove Selected Antennas

Confirm the opened dialog by clicking '**Ok**'.
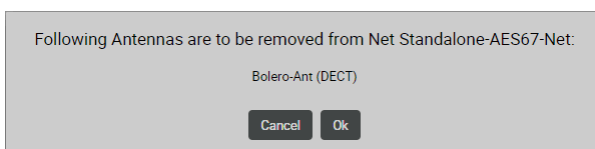
Figure 130: Confirmation dialog

The Antennas will be removed immediately from the Net.

2.6.2 Beltpacks

To de-register Beltpacks from a Net, choose the register '**Beltpacks**'.
Then select the desired Beltpacks.

Figure 131: Web Interface – Registered Beltpacks

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

Figure 132: Deregister

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

Figure 133: Confirmation dialog

The Beltpacks will be removed immediately from the Net.

2.7 Firmware Update

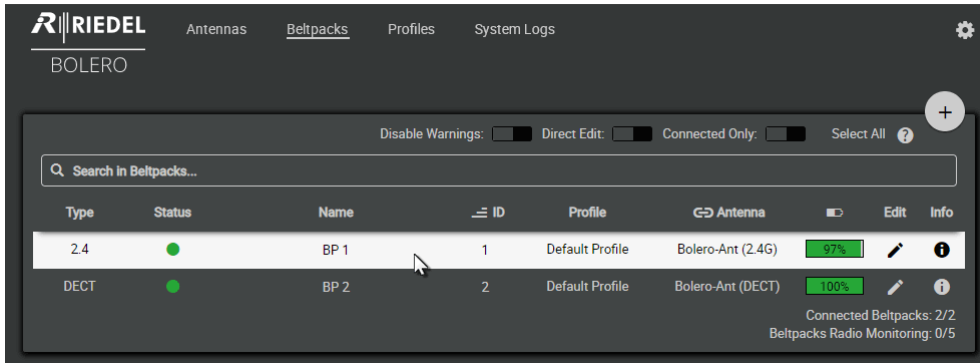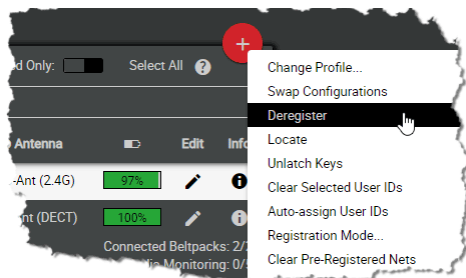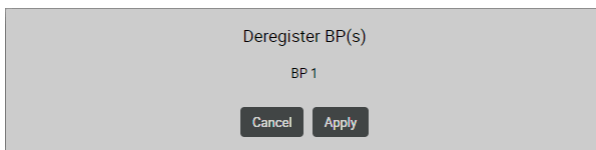|	
i	**Upgrading From Earlier Versions** The Network Space configuration and the Antenna configuration is preserved when updating from version 1.0.x/1.1.x/1.2.x/2.0.x. Configurations saved with version 1.0.x/1.1.x/1.2.x/2.0.x can be loaded in version 2.1.1. As final step of the update, all devices are rebooted. Please refresh your browser tab when the connection is re-established to conclude the update. **Updating From Version 1.x.x** If you plan to use Standalone/Link mode with Link-Power, you should update the system from version 1.x.x while the antennas are powered via XLR. Before an antenna can be powered via Link-Power or deliver power over the links after an update, it must be powered by XLR for at least a couple of minutes (to complete the update of the remote power controller firmware). **Updating From Version 1.0.x** Bolero Antennas running version 1.0.x have to be updated twice to this version. After a successful update you will see the package version 2.1.1 in the "Current Firmware" column of the Firmware Manager. **Downgrading From This Version** When downgrading to a previous version, the Network Space, Antenna configurations, and the IP address settings will be lost. Note that the Network Space name may be empty and the admin pin may be set to "1234" after a downgrade to version 1.0.x/1.1.x. Saved configurations of this version cannot be loaded on previous versions.

This chapter describes the update procedure of Bolero Antennas. Depending on the system mode, following devices are required:

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

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

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

After the Antennas' bootup is finished, the respective IP address is displayed in the bottom right of the Antennas display (for example 192.168.41.150).
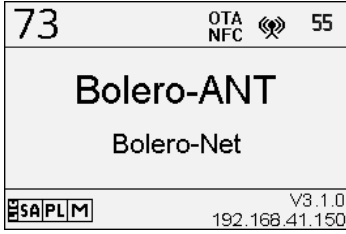
Figure 134: Antenna display

Open the web interface of an Antenna:

- Enter the IP address in the web browser (e.g. 192.168.41.150).
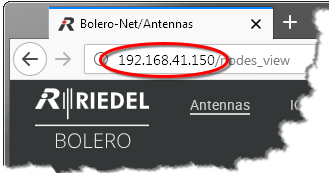
Figure 135: Web interface of the Antenna

- Click on the ⚙ settings icon and select the entry **Firmware Manager**.
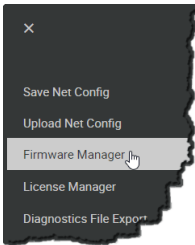
Figure 136: Firmware Manager

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

- Enter the **Admin PIN** that was defined when the Network Space was created.
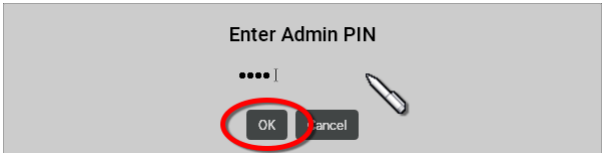
Figure 137: Dialog – Admin PIN

The Firmware Manager is opened.

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

In this example the Bolero Network Space consists of two Antennas.
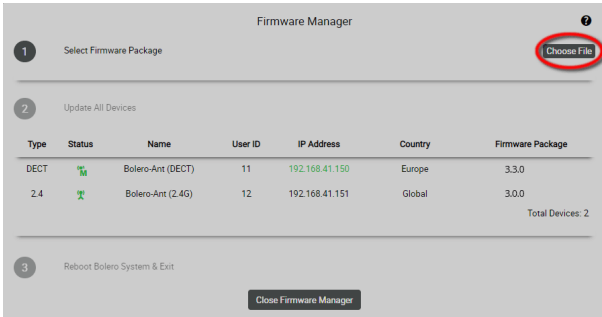
Figure 138: Firmware-Manager – Select Firmware Image

The firmware package is transferred to the Bolero system.
A bar graph visualizes the upload progress.
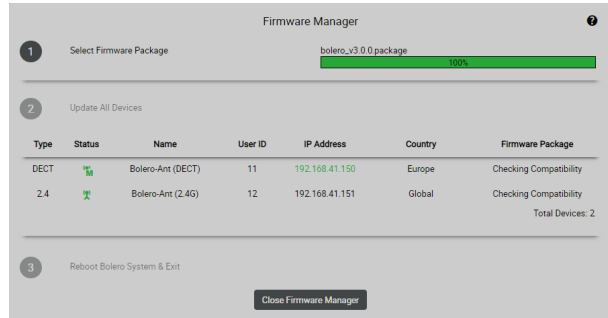
Figure 139: Firmware-Manager – Upload to Network Space

If '**Incompatible**' is displayed for an Antenna after the upload, the selected firmware package is not compatible. The update will not be installed on this device.
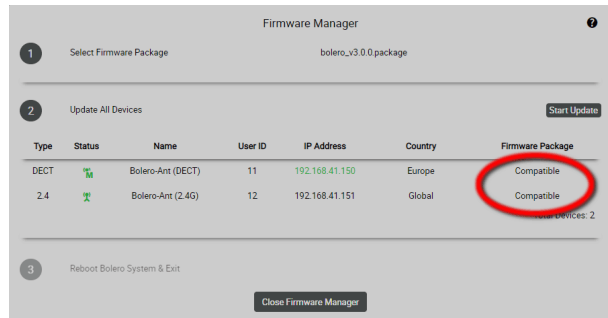
Figure 140: Firmware-Manager – Compatible Firmware-Package

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

> **i** Audio and radio interruptions will occur from this point on.
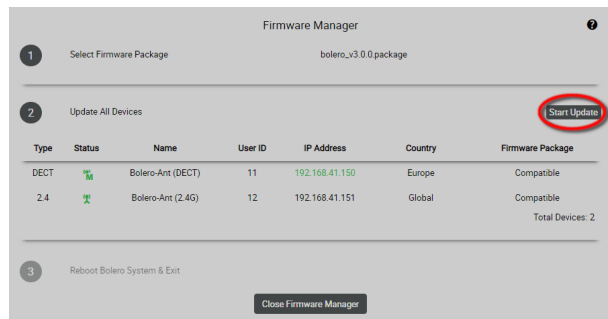
Figure 141: Firmware-Manager – Start Update

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

- Click the **Apply** button to proceed.
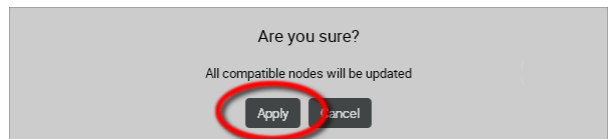
Figure 142: Firmware-Manager – Confirmation

Bar graphs visualize the update progress.

Caution: Do not remove the power from any devices.
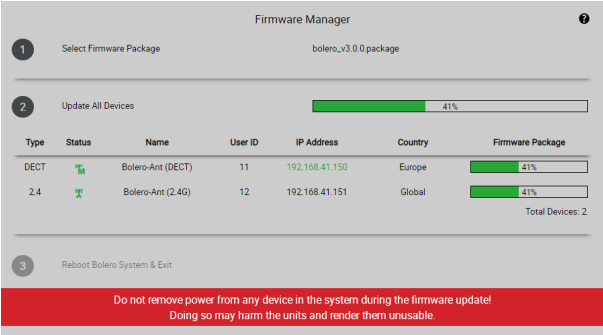
Figure 143: Firmware-Manager – progress

All devices must be rebooted to finish the update process.

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

The connection to the Antenna will be interrupted while the device is rebooting.
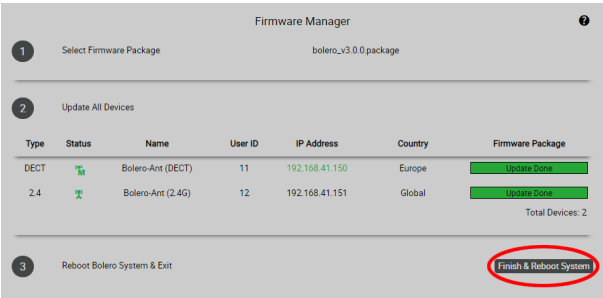
Figure 144: Firmware-Manager – Reboot devices

2.8 Advanced Radio Monitoring

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

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

2.8.1 Antenna Radio Scanner

The advanced radio monitoring app enables Bolero Antennas in the network to scan the DECT environment. Antennas in the network can switch to a Radio Scanner mode when at least one antenna in the network holds the Advanced Monitoring license (⬛M).

An antenna in scanner mode will analyze the radio spectrum. The scan evaluates how many timeslots are interfered or used by the Bolero net. In addition, the radio scanner is looking for other Bolero and third party systems in the air.

To be able to use an Antenna in a Network Space as '**Radio Scanner**', it must be selected in the Web Interface antenna list and using the '**Enable Radio Scanner**' entry in the action menu (⇨Action Button (Antennas)).

> ℹ️ In radio scanner mode the Antenna is not available for Beltpacks anymore and all Beltpacks connected before will be disconnected.
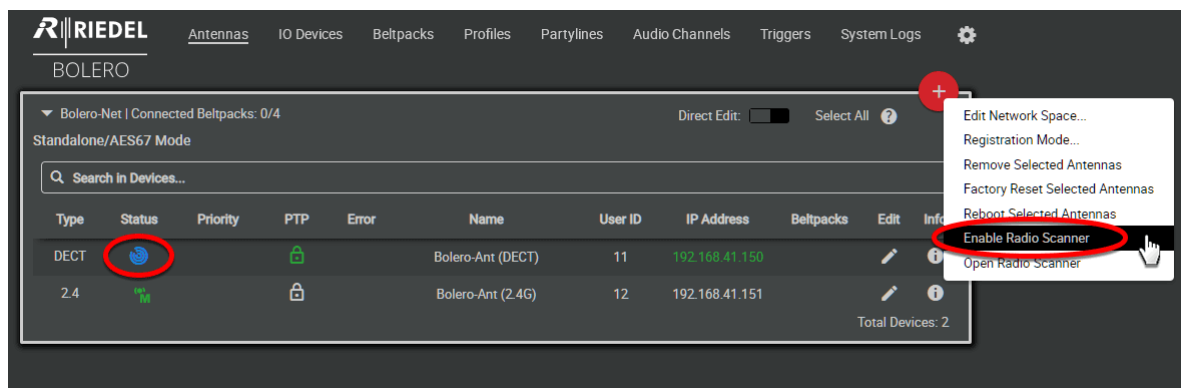
Figure 145: Web-Interface – Antennas (Enable Radio Scanner)

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

New in 3.1 Action Button (Antennas)
(⇨ '<u>Features in Detail > Web Interface > Antennas > Action Button (Antennas): Open Radio Scanner</u>')
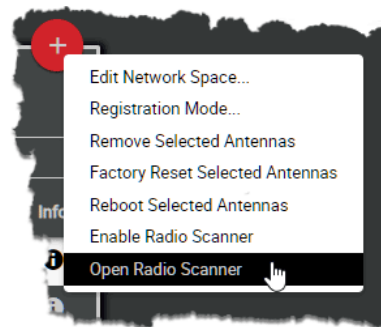
Figure 146: Web-Interface – Antennas (Open Radio Scanner)
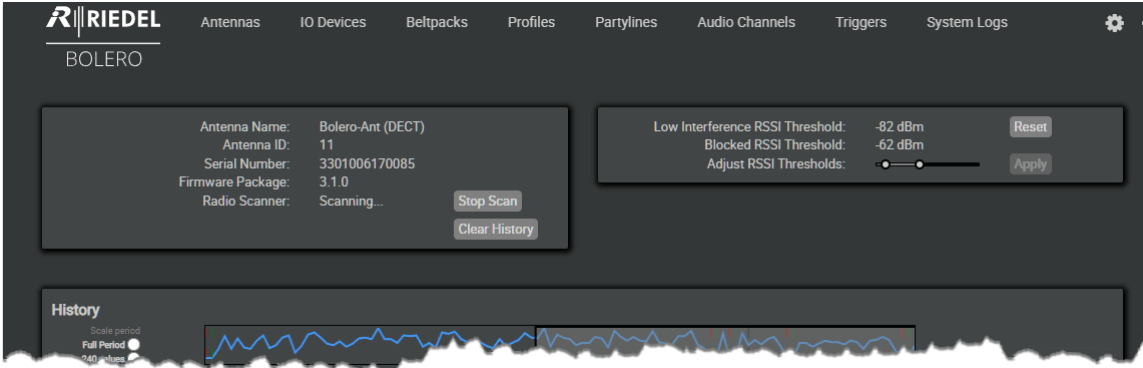
Figure 147: Antenna Radio Scanner

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

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

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

History section

Figure 148: Antenna Radio Scanner (History Section)

The upper diagram shows the period for which collected data is available.
For large time periods, you can use the **Scale period** radio buttons to set whether 480, 240, 120 or 60 values should be displayed.

The middle diagram **Timeslot Usage** shows the logged timeslots used in the radio spectrum.
Country dependent the total amount of available timeslots varies between 40 and 120.
With the radio buttons '**Scale Timeslots**' the vertical resolution (number of displayed timeslots) of the diagram can be adjusted (**Full Range, 75/50/25, Automatic**).

The lower diagram **Systems On Air** shows all simultaneously operating DECT systems within the radio range of the Antenna. Each detected device has a color and is indicated by a box at the corresponding position in the diagram. On the right side all devices detected in the period are listed with their corresponding color.

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

With the slider below it is possible to select an earlier time and to check the history information in detail.

Snapshot section

Figure 149: Antenna Radio Scanner (Snapshot Section)

The '**Snapshot**' section shows all available carrier frequencies and timeslots. It gives an idea about additional capacity within the Antenna's radio area.
There are 12 timeslots available per carrier. For operation a Bolero Beltpack uses one timeslot.

The upper diagram **Timeslot Map** shows detailed information about used and interfered timeslots.

The lower diagram **All Systems Timeslot Usage** shows which frequencies are used by the Bolero network space or interfered by different systems.

2.8.2 Beltpack Radio Monitoring

The advanced radio monitoring app enables Bolero Beltpacks in the network space to monitor the DECT environment. Beltpacks are monitoring the environment continuously in the background when at least one antenna in the network space holds the Advanced Monitoring license (⬚M⬚).
Up to five Bolero Beltpacks in the network space can operate in this detailed Radio Monitoring mode.
To be able to use a Beltpack in a Network Space as '**Radio Monitor**', it must be selected in the Web Interface Beltpack list and using the '**Enable Beltpack Radio Monitoring**' entry in the action menu (⇨Action-Button (Beltpacks)).
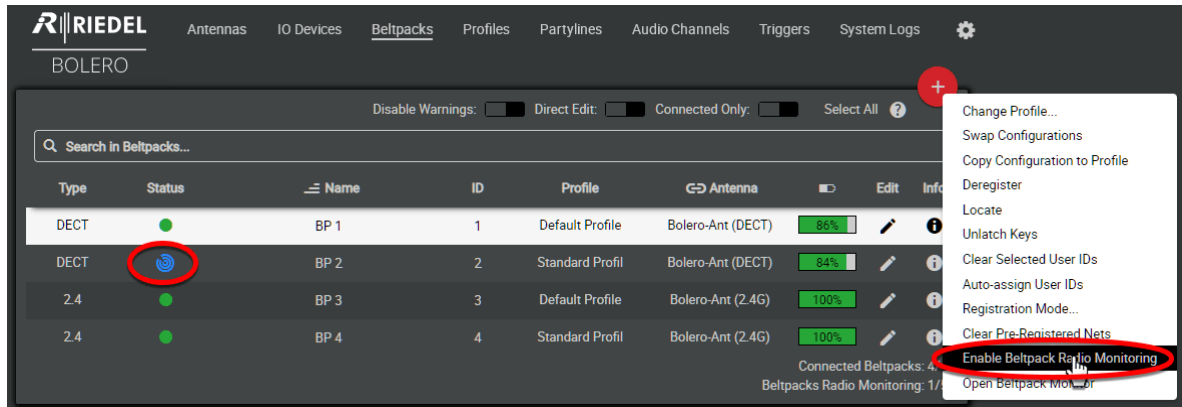
Figure 150: Web-Interface – Beltpacks (Enable Radio Monitoring)

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

(New in 3.1) Action Button (Beltpacks)
(⇨ 'Features in Detail > Web Interface > Beltpacks > Action Button (Beltpacks): Open Beltpack Monitor')
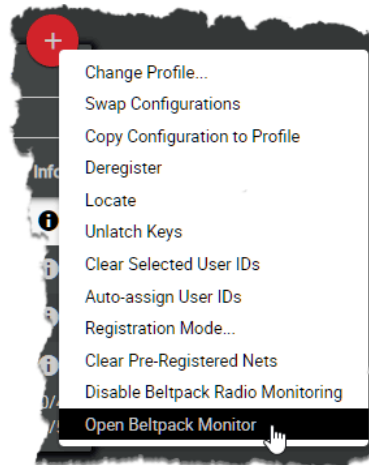
Figure 151: Web-Interface – Beltpacks (Open Radio Monitoring)
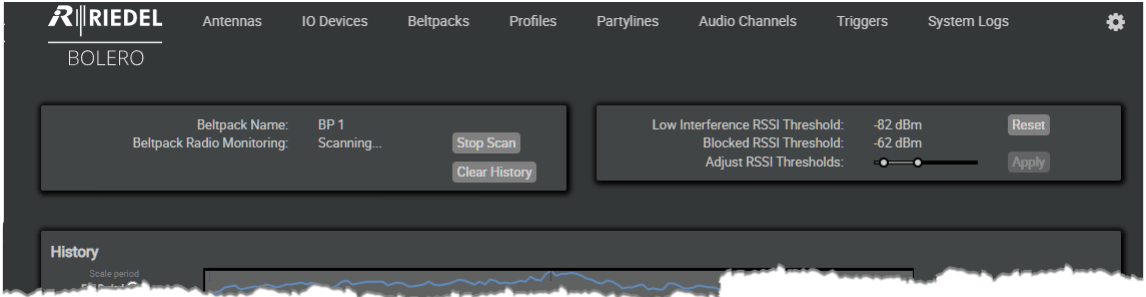
Figure 152: Beltpack Radio Monitoring

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

	The measurements are <u>not</u> stored permanently on the Antenna or Beltpack but is only maintained in the currently active radio master Antenna, i.e. previous Beltpack monitoring data is discarded when a different Antenna becomes radio master or the radio master Antenna is turned off.

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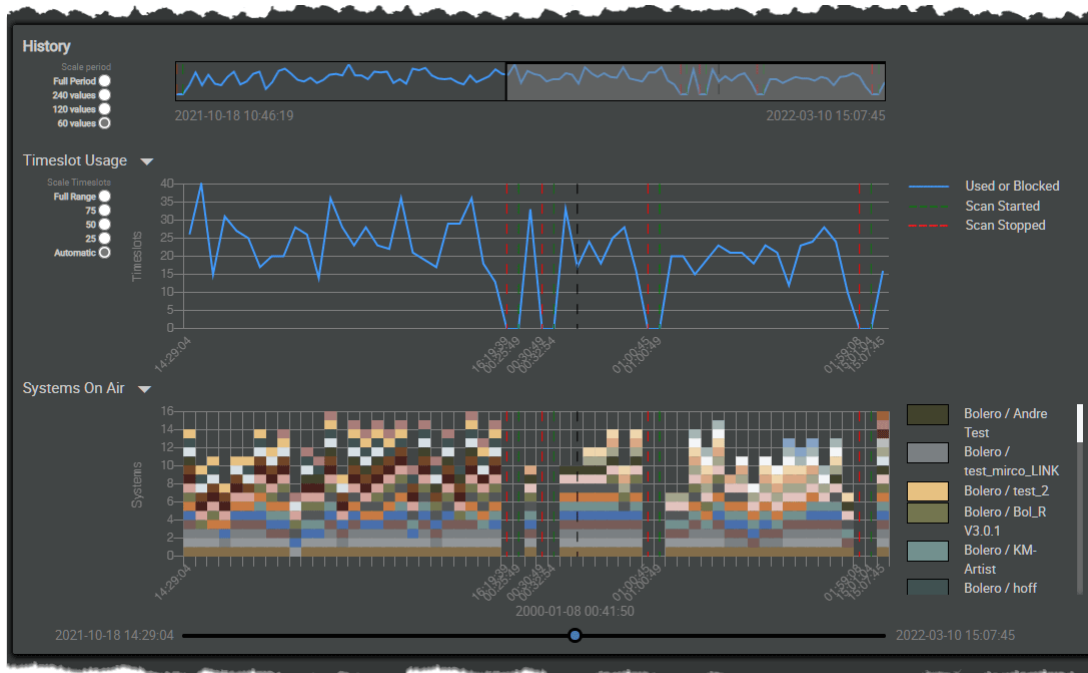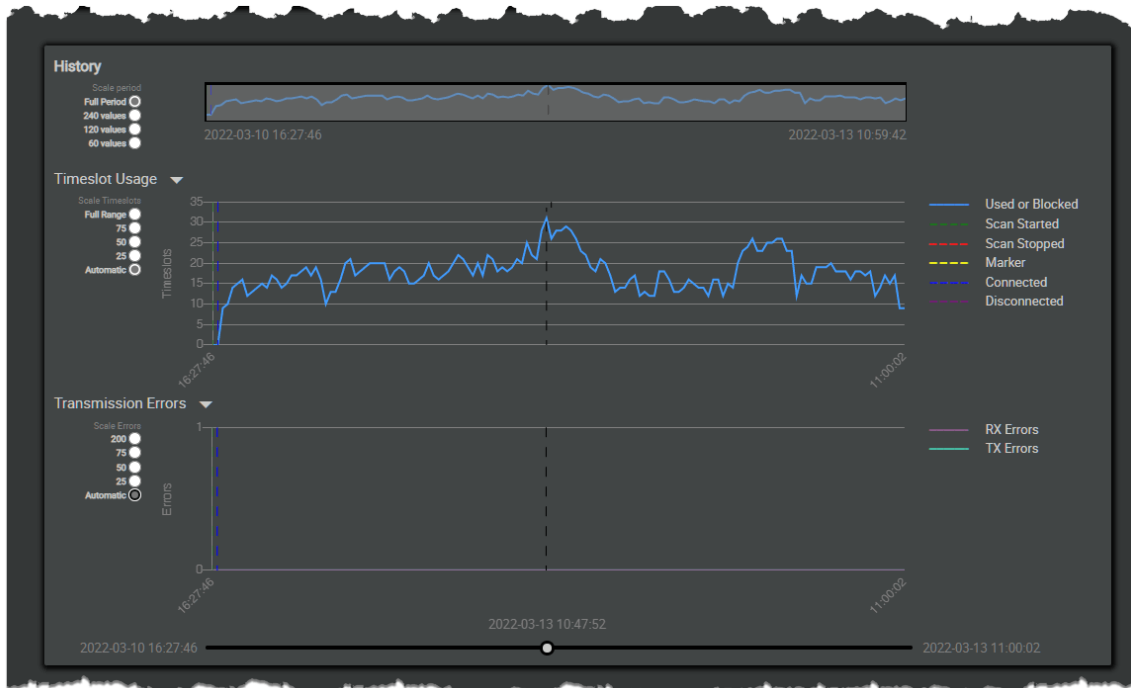
History section

Figure 153: Beltpack Radio Monitor (History Section)

The upper diagram shows the period for which collected data is available.
For large time periods you can set the **Scale period** by using the radio buttons whether the entire period (**Full Period**) or only parts of it should be displayed (**240/120/60 values**).

The middle diagram **Timeslot Usage** shows the logged timeslots used in the radio spectrum seen by the Beltpack..
Country dependent the total amount of available timeslots varies between 40 and 120.
To identify Beltpacks/areas were the radio spectrum is fully occupied or interfered, all Beltpacks scan their environment constantly if an Advanced Monitoring license is present in the network space.
With the radio buttons '**Scale Timeslots**' the vertical resolution (number of displayed timeslots) of the diagram can be adjusted (**Full Range, 75/50/25, Automatic**).

The lower diagram **Transmission Errors** shows the TX and RX frame error rate. Frame errors below 10 are typically not audible.

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

With the slider below it is possible to select an earlier time and to check the history information in detail.
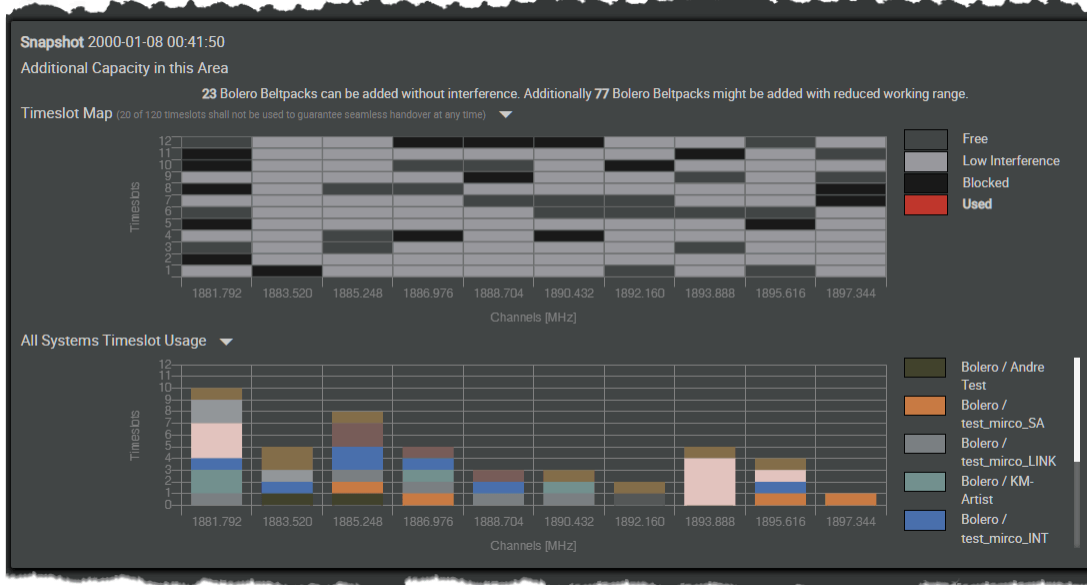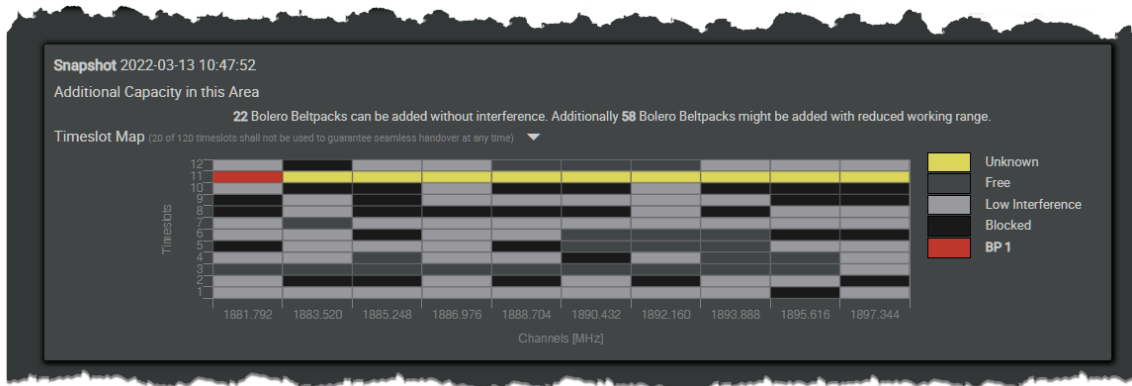
Snapshot section

Figure 154: Beltpack Radio Monitor (Snapshot Section)

The '**Snapshot**' section shows all available carrier frequencies and timeslots. It gives an idea about additional capacity within the Antenna's radio area.
There are 12 timeslots available per carrier. For operation a Bolero Beltpack uses one timeslot.

The diagram **Timeslot Map** shows detailed information about used and interfered timeslots.
Yellow marked slots are not monitored because the Beltpack is blind on these slots as it operates on one of these timeslots.

2.9 License Installation

This chapter describes how to change licenses on Bolero Antennas.

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

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

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

Follow these steps to install licenses:

- Click on the ⚙ settings icon and select the entry **License Manager**.
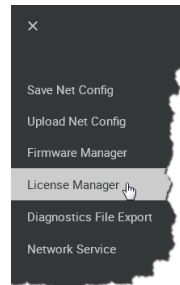
Figure 155: License Manager

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

- Enter the **Admin PIN**, that was defined when the Network-Space was created.
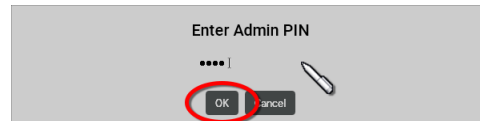
Figure 156: Dialog – Admin-PIN

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

> **ⓘ** Use the '**Create License Info File**' button to create a csv-file with all Antenna information like name, serial number and license information.
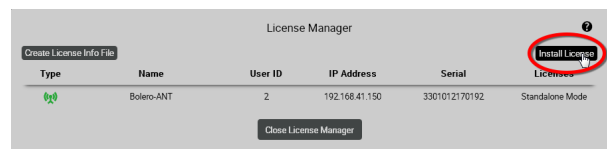
Figure 157: License-Manager – Install License

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

- Click the **Apply** button to proceed.
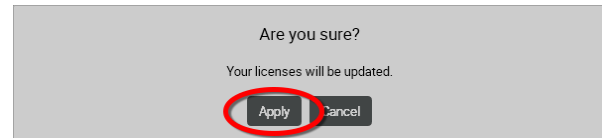
Figure 158: License-Manager – Confirmation

The license manager installs the loaded licenses on the respective Antennas.
After installation a report is opened and lists errors as well as Antennas with and without installed license.

- Click the **Close** button to exit the license manager.
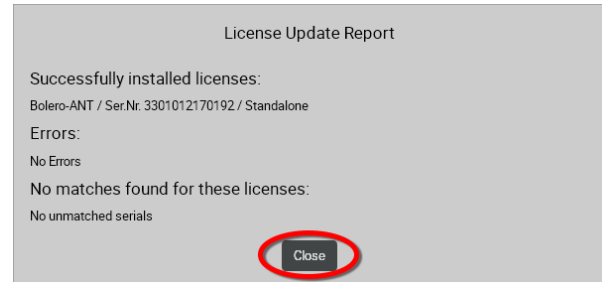
Figure 159: License-Manager – Report

2.10 Switch Recommendations

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

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

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

PTPv2 (IEEE 1588)

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

- Provides better synchronization of Bolero Antennas. The synchronization offset must not exceed 1 microsecond.
- Critical, if the network contains a lot of other devices (Video over IP, Servers, ...).
- Supported PTP mode:
  • AES67 profile
  • End-to-End delay measurement
  • Multicast traffic mode
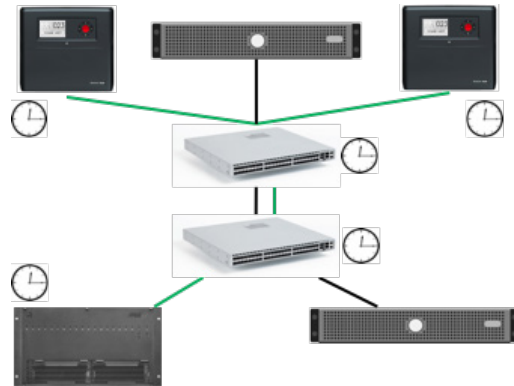
QoS (IEEE 802.1p), based on DiffServ (RFC 2474)

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

- Traffic from the Bolero Antennas can be prioritized when transmitted through a larger network.
- Extremely important when the network contains more than one switch.
- Prioritization on:
  a. PTP [E, F]
  b. AES67 [AFU1]
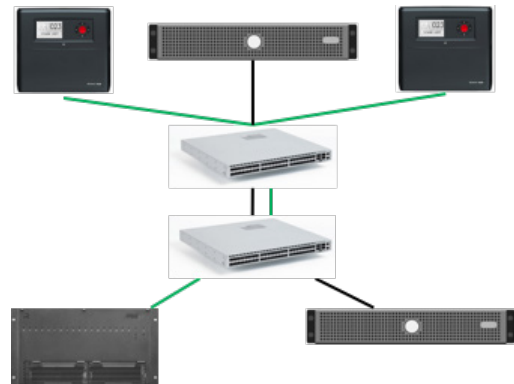
IGMP snooping (v2)

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

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

Please note the limit of Multicast groups of a switch. Bolero needs 6+[amount of Beltpacks] Multicast groups (example: 42 Beltpacks require 48 Multicast groups). Cascading of switches does not raise the system limit. The lowest supported number in the complete system is the limit.
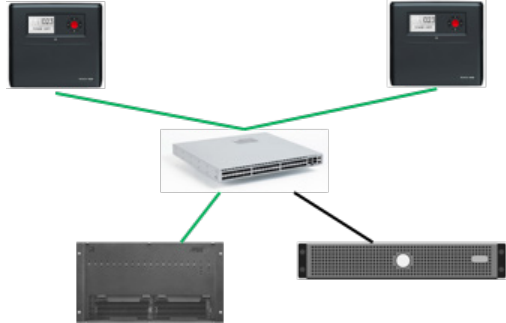
PoE+ (IEEE 802.3at)

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

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

Please note that the most switches do not power all ports simultaneously. The power supply limits the total power.
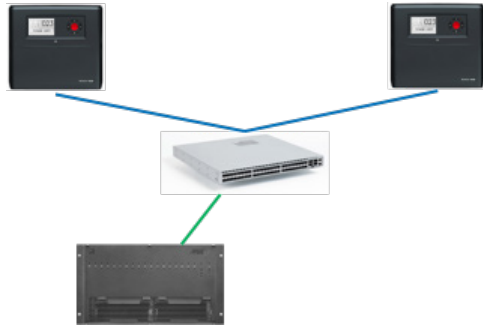
When using Power over Ethernet use PoE+ switches only.

Jitter / Throughput / Latency

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

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

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

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

2.11 Network Requirements

New in 3.1

Bolero uses a number of network addresses that must be open for the system to work. If you want to restrict multicast traffic to and from the Antennas, please make sure that the following addresses are open:

Integrated Mode

Traffic	Address	Port	Source IP
WebUI Discovery (Bonjour)	224.0.0.251	5353	–
PTP v2	224.0.1.129	319, 320	Acting PTP Master, every PTP Slave
Firmware Update	230.4.4.1	1044	Every Bolero Antenna
Firmware Update	230.5.5.1	1044	Every Bolero Antenna
Bolero Configuration & Antenna Discovery	239.202.29.2	30301, 30304, 30312,	Every Bolero Antenna
Beltpack Discovery & Assignment	239.202.29.3	30321	AES67-108-G2-Client Cards and Artist-1024-SICs with configured Beltpacks
AES67 Streams (Active Antenna ⇨ Artist)	Varying, one address per Beltpack (configured via Director) Artist/Director restriction: IPv4 Range: 224.0.2.0 ... 239.255.255.255 Multicast Port: 1024 ... 65535	Default: 5004 (configured via Director)	One Source IP per Bolero Antenna
AES67 Streams (Artist ⇨ Active Antenna)	Same Multicast Group as the other direction (Active Antenna ⇨ Artist)	AES67-108-G2 Client Card: 42000 or 42001 Artist-1024-SIC: Default: 42000 (configured via Director)	One Source IP per Client Card

Standalone Mode

WebUI Discovery (Bonjour)	224.0.0.251	5353	–	varying	varying (80 … 400)
PTP v2	224.0.1.129	319, 320	Acting PTP Master, every PTP Slave	16 + 16 per slave	86-106
Firmware Update	230.4.4.1	1044	Every Bolero Antenna	tbd	tbd
Firmware Update	230.5.5.1	1044	Every Bolero Antenna	~500	1366
Bolero Configuration & Antenna Discovery	239.202.29.2	30301, 30304, 30312	Every Bolero Antenna	varying	varying
AES67 Streams (Active Antenna ⇨ IO Device)	Any valid Multicast Address (configured via Bolero Web Interface "IO Device Config")	Dynamically assigned by Bolero Firmware: 40000 + IODevice ID	One Source IP per Bolero Antenna	1000 per audio channel	370
AES67 Streams (IO Device ⇨ Active Antenna)	Same Multicast Group as the other direction (Active Antenna ⇨ IO Device)	Dynamically assigned by Bolero Firmware: 41000 + IODevice ID	One Source IP per IO Device	1000 per audio channel	370
AES67 Streams (Beltpack ⇔ Beltpack)	Any valid Multicast Address, one Address per Network Space (configured via Bolero Web Interface "Edit Network Space")	Dynamically assigned by Bolero Firmware	One Source IP per Bolero Antenna	1000 per audio channel	370

2.12 PTP Grandmaster Selection

New in 3.1

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

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

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

This process runs continuously so master capable devices are constantly looking for the possible loss of the current master clock.

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

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

3 Bolero Beltpack

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

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

The Bolero Wireless Beltpack has a user replaceable XLR connector for headset, a 3.5mm jack for a line-in signal and a USB port for firmware updates. Bolero DECT-Beltpacks support Bluetooth 4.1, allowing a Smartphone to be connected. When a Smartphone is connected, the Beltpack can act like a car's "hands free" setup so the user can receive calls on their phone and talk and listen via their Beltpack headset. Users can also inject phone calls directly into the intercom channels, providing new levels of workflow flexibility. A fully charged Bolero rechargeable Battery allows more than 17 hours of operation. The rugged housing with rubber protectors houses the internal antennas.

New in 3.1 The Bolero product portfolio has been expanded by a 2.4GHz type Antenna and Beltpack that operate exclusively in the 2.4GHz range.

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

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

3.1 Operating Elements
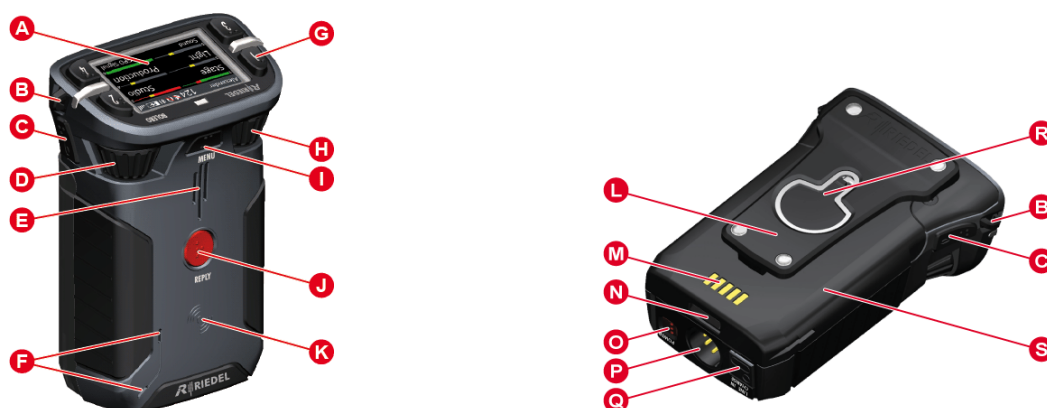
Figure 160: Beltpack – Operating Elements (front/top, rear/bottom)

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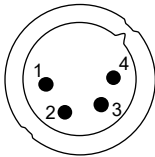
XLR-4 (male)

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

Figure 161: XLR 4 male

The headset connector is a 4-pole male XLR connector and supports mono headsets with electret or dynamic microphones, depending on the menu setting.

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

3.5mm jack (female)

Pin	Description
1 (Tip)	Left
2 (Ring)	Right
3 (Sleeve)	GND
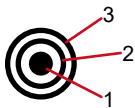
Figure 162: 3.5mm jack female

The 3.5 mm jack is a line input connector. The maximum input level is +12 dBu.
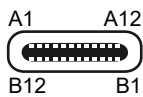
USB Type-C

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

Figure 163: USB Type-C

The USB connector is used to charge the Beltpack.

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

3.2 Status LEDs

Figure 164: Beltpack – Status LEDs (top)

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

3.3 Basic Operation

3.3.1 Startup

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

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

Figure 165: Power on/off

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

Figure 166: Main-View

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

3.3.2 Key Functions

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

A channel can be activated by pressing one of the six corresponding keys (e.g. key 1).
All active channels are highlighted in color in the display and inactive channels are shown in dark gray.

Figure 167: outgoing call

The keys 1 to 4 are latching by default. Push again the key to deactivate the respective channel.
The keys 5, 6 and Reply are none latching by default (momentary). That means releasing this key will stop talking to this channel (Walkie-Talkie mode, PTT – push to talk).

Incoming calls are additionally indicated by the green Call LED on the corresponding side. (Channel 1, 3 and 5 on the left side and channel 2, 4 and 6 on the right side).

Figure 168: incoming call

	The key mode (Latching / PTT) is set in Director if the system is set to **Integrated/Artist** mode. For a new configuration in Director, all 6 keys are in momentary mode by default.

Menu Key

Three different functions can be triggered by pressing and holding the Menu key for a certain time.

Hold time of the Menu key	Description
short key press (<0.5 sec.)	Setting of individual volume or muting of individual channels.
middle key press (0.5 ... 3 sec.)	The Quick Menu contains shortcuts to frequently used menu items.
long key press (>3 sec.)	Information can be called up and settings can be made in the Main Menu.

Abbildung 169: Menü-Taste

Navigation

Following keys can be used to navigate in the menu:

• **Rotary Encoder 1** • **Rotary Encoder 2**	• Select the next or previous menu item • Change values/settings
• **Key 3** • **Reply Key**	• Back to parent menu item • Cancel editing of values/settings
• **Key 4** • **Menu Key**	• Enter selected menu item • Confirm values/settings

3.3.3 Volume Adjustment

The two knobs allow you to adjust and limit the overall volume of all channels or the volume of individual channels.

Master volume

By turning one of the two rotary encoders while the display shows the main view, the overall volume of the speaker or headset can be adjusted.
The current total volume is shown in a level meter in the header.

Figure 170: Master Volume

Channel volume

To change the volume of individual channels, briefly press the menu key (**1.** <0.5 sec.).
Then use the two rotary controls (**2.** A+B) to adjust the volume of the first two channels (1+2). The level meters above the key labels indicate the channel volumes set in each case.
Further short keystrokes on the menu key change to the next channels 3+4, 5+6 and finally to the Reply key. Another short key press returns to the main view. If no change takes place for 3 seconds, the Beltpack also switches back to the main view.

Figure 171: Channel Volume

3.3.4 Quick Mute

A Beltpack user is able to quickly mute a Partyline (or any other audio source) assigned to a key without turning the volume down to minimum. This is done by entering the volume menu (**1.** short press on the menu button) and then pressing the desired key (**2.** e.g. key 1) to mute or unmute. When the key is unmuted, the original volume is restored.
The volume level can be changed even while the audio source is muted.
Muting an active audio source will deactivate it.

Figure 172: Quick Mute

This feature has slightly different behavior in **Standalone** system mode:

• **Integrated/Artist Mode**	Muting behaves as described above.

• **Standalone/AES67 Mode**
• **Standalone/Link Mode**
	The behavior of a muted key can be customized:
	• In the Web Interface: (⇨ Edit (Beltpacks))
	   Beltpacks > Edit > Keys > Action - Muted Key Pressed
	• In the Beltpack Main Menu: (⇨ General Settings)
	   General Settings > Key Assignment > Key 1 ... 6, Reply > Action - Muted Key
	
	Options:
	• **Keep Mute State**:
	   No changes, the incoming audio signal stays muted.
	• **Unmute**:
	   The incoming audio signal is immediately unmuted when the key is activated.
	• **Momentary Unmute**:
	   The incoming audio signal is immediately unmuted when the key is activated and automatically muted when the key is deactivated again.

3.3.5 Quick Menu

The Quick-Menu is opened by pressing and holding the Menu key (0.5 ... 3 sec.).
The Quick-Menu allows using up to 16 user defined shortcuts to frequently used menu commands.

Navigate with one of the rotary encoders to the desired menu item and press the menu key to open the respective menu.
The selected menu item can be deleted in the Quick Menu by pressing the Key-1.
A user defined menu item can be assigned to the Quick-Menu by pressing the Key-2 and selecting the desired menu item.

Figure 173: Quick-Menu

Header	Time		14:43
	Silent mode		
	Speaker mode (Walkie-Talkie)		
	Headset not connected		
	Listen / Monitor information		
	Bluetooth	paired	
		connected	
	Net name / Net ID		Bolero-Net / 2
	Microphone type (dynamic, electret, error)		D-Mic E-Mic Mic-Err
	Battery status	with remaining operation time	12h30m
		Battery error	ERR
		USB charging	
		USB charging (battery full)	USB
	Radio level status with level indication		-58 dBm
Main area	User defined menu shortcuts: • Brightness Mode • Lock Keys • Headset Type • Side Tone • Silent Mode		Brightness Mode Medium Lock Keys Headset Type Auto Detect Side Tone -12 dB Silent Mode Off
Navigation Bar	Reply key or Key 3 – one layer back		Back
	Key 1 – delete the selected item		Del
	Key 2 – add item		Add
	Menu key or Key 4 – select item		Select

3.4 Main Menu

The Main Menu is opened by pressing and holding (>3 sec.) the Menu key.
Basic information is displayed and settings can be modified in the Main Menu.

| ℹ	The Beltpack language can be changed in the menu "**Allgemeine Einstellungen** > **Language**" to '**English**'.

Abbildung 174: Hauptmenü

The Main-Menu contains following entries:
(Default values are _underlined_.)

- **Audio**
- **Brightness**
- **General Settings**
- **Bluetooth** (⟨_New in 3.1_⟩ not available for 2.4GHz-Beltpacks)
- **Registration**
- **Admin**
- **Service**

3.4.1 Audio

| Gain Settings		
	Headset Volume	Volume level of the headset: Mute, -60 ... _-12_ ... +12 dB
	Speaker Volume	Volume level of the speaker: Mute, -60 ... _0_ ... +12 dB
	Side Tone	Volume level of the Sidetone: Mute, -60 ... _0_ ... +12 dB
	Headset Microphone	Gain level of the headsets microphone: 0 ... _+8_ ... +30 dB
	Internal Microphone	Gain level of the internal microphone: 0 ... _+15_ ... +30 dB
	Line Input	Gain level of the Aux input: Mute, -60 ... _-12_ ... +12 dB
	Priority Dim	Dim level of priority calls: Mute, -72 ... _-20_ ... 0 dB
	Beep Notification	Volume level of the beep tones (relative to Headset/Speaker volume): -24 ... _-12_ ... +12 dB
	Voice Notification	Volume level of the voice notifications (relative to Headset/Speaker volume): -24 ... _-6_ ... +12 dB
	Microphone Limiter	Threshold level of the microphone limiter: _Off_, -72 ... 0 dB
	Headset Limiter	Threshold level of the headset limiter: _Off_, -72 ... 0 dB
	Bluetooth Mobile/PC Volume *¹	Volume level of the Bluetooth audio signals: Mute, -60 ... _0_ ... +12 dB
	Bluetooth Microphone *¹	Bluetooth microphone amplification: -24 ... _0_ ... +12 dB
	Headphone Lower Limit	Lower volume level of the headset: _Mute_, -60 ... +12 dB
	Speaker Lower Limit	Lower volume level of the speaker: _Mute_, -60 ... +12 dB

*¹ only for DECT-Beltpacks

VOX	BT/Line Input VOX Dim	**Off**: The VOX functionality is turned off. The audio signal is always going through. **Standard**: The VOX functionality is turned on. BT/Line audio is switched through depending on the configurable parameters **Threshold** and **Hold Time**. **Adaptive**: The adaptive VOX functionality is switched on and the threshold is continuously adapted to the current background noise. BT/Line audio is switched through depending on the configurable parameters **Delta** and **Hold Time**.	
Audio Usage ⬛SA	Name of the Audio Ports 1 … 35	List of all audio ports the Beltpack is able to listen to.	
		Volume	Volume level of the audio ports: Mute, -60 … _0_ … +12 dB
		Mute	Muting of the audio ports: _Off_, On
Listen & Monitoring Devices ⬛SA	List of other devices that are currently monitoring or listening to this Beltpack.		
Headset Type	Selection of the microphone type in the headset: _Auto detect_, Dynamic detect, Electret detect, Dynamic, Electret		
Plug Function	Checkbox to adjust behavior when (dis)connecting a headset at the XLR connector.		
	Plug	The Beltpack activates the headset mode if a headset is connected. _On_, Off	
	Unplug	The Beltpack activates the speaker mode if the headset is disconnected. On, _Off_	
Enhancements	**Microphone Filter**	Headset microphone filter: _off_, low-cut 60/120Hz, filter for AIR/PRO/MAX/RUN headsets dynamic/electret	
	Headphone Filter	Headphone filter: _off_, low-cut 80/150Hz, filter for AIR/PRO/MAX/RUN headsets standard/plus	
	Headset Echo Suppression	Prevents/reduces acoustic echo distortions to improve voice quality of headsets: _Off_, On. **Echo suppression** is always on in Speaker mode.	
Speaker	Enables the internal speaker and microphone (walkie-talkie mode): _Off_, On If the silent mode is active while the speaker mode is enabled, the silent mode is turned off and a warning is shown (Silent Mode is turned off).		

⬛SA only in **Standalone/AES67** or **Standalone/Link** mode

3.4.2 Brightness

Brightness Mode	Selection between one user defined and four pre-defined brightness definitions: Off, Low, _Medium_, High, Custom	
Settings	**Display**	Normal brightness level of the display: Off, 0 … _50_ … 100% (10% steps)
	Display Dim	Dimmed brightness level of the display: Off, 0 … _50_ … 100% (10% steps)
	Display Dim Timer	After this time of inactivity, the display illumination is dimmed: Off, 1 … _10_ … 240 sec.
	Display Timeout	After this time of inactivity, the display illumination is switched off: _Off_, 1 … 240 sec.
	Keys	Normal brightness level of the keys: Off, 0 … _60_ … 100% (20% steps)
	Keys Dim	Dimmed brightness level of the keys: Off, 0 … _20_ … 100% (20% steps)
	Keys Dim Timer	After this time of inactivity, the key illumination is dimmed: Off, 1 … _10_ … 240 sec.
	Keys Timeout	After this time of inactivity, the key illumination is switched off: _Off_, 1 … 240 sec.
	Call LED Brightness	Brightness level of the Call LED: 20 … _40_ … 100% (20% steps)
	Status LED Brightness	Brightness level of the Status LED: 20 … _80_ … 100% (20% steps)

3.4.3 General Settings

Name & ID	Name	Entry of the 12-digit Beltpack name.
[SA]	ID	Entry of the 3-digit Beltpack ID.
Profile		In a profile user rights, keys and parameter settings are defined. Profile changes are possible in the web interface.
	Change Profile	Changes the profile of the Beltpack. A list of available profiles is displayed.
Key Assignment [SA]	**Key 1 ... 6, Reply**	**Function**
		• none • Talk • Talk - Always Listen • Talk & Listen • Notification/Beep Select • Reply • Menu Shortcut • Toggle • Monitor Trigger • Set Trigger • Volume + • Volume -
		Destination/Source • Beltpack • Partyline • Audio Channel
		Mode • _Momentary_ (default Key Reply) • Latched • _Auto_ (default Key 1 ... 6)
		Priority • Defines the priority of the function: **High:** All <u>other</u> audio signals with lower priorities (Standard or Low) are dimmed at the sink when the audio signal with high priority is active. **Low:** <u>This</u> audio signal is dimmed when the sink receives an active audio signal with higher priority (Standard or High).
		Key Group Local key group on the Beltpack in which only one key can be active at a time: _Off_, 1 ... 5
		Action-Muted Key Action when a muted key is pressed: (⇨ Quick Mute) • **Keep Mute State:** No changes, the incoming audio signal stays muted. • **Unmute:** The incoming audio signal is immediately unmuted when the key is activated. • **Momentary Unmute:** The incoming audio signal is immediately unmuted when the key is activated and automatically muted when the key is deactivated again.
	External Key 1 / 2	**Function** Remote Key
		Mode • _Momentary_ • Latched • Auto • On only • Off only
		Destination • Key 1 ... 6 • Key Reply

Rotary Assignment	Volume Rotary 1/2	Defines the channels adjusted by the rotary encoder: _Master_, Key 1...6 , Reply, Bluetooth, Line Input
Notification	Call	Defines the signalization mode of a call: _Light_, Vibrate, Beep
	Notification/Beep	Defines the signalization mode of a notification e.g. beep call: _Light_, _Vibrate_, _Beep_
	Info/Low Battery	Defines the signalization mode if the battery power is low: _Light_, _Vibrate_, Beep, _Voice_
	Out of Range	Defines the signalization mode if the Beltpack loses the connection to the Antenna: _Light_, _Vibrate_, Beep, _Voice_
	Volume Keys	Defines the signalization while using the volume keys: Vibrate, _Beep_, Voice
Silent Mode		Disables the speaker and vibrator: On, _Off_
Display Mode		In all modes the font size is automatically reduced to fit long content into the fields:
	Standard	default value
	Alternative	Key 5 and 6 are in the middle of the screen.
	Standard Flip	Standard, display upside down
	Alternative Flip	Alternative, display upside down
Replay		The Replay function allows repeated listening to the last call. Recordings are VOX controlled. Thus, no silence is recorded.
	Playback	Starts the playback of the latest recording.
	Recording Time	Defines the duration of recordings: Off, 1 ... _3_ ... 15 Sec.
	Store Time	Defines the time, how long the recording is stored: 1 ... _60_ ... 240 Min.
Timeout	Menu	After this time of inactivity, the menu will be closed and the display shows the Main-View: 5 ... _120_ ... 240 sec.
	Volume Change	After this time of inactivity, the volume adjustment is terminated: 1 ... _3_ ... 240 sec.
Language		Selection of a pre-programmed language: _English_, Deutsch **New in 3.1** Besides German and English, a Chinese translation of all Beltpack menus is now available.
Lock Keys		Lock the keys to prevent accidental key actions: locked, _unlocked_

🔒SA only in **Standalone/AES67** or **Standalone/Link** mode

3.4.4 Bluetooth

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

Bluetooth State	Enable the Bluetooth functionality: Off, Connect to Headset, Connect to Mobile/PC
Connect / Disconnect	• Disconnect: If connected to a device • Connect: if not connect to a device
Pair / Delete Pairing	Activates the paring mode and will be visible for other devices.
Share to net *1	Shares an active telephone call (no music) via intercom: _Local_, Public
Dim Level *1	Dimmed Bluetooth audio level if Beltpack has an active intercom conference: _Mute_, -24 ... +12 dB

*1 only if "Connect to Mobile/PC"

Further information can be found in chapter 'Bluetooth'.

3.4.5 Registration

Register to net	Registers the Beltpack to an existing net. The OTA registration PIN is necessary (Admin PIN by default). A list of available nets is displayed: • Over The Air (OTA)
Connect to pre-registered net *1	Registers the Beltpack to previous registered nets. A list of available pre-registered nets is displayed: • Select one to connect • Currently connected net is shown with radio select icon
Delete pre-registered net	Deletes previous registered nets in the Beltpack. A list of pre-registered nets is displayed: • Select one to delete
Allow multi-registration *2	_On_: 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 overwritten. Off: For security reasons the multi-registration can be set to Off. The Beltpack can be registered to a single net only. All pre-registered nets except the current connected net will be deleted.
Automatic net change	_Off_: The Beltpack will only ever try to reconnect to the last connected Network Space. On: This allows the Beltpack to search for any of the pre-registered Network Spaces when trying to connect (the last connected Network Space will be checked first).

*1 only if **Allow multi-registration** is enabled
*2 automatically enabled if **Automatic net change** is enabled

Further information can be found in chapter 'Add Beltpacks'.