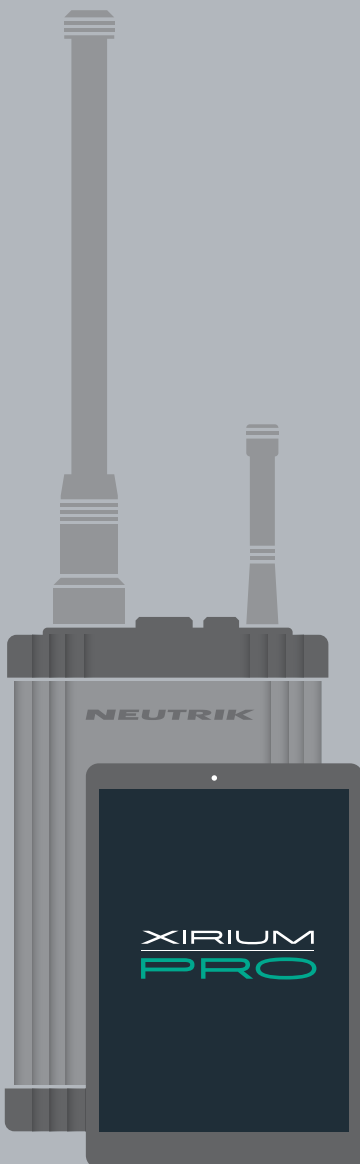# User Manual

Applies to XIRIUM PRO CANADA, AUSTRALIA, and NEW ZEALAND devices

XIRIUM PRO

XIRIUM PRO

NEUTRIK®

Imprint

Subject to change due to technical advances! This user manual corresponds to the level of technology at the time the product was delivered and not the current stage of development at Neutrik.

If any pages or sections of this user manual are missing, please contact the manufacturer at the address listed below.

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ℹ️ ▶ **This user manual applies to firmware 3.0 and app version 3.0!**

Language: English
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Each user manual in a different language is a translation of the operating manual in German.

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Table of contents

1 About this document

This user manual provides an overview of the necessary operation steps and settings of the product.

1.1 Significance of the user manual

> ℹ️ This user manual is an integral component of the product and part of the product's safety concept.
> ▶ Make sure that all persons who work with the product have fully read and also understood this user manual.
> ▶ Observe all instructions exactly, especially the safety instructions.

> ℹ️ This user manual contains important information for operating and maintaining the product and troubleshooting minor problems safely and properly on your own.
> ▶ Keep this user manual in the immediate vicinity of the product so personnel have access to it at all times.

▶ Pass this user manual on to every user, e.g., by lending it, or to the future owner of the product.
▶ If this user manual is lost or damaged, a copy of the operating manual
can be downloaded from the Neutrik's home page (www.neutrik.com).

1.2 Designation

Designation	Explanation
XIRIUM PRO System	All components: XIRIUM PRO base stations, XIRIUM PRO modules, cables, plugs, antennas
XIRIUM PRO base station	XIRIUM PRO TX (transmitter) without module, short TX XIRIUM PRO RX (receiver) without module, short RX
XIRIUM PRO module	Exchangeable module for the XIRIUM PRO base station
XIRIUM PRO device	XIRIUM PRO base station with module plugged-in
XROC mode	Extreme Ruggedized One Channel mode for a secure connection in extreme situations.
Peripheral devices	All devices which can be connected with each other via the XIRIUM PRO devices: audio sources (transmitters) and audio sinks (receivers)
Audio source	All devices which emit a signal
Audio sink	All devices which receive the audio signals, e.g., loudspeakers, audio systems (amplifiers, mixing consoles, etc.)
Transmission path	Wireless connection between the XIRIUM PRO devices. A transmission path consists of 1 TX, 1 repeater (optional) and at least 1 RX.
Network	All devices used which are connected to the app via an access point.

1.3 Explanation of symbols

In order to make this user manual easier to understand, uniform safety instructions, symbols, terms and abbreviations were used. The following symbols designate instructions which are not relevant to safety, yet make it easier to understand the operating manual.

☑ The preconditions for an action are depicted with this symbol. Complete the specified items before carrying out the action steps which follow.

▶ Action steps are designated by this symbol. Carry out the action steps in the order they are presented.

✔ The result of the action or the reaction of the product to the action are depicted with this symbol.

• Lists without a mandatory sequence are presented as a list with this bullet.

1. Numbered listings are displayed in this manner.

(1) Refers to a position in an illustration.

Texts in this color designate elements on the app surface.

🛈 Wherever you see this symbol, you will find useful information for safe, trouble-free operation of the product.

1.3.1 Symbols in illustrations

Symbol	Explanation
1	Image position
1	Action steps numbered in an illustration. Carry out the action steps in the order they are presented.
	Only carry out these tasks when using an Apple iPad.
	Only carry out these tasks when using an Android tablet.

1.4 Target group

This user manual is directed to sound engineers and professional personnel who have detailed experience in the sound and event technology.
Personnel who are in training must only work with this device under the supervision of experienced persons.

2 Safety

2.1 Warning information and signal words

Special warning information regarding potential dangers inherent in a particular action are presented before instructions for an action. The warnings are ranked as follows:

> ⚠ **DANGER**
>
> **Immediate threat of danger!**
>
> This type of warning points out a situation which would result in death or severe injuries.
>
> ▶ If this warning is not heeded, the threat of death or serious injuries is imminent.

> ⚠ **WARNING**
>
> **Possible threat of danger!**
>
> This type of warning points out a situation which could result in death or severe injuries.
>
> ▶ If this warning is not heeded, the threat of death or serious injuries might be imminent.

> ⚠ **CAUTION**
>
> **Possible threat of danger!**
>
> This type of warning points out a situation which could result in minor or moderate injuries.
>
> ▶ If this warning is not heeded, minor injuries may result.

> ⚠ **NOTICE**
>
> **Possible threat of property damage!**
>
> This type of warning points out a situation which could result in damage to the device and its components.
>
> ▶ If this warning is not heeded, property damage may result.

2.2 Warning symbols

Symbol	Warning
	General warning
	Warning of hearing impairment
	Danger of electric shock

2.3 Important regulatory notes

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

⚠ NOTICE

This device complies with Part 15 of the FCC Rules and with Industry Canada licence-exempt RSS standards.

Operation is subject to the following two conditions:
1. this device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

⚠ REMARQUE

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

Operation is subject to the following two conditions:
1. l'appareil ne doit pas produire de brouillage, et
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

⚠ NOTICE

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

⚠ NOTICE

This device must be professionally installed.

⚠ NOTICE

This radio transmitter (IC: 11536A-XPT / IC: 11536A-XPR) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Provided antennas:
• NXPA-2-360 (SOA-2456/360/1/0/V; 2 dBi gain)
• NXPA-6-360-25 (ECO6-5500-BLK-RN; 6 dBi gain)
• NXPA-9-360-12.5 (ECO9-5500-BLK-RN; 9 dBi gain)

2.3.1 Radio frequency radiation exposure information

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environ-ment. This equipment should be installed and operated with minimum distance of 0,65 ft (20 cm) between the radiator and your body.
This transmitter must not be co-located or operating in conjunction with any other antenna or trans-mitter.

2.4 Important safety instructions

⚠ WARNING
Risk of fire or electric shock!
▶ To reduce the risk of fire or electric shock, do not expose this device to rain or moisture and do not set any objects containing liquids on this apparatus.

⚠ WARNING
Danger of fire and explosion due to overheated battery!
▶ Do not expose batteries or battery pack to excessive heat such as fire or other heat sources.

- To completely disconnect this apparatus from AC mains, disconnect the power supply cord plug from the AC socket.
- Keep the mains plug of the power supply cord readily accessible.

Avoid property damage to the XIRIUM PRO devices due to unsuitable operating and environmental conditions:
- Never immerse in water.
- Protect from strong sunlight.
- Never install the device near heat sources such as radiators, heating units, ovens or stoves.
- Never cover the device, to avoid overheating.
- Protect the device from impact and above all, from falling from poles, stages, tables or furniture.
- Always set up and fasten the device as shown in Section "5.8.4 Fastening and securing XIRIUM PRO devices" on page 46.

Repair

⚠ DANGER
Danger of injury or electric shock and property damage due to improper repair!
The XIRIUM PRO devices do not contain any parts which you can repair yourself. Opening or re-pairing the devices on your own can lead to severe damage to the devices and electrical shock or injuries to the operator.
▶ Do not open the housing of XIRIUM PRO devices under any circumstances.
▶ Do not exchange any parts yourself.
▶ Only have XIRIUM PRO devices repaired by a authorized specialist dealer.

Electrical connection

> ⚠ **DANGER**
>
> **Danger of electric shock when connecting to or disconnecting from a power grid!**
>
> ▶ Only connect the devices to mains sockets installed by authorized electricians.
> ▶ Do not handle the devices with moist or wet hands under any circumstances.
> ▶ Make sure the specified mains voltage and mains frequency agree with the values of the power grid.
> ▶ Only use the delivered power supply cable for connecting to the socket.
> ▶ During storms or whenever there is a danger of power fluctuations, switch off the device and separate from the power grid.
> ▶ Ensure that the power supply cable is not kinked, hung over sharp edges or allowed to contact hot surfaces during operation.
> ▶ Do not use the devices if there is interference or damage to the devices, displays or accessories.

Information for operation
▶ Ensure that the ambient conditions specified for XIRIUM PRO are observed during operation.
▶ Do not use the XIRIUM PRO devices if they are not functioning properly, have fallen or been damaged, have become wet or if parts of the devices have been immersed in water.
▶ If disruptions occur during operation:
Immediately switch off the XIRIUM PRO devices and disconnect them from the power grid.
▶ Do not operate the XIRIUM PRO devices in environments where flammable or explosive materials, gases or vapors are present or could occur.

> ⚠ **AVERTISSEMENT**
>
> **Risque d'électrocution!**
>
> ▶ Pour réduire les risques d'incendie ou d'électrocution, ne pas exposer l'appareil à la pluie ni à l'humidité et ne pas déposer d'objet contenant du liquide sur cet appareil.

> ⚠ **AVERTISSEMENT**
>
> **Risque d'incendie et d'explosion en cas de surchauffe de la pile!**
>
> ▶ Les batteries ou bloc de batteries ne doivent pas être exposées à une chaleur excessive telle que celle du soleil, feu ou autre source de chaleur similaire.

• Pour déconnecter complètement l'appareil du réseau d'alimentation, déconnecter le cordon d'alimentation de la prise murale.
• La prise du réseau d'alimentation doit demeurer aisément accessible.

Pour éviter les dommages matériels aux appareils XIRIUM PRO causés par des conditions climatiques ou de fonctionnement inadéquates :
• Ne jamais l'immerger dans l'eau.
• Protéger l'appareil des forts rayons du soleil.
• Ne jamais installer l'appareil près de sources de chaleur comme un radiateur, un appareil de chauffage, un four ou un poêle.
• Afin d'éviter une surchauffe, ne jamais couvrir l'appareil.
• Il faut protéger l'appareil des impacts et surtout l'empêcher de tomber d'une perche, d'une estrade, d'une table ou d'un meuble.
• Toujours installer et fixer l'appareil comme illustré dans la section «5.8.4 Fastening and securing XIRIUM PRO devices» on page 42.

Réparation

> ⚠ **DANGER**
>
> **Risque de blessures, d'électrocution et de dommages matériels en cas de réparations inappropriées!**
>
> Les appareils XIRIUM PRO ne contiennent aucune pièce pouvant être réparée par l'utilisateur. L'ouverture ou la réparation des appareils par l'utilisateur peuvent entraîner des dommages graves aux appareils, des blessures ou une électrocution de l'opérateur.
>
> ▶ Ne pas ouvrir le boîtier des appareils XIRIUM PRO en aucun cas.
> ▶ L'utilisateur ne doit pas changer de pièces lui-même.
> ▶ Faire réparer tout appareil XIRIUM PRO uniquement par un détaillant spécialisé autorisé.

Branchement électrique

> ⚠ **DANGER**
>
> **Risque d'électrocution lors du branchement ou du débranchement au réseau électrique!**
>
> ▶ Brancher seulement l'appareil à des prises de courant installées par des électriciens qualifiés.
> ▶ Ne pas manipuler les appareils avec les mains humides ou mouillées en aucun cas.
> ▶ S'assurer que la fréquence et la tension du réseau correspondent aux spécifications.
> ▶ Utiliser seulement le cordon d'alimentation électrique fourni pour brancher l'appareil à la prise de courant.
> ▶ Pendant les tempêtes où lorsqu'il y a des risques de fluctuation de tension, fermer l'appareil et le débrancher du réseau électrique.
> ▶ S'assurer que le cordon d'alimentation n'est pas plié, suspendu sur une arête tranchante ou en contact avec des surfaces chaudes pendant le fonctionnement.
> ▶ Ne pas utiliser les appareils s'il y a des interférences ou si l'appareil, l'écran ou les accessoires sont endommagés.

Informations relatives au fonctionnement

▶ S'assurer que les conditions ambiantes prévues sont respectées pendant le fonctionnement du XIRIUM PRO.
▶ Ne pas utiliser les appareils XIRIUM PRO s'ils ne fonctionnent pas adéquatement, s'ils sont tombés ou s'ils sont endommagés ou si des pièces de l'appareil ont été immergées dans l'eau.
▶ Si des perturbations se produisent pendant le fonctionnement :
Éteindre immédiatement l'appareil XIRIUM PRO et le débrancher du réseau électrique.
▶ Ne faites pas fonctionner l'appareil XIRIUM PRO dans des environnements où des matériaux, des gaz ou des vapeurs inflammables ou explosifs peuvent être présents ou peuvent se produire.

2.5 Proper use

The XIRIUM PRO devices are intended for signal transmission between an audio source and an audio sink in accordance with the technical specifications.

2.6 Foreseeable improper use

The XIRIUM PRO devices are not suitable for use in potentially explosive atmospheres.

3 Components and accessories

3.1 XIRIUM PRO components

The components and accessories are ordered individually.

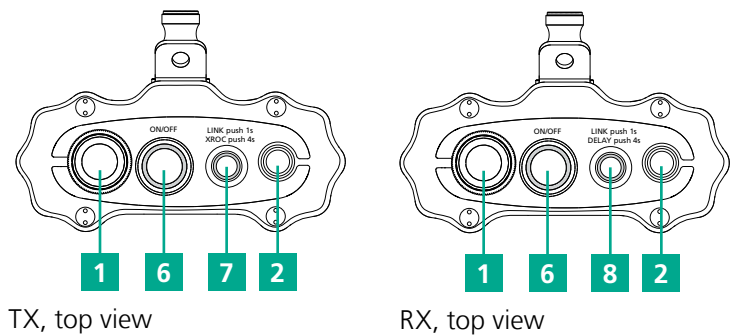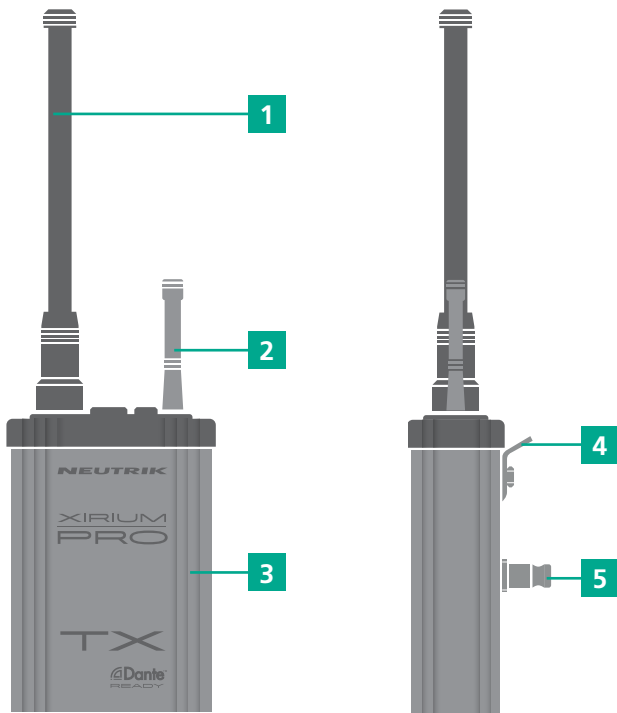| Pos.	Description	Article no.
1	TX base station* (TX base station, XIRIUM PRO USB data cable, Manfrotto™ universal mounting clamp, 5 GHz antenna, 2.4 GHz antenna)	NXP2TX-C
2	RX base station* (RX base station, XIRIUM PRO USB data cable, Manfrotto™ universal mounting clamp, 2.4 GHz antenna)	NXP2RX-C
3	TX modules • TX module analog* • TX module AES* • TX module DANTE*	NXP-TM-ANA NXP-TM-AES NXP-TM-DANTE
4	RX modules • RX module analog* • RX module AES* • RX module DANTE* • Repeater module*	NXP-RM-ANA NXP-RM-AES NXP-RM-DANTE NXP-RM-RP
5	5 GHz antenna 9 dBi 360°H 12.5°V	NXPA-9-360-12.5
6	5 GHz antenna 6 dBi 360°H 25°V	NXPA-6-360-25
7	5 GHz directional antenna 14 dBi 40°H 35°V, including adapter to mount the antenna directly on a receiver if no repeater module is inserted!	NXPA-14-40-35
8	2.4 GHz omnidirectional antenna for connecting app	NXPA-WIFI
9	5 GHz directional antenna (for remte setup) 18 dBi 18°H 18°V, for receiver if no repeater module is inserted! (cable not included!)	NXPA-18-18-18
10	5 GHz omnidirectional antenna 2 dBi 360°H 360°V, for repeater setups with different antenna heights (see page 26)	NXPA-2-360
11	Antenna cable S04162B, N type connectors, 5 m, 4 dB attenuation	NKXPA-5
12	N Adapter female female, for remote TX antenna (cable not icluded!)	NXPA-N-FF
13	Manfrotto™ universal mounting clamp	NXUC-M-15
14	Mounting arm for XIRIUM PRO antennas (NXPA-14-14-35, NXPA-18-18-18, NX-6-360-25), compatible with Manfrotto™ clamp	NXPMA
15	Power cable XIRIUM PRO, 3 m	NKXPF-5-15-3
16	XIRIUM PRO data cable	NKXP-DATA
17	Flight case with foam cut-outs to hold 2x base stations (not included)	CAS-NXP
18	Hard case (trolley) with foam cut-outs to hold 3 devices (not included)	CAS-NXP-T

🛈   * Power cables have to be ordered seperately!

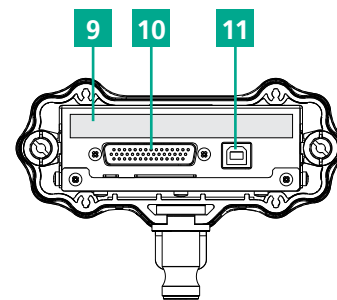* Quick Start Guide included in scope of delivery.

4 Description of product

4.1 XIRIUM PRO base station
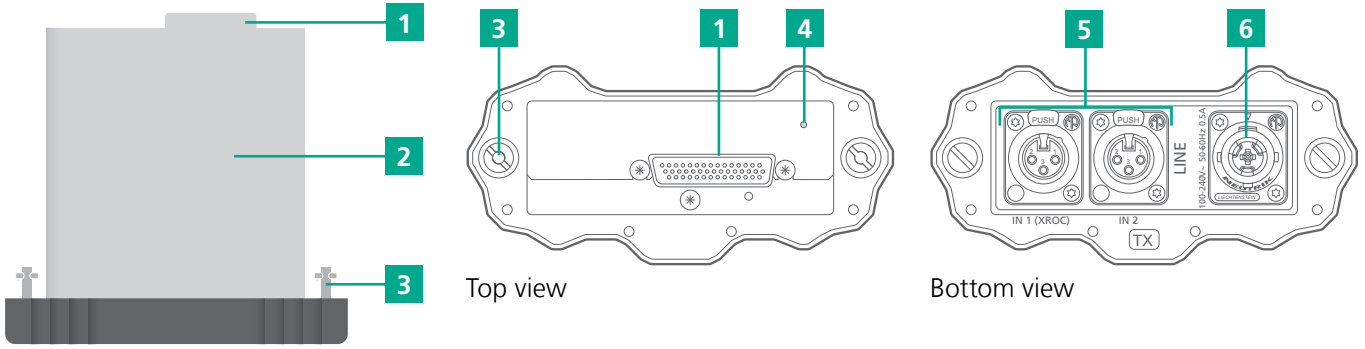

TX, top view   RX, top view

Bottom view

Pos.	Designation
1	**5 GHz antenna connector with 5 GHz antenna** The antenna transmits the signals between the XIRIUM PRO devices.
2	**2.4 GHz antenna connector (reverse SMA) with 2.4 GHz antenna** Transmits control data via WIFI
3	**Housing** Extruded aluminum housing
4	**Lug** Safety lug for additional fall arresting
5	**Bolt** Adapter for mounting with a Manfrotto™ clamp
6	**On/off switch** Powering the device ON/OFF, LED indication LED display: • LED off: Device off or powering up. • LED solid green: Device powerd-on and battery level is between 20 % and 100 %. • LED slow-flash green: Device powerd-on and battery is charging. • LED solid red: Firmware update active. • LED slow-flash red: Device identification activated from app by pressing the Identify Device button. • LED quick-flash red: Battery below 20 %.

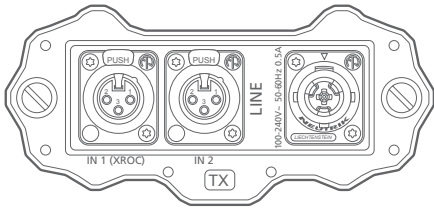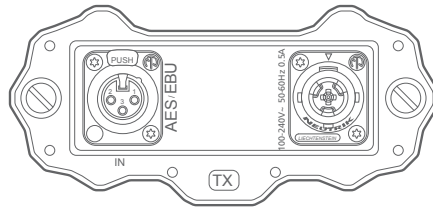| Pos.	Designation
7	**TX link button** Linking devices, switching XROC mode ON/OFF, resetting transmission power • Push and release: Start/stop LINK process • Hold 4 sec: Toggle XROC mode ON/OFF • Hold 8 sec: Reset transmission power LED display: • LED off: TX not transmitting audio signal. • LED solid blue: TX transmitting audio signal. • LED quick-flash blue: Device is activated for linking process. • LED slow-flash blue: XROC mode set to ON.
8	**RX link button** Linking devices; switching delay ON/OFF • Push and release: Start/stop LINK process • Hold 4 sec: Toggle delay ON/OFF • Hold 8 sec: Reset repeater transmission power LED display: • LED off: RX not receiving audio signal. • LED solid blue: RX receiving audio signal. • LED quick-flash blue: Device is activated for linking process. • LED slow-flash blue: Delay set to ON.
9	**Type plate** With serial number, SSID and WLAN password
10	**D-Sub connector** Interface between base station and module.
11	**USB port** USB connection for firmware update

4.2 Modules

Top view

Bottom view

Pos.	Description
1	**D-Sub connector** interface between base station and module
2	**Module with integrated battery**
3	**Locking bolt**
4	**LED charging indicator** • Flashes green: Battery charging. • Lit green: Battery fully charged.

Pos.	Description
5	**Audio IN (TX), audio OUT (RX)** (different connections depending on module)
6	**powerCON TRUE1 chassis** for XIRIUM PRO power cable

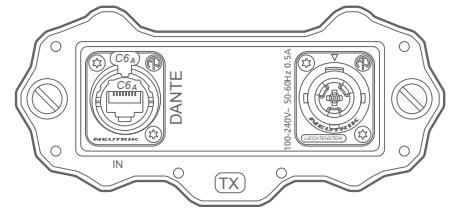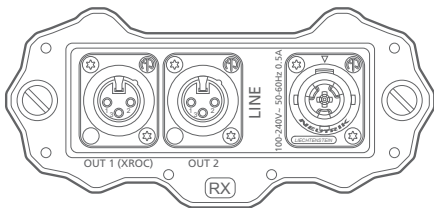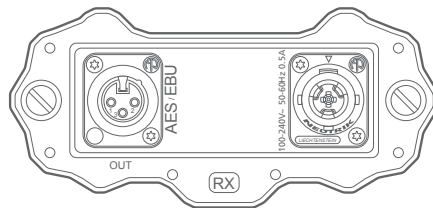## 4.2.1 TX modules

TX analog module
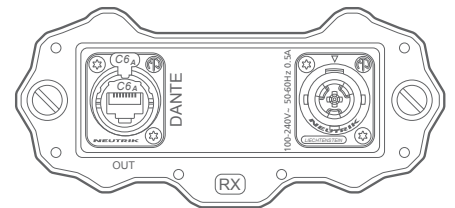
TX AES module

TX DANTE module

4.2.2 RX modules

RX analog module

RX AES module

RX DANTE module

Repeater module

4.3 XIRIUM PRO app

The XIRIUM PRO app enables convenient operation and control of the devices from a tablet.

4.3.1 Overview of operation elements

Pos.	Description
1	Page title
2	Operation and display area
3	Navigation bar

Navigation bar

Pos.	Description
1	Connection setup button
2	Links/Overview button
3	Edit button

Pos.	Description
4	Settings button
5	Help button

- Tapping a button opens the associated page.
- When the page is active, the pictogram is green and the text is white.

Symbols in the app

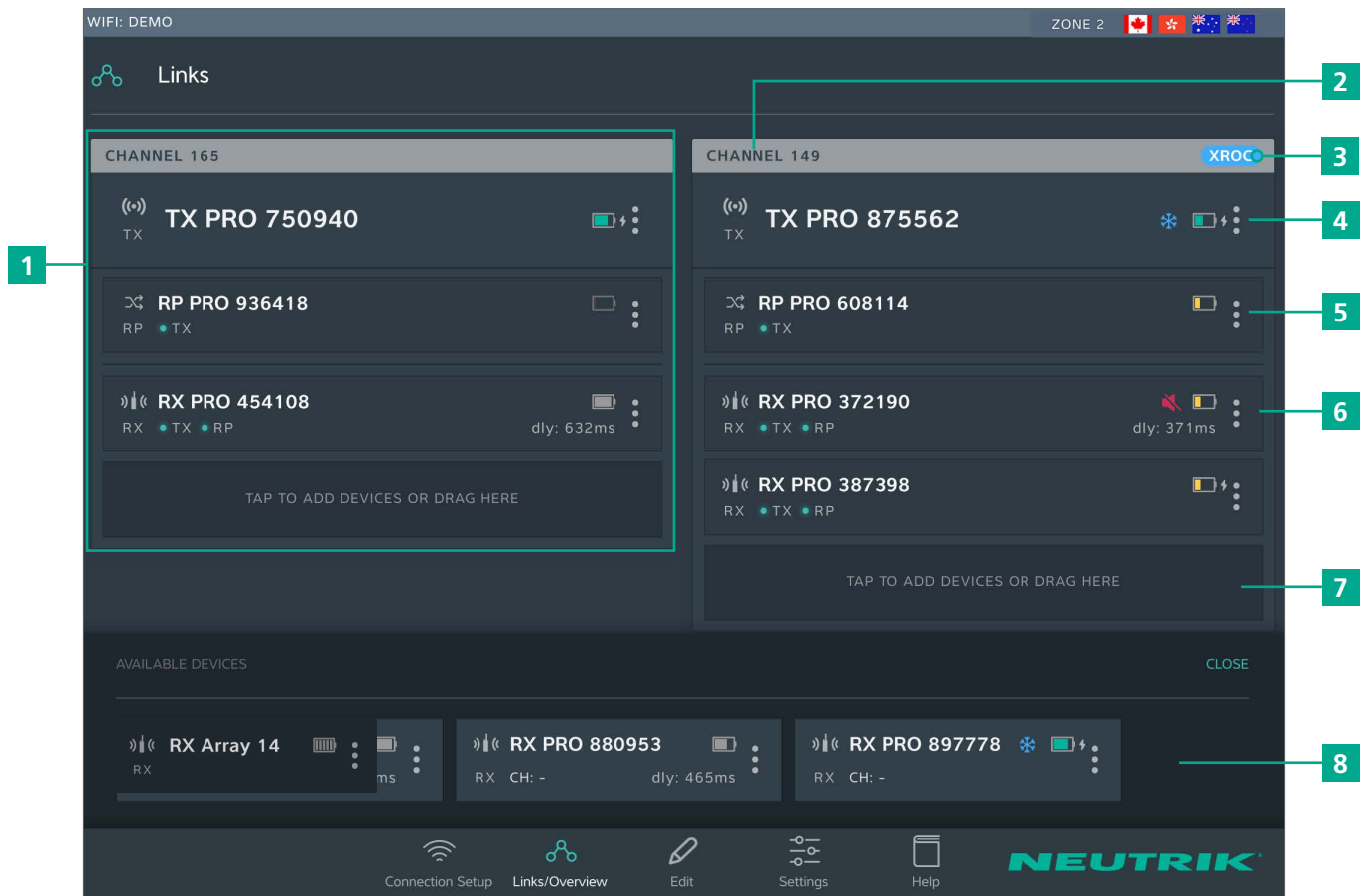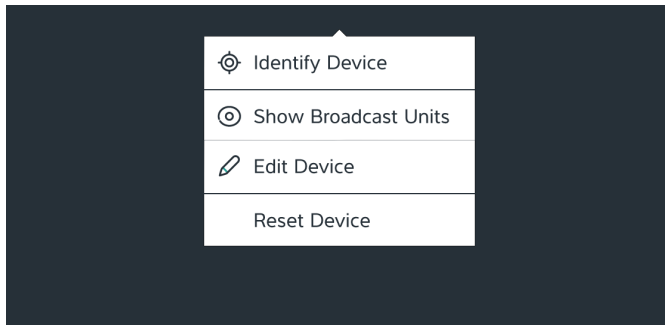| Symbol	Description
((•)) TX	The displayed device is a TX.
⤭ RP	The displayed device is a RX with a repeater module.
))|((RX	The displayed device is a RX.
	The battery level is between 40 % and 100 %. The battery level is below 40 %. The battery level is below 20 %. Connect the device to the mains supply. Animated display: Battery is charging.
• TX • TX • TX	The signal quality received from the TX is good, which refers to a proper RSSI level and a low packet loss. The signal quality received from the TX is critical. This is either due to a critical RSSI level or a critical packet loss. On Edit page the signal quality bar is monitored in detail. The signal quality received from the TX is bad. This is either due to a bad RSSI level or a high packet loss. On Edit page the signal quality bar is monitored in detail.
• RP • RP • RP	The signal quality received from the RP is good, which refers to a proper RSSI level and a low packet loss. The signal quality received from the RP is critical. This is either due to a critical RSSI level or a critical packet loss. On the Edit page the signal quality bar is monitored in detail. The signal quality received from the RP is bad. This is either due to a bad RSSI level or a high packet loss. On the Edit page the signal quality bar is monitored in detail.
⋮	Display device options button Tapping this button opens the options menu.
⚠	Indicates that a message with information is pending for this device. The information is displayed in plain text on the Edit page of the selected device.
🔇	Mute icon: Indicates, if RX is muted
🇨🇦	Zone indicator: Displays to which country settings the devices in use are programmed.
ADVANCED	Advanced mode indicator: Displays, if advanced mode is switched ON.
❄ LOW	Device temperature is LOW.
🔥 HIGH	Device temperature is HIGH.
dly: 800ms	Delay indicator: Indicates in the Links / Overview window if the delay on a RX is switched on.
RF: -30dB	RF attenuation indicator: Indicates in the Links / Overview window if the RF attenuation on a RX is switched on.

4.3.2 Links/Overview page

All devices that were added to the network via an access point are displayed on this page. The devices are grouped according to transmission path. Each transmission path is assigned to one transmission channel. In stand-alone mode, the Links/Overview page is inactive.

Pos.	Description
1	**Transmission path** This grouping displays all devices that are in one RF channel
2	**Transmission channel**
3	**XROC indicator** Is displayed when XROC mode is active for the RF channel
4	**TX display** 1 TX is needed for each transmission path
5	**Repeater display** As an option, repeaters may be used. A maximum 1 repeater per RF channel is possible. • The display is highlighted in red when there is a poor connection to the TX, or none at all.

Pos.	Description
6	**RX display** Each field represents one device. A minimum 1 RX is needed for each transmission path. • The display is highlighted in red when there is a poor connection to the TX, or none at all.
7	**Button for adding devices to transmission path** • Add a device: Use drag&drop to add a device from AVAILABLE DEVICES. • Add several devices: Tap button and select device from AVAILABLE DEVICES.
8	**AVAILABLE DEVICES** Displays all available devices which have not yet been assigned to a transmission path. Tapping OPEN/CLOSE opens/closes the display.

Device options menu

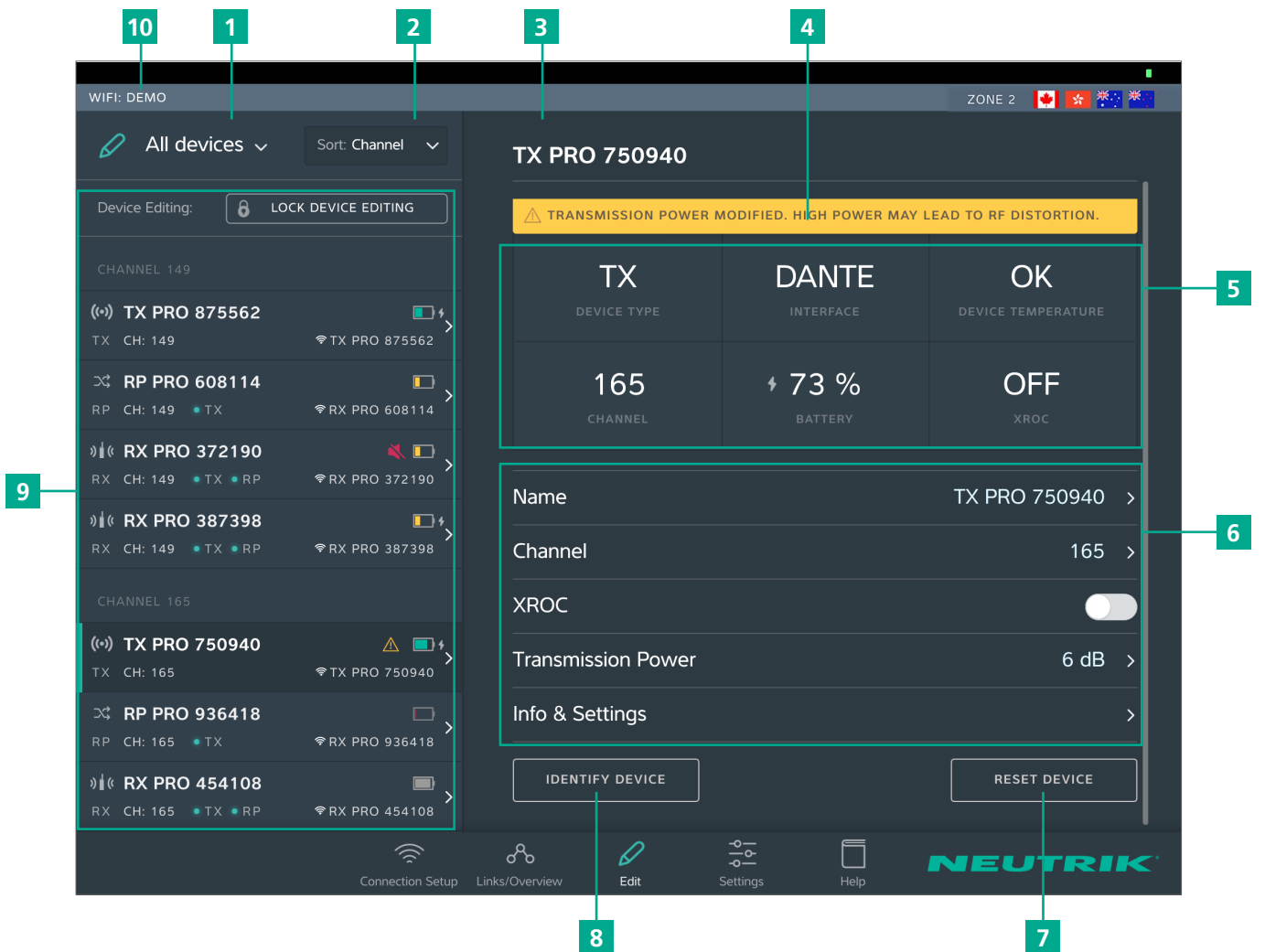| Description |
| --- |
| **Identify Device**
Tap the button to identify a single device: The power LED of the device slowly flashes red for about 10 seconds. |
| **Show Broadcast Units**
Tap the button: The power LEDs of all devices which are assigned to the same channel slowly flash red for about 10 seconds. |
| **Edit Device**
Opens the Edit Device page so all properties of the device can be edited. |
| **Reset Device**
Reset device properties to factory state |

4.3.3 Edit page

Edit TX

Pos.	Description		Pos.	Description
1	**Filter devices drop-down menu** Only the devices that meet the filter criteria are displayed. • All Devices: List all devices. • Low Battery: Only list devices on which the battery is weak. • Out of Range: Only list devices that receive a poor signal, or none at all.		6	**Adjustable properties** Tapping on a property opens the associated sub-page. • Name: Opens the page for changing the device name. • Channel: Opens the page for changing the transmission channel. • XROC: Tapping this button toggles the XROC mode ON/OFF. • Transmission Power: Opens the page for adjusting the transmission power of the TX/repeater. • Info & Settings: Opens a page with information about the device.
2	**Sorting drop-down menu** Specifies the criteria for sorting the devices. • Channel: Devices are sorted according to channel. • Type: Devices are sorted according to type.			
3	**Device Name** Displays the device name entered by the user.		7	**Reset Device button** Resets the device to factory state.
4	**Note** Contains useful information for safe, trouble-free operation.		8	**Identify Device button** The power LED of the device selected will slowly flash for about 10 seconds.
5	**Device Properties** • Device Type: Device is a TX. • Interface: Indicates the module being used. • Device Temperature: Indicates the temperature of the device (low, ok or high) • Channel: Indicates the channel the device is transmitting on. • Battery: Indicates the battery charge status in %. • XROC: Indicates whether the XROC mode is ON/OFF.		9	**Overview of the connected devices** Lists all connected devices according the set filter and sorting criteria. The selected device is marked with a green bar and a dark background.
			10	Name of access point used

ℹ️ In standalone mode the Allow link button is shown on the Edit page. Tapping the Allow link button starts the connection process of the TX.

Edit RX

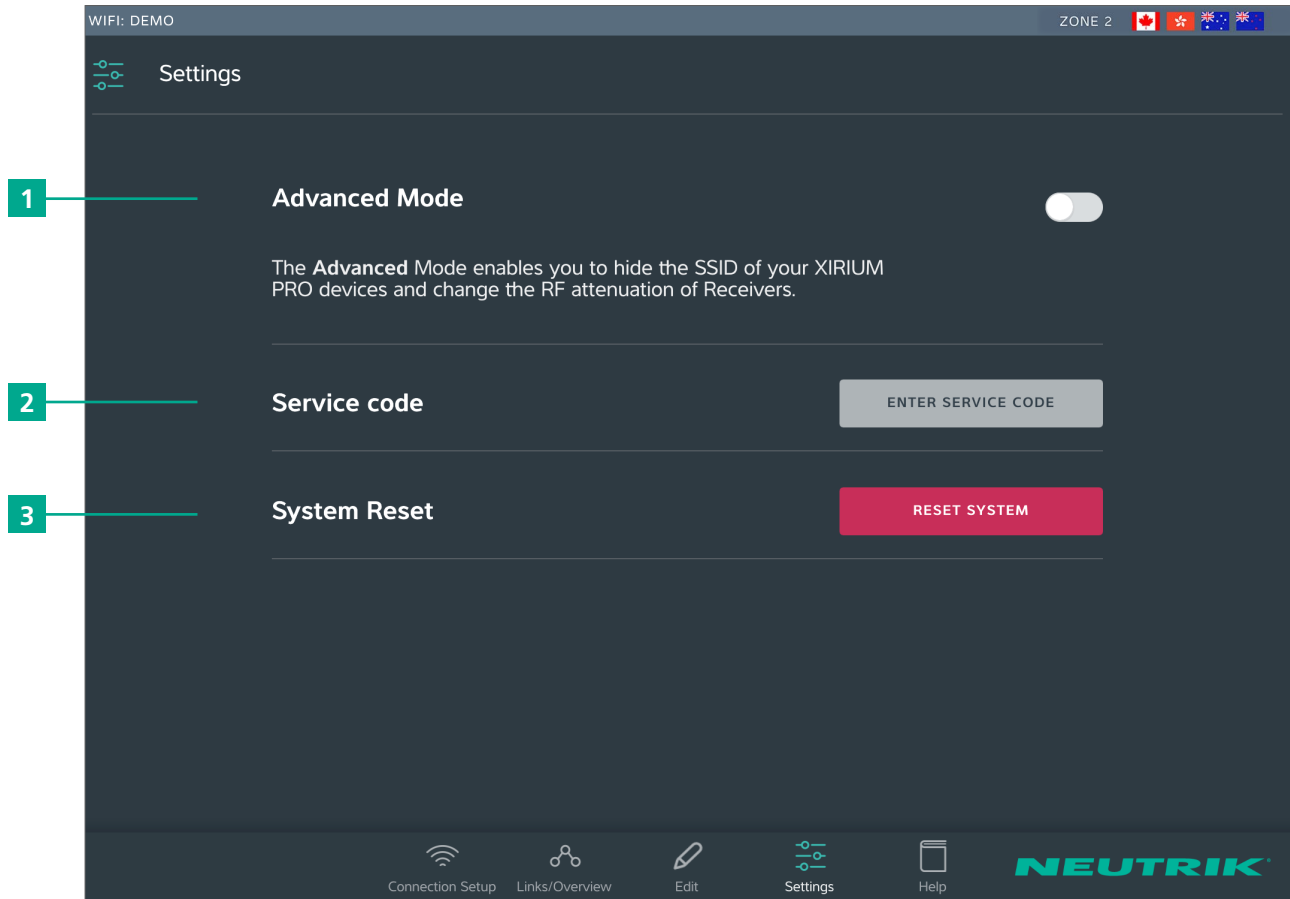| Pos.	Description
1	**Device properties** • Device Type: Indicates that the device is an RX. (for RX with repeater module: RP) • Interface: Indicates the module being used. • Device Temperature: Indicates the temperature of the device (low, ok or high) • Channel: Indicates the channel the device is assigned to. • Battery: Indicates the battery level in %. • XROC: Indicates whether the transmission path of the XROC mode is ON/OFF. • Signal quality: Indicates the signal quality of the signals received from the TX and/or repeater. Signal quality is a combination of RSSI Level and packet loss. • Delay: Indicates the set delay time in milliseconds, feet or meters, or indicates the delay is off.

Pos.	Description
2	**Settable properties** Tapping on a property opens the associated sub-page. • Name: Opens the page for changing the device name. • Audio Delay: Tap the button to activate/deactivate the delay. • Audio Delay Time: Opens the page for setting the delay time. • Mute Audio: Mutes this RX unit • Info & Settings: Opens a page with information about the device.

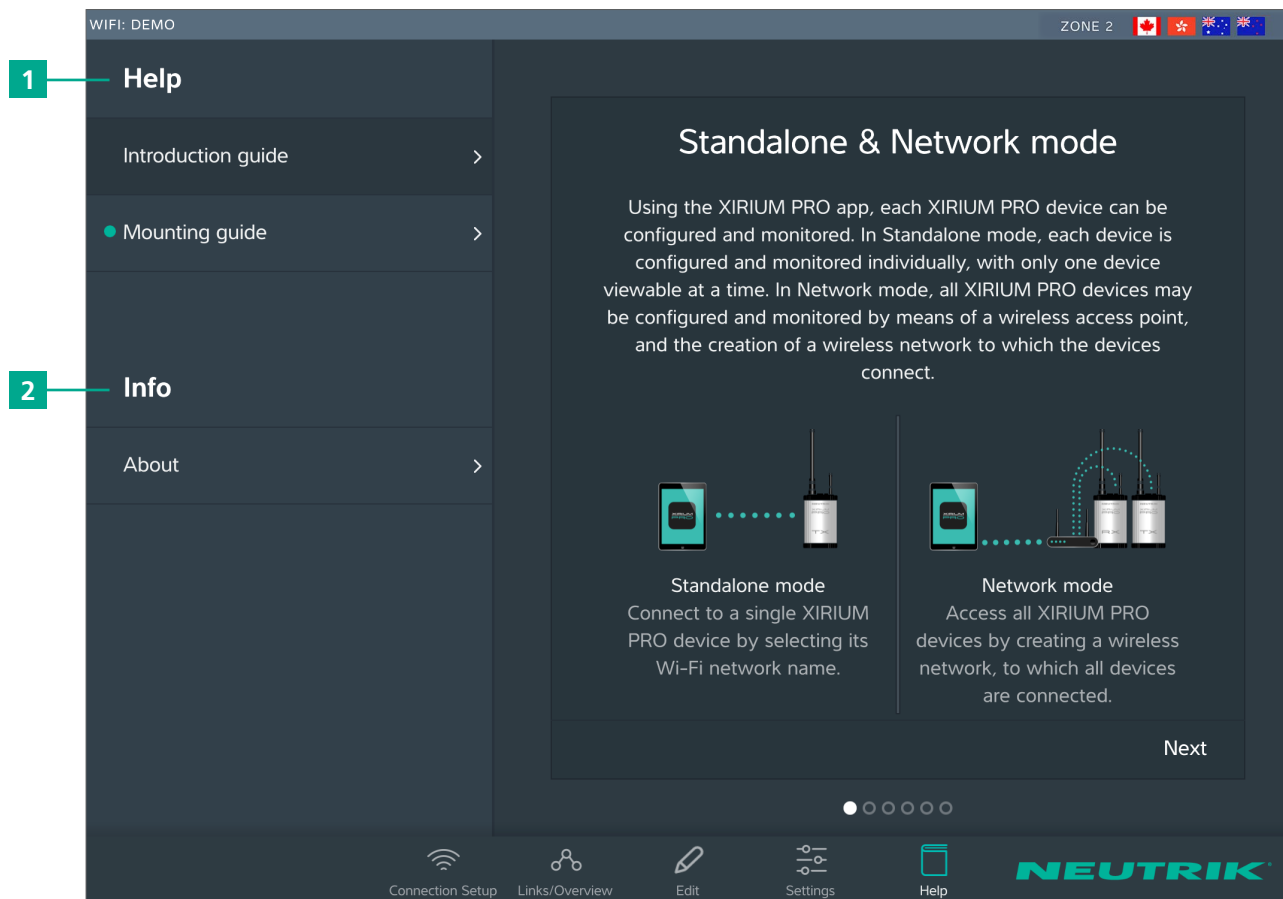ℹ️ In standalone mode the Link button is shown on page Edit. Tapping the Link button links this RX to the TX.

4.3.4 Settings page

Pos.	Description	Pos.	Description
1	**Reset System button** Tapping this button opens a window with reset options.	3	**Reset System button** Tapping this button opens a window with reset options.
2	**Enter service code button** Opens entry field for service code (only for service personnel)		

4.3.5 Help page

Pos.	De scription
1	**Help** Useful information for a proper XIRIUM PRO setup.
2	**Information about the software** Software Version: Version of the installed app. Version Date: Date app was issued

4.4 Getting started

The XIRIUM PRO system makes it possible to replace conventional cable connections between audio sources and audio sinks (referred to in short as "peripheral devices" below) with a robust radio connection.

With just 2 devices, the transmitter (TX) and the receiver (RX), an audio signal can be transmitted quickly and cost-efficiently. The XIRIUM PRO system transfers audio signals (LINE level) as well as digital audio signals (AES or DANTE) in studio quality with an extremely low latency time.

9 channels in the 5 GHz band are available for transmitting the audio signal. Up to two audio signals can be transmitted in one RF channel with no loss to audio quality. The distance between transmitter and receiver can be more than 3200 feet.[1] The actual distance between transmitter and receiver depends on the specific environmental conditions (line of sight, obstacles in the link, reflections, external RF signals, etc.).

Depending on the distance between transmitter and receiver, the transmission power may be manually controlled using the associated app in order to ensure the RSSI level remains in the "green range". In order to be able to establish a connection between TX and RX, the devices must be separated by a distance of at least 10 feet (using 6 dBi antenna and transmission power set to -3 dB).

	Channel	Medium frequency	
UNII-1 band	Ch 36	5180 MHz	Only allowed for **indoor use** with **23 dBm EIRP** (200 mW)[2]
	Ch 40	5200 MHz	
	Ch 44	5220 MHz	
	Ch 48	5240 MHz	
UNII-3 band	Ch 149	5745 MHz	Allowed for **outdoor use** with **36 dBm EIRP** (4 W)[2]
	Ch 153	5765 MHz	
	Ch 157	5785 MHz	
	Ch 161	5805 MHz	
	Ch 165	5825 MHz	

The XIRIUM PRO system has been designed with features to simplify use. Understanding these features will be helpful before the system is put into operation.

[1] This refers to one of the UNII-3 band channels only, since the lower channels of the UNII-1 band have a lower approved transmission power.

[2] The app takes care of the maximum EIRP setting as soon as you choose a different RF channel!

4.4.1 App

The app is the central control interface of the XIRIUM PRO system. Using the app, transmission paths and networks can be created and managed. The app provides information about the current status of the connected devices and transmission paths. The XIRIUM PRO devices can be connected to the app through 2 modes:

Network mode
Several devices connected to the app via an access point.

Stand-alone mode
Only 1 device is directly connected to the app.

> ℹ️ It is highly recommended to choose a 2.4 GHz channel according to prior agreement with event management. Uncoordinated usage of the 2.4 GHz channel may lead to connectivity issues in the 2.4 GHz transmission path due to high traffic. The audio transmission is not affected by the 2.4 GHz transmission path!

4.4.2 Repeater

A "repeater" is an RX equipped with a repeater module. The repeater is used in the following situations:
- Stabilizing transmission paths
  The repeater receives the signal from the TX and transmits a redundant signal to the RX. The redundant signal stabilizes the connection and reduces efferts caused by interferences.
- Overcoming obstacles
  If no line-of-sight connection is possible, obstacles such as walls, glass or even corners can be overcome with the repeater.
- Extending distances
  When a repeater is used, the distance between TX and RX can be doubled.
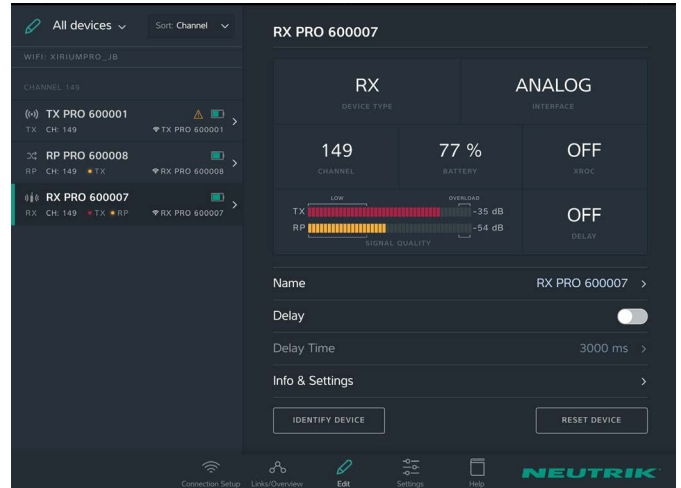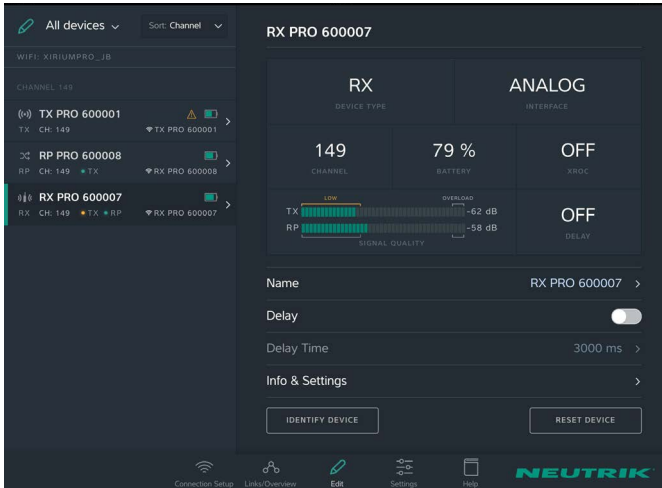
LOW   OVERLOAD

-80   -60   -28   -25

4.4.3 Signal quality bar

The signal quality bar displays both RSSI level and packet loss. The scale of the bar refers to the RSSI level (Received Signal Strength Indicator). It is recommend to have an RSSI level not appearing in the "low" and "overload" area.
The color of the bar displays the packet loss:
- Bar is displayed green: packet loss is low
- Bar is displayed orange: packet loss is critical
- Bar is displayed red: packet loss is high.
  A high packet loss increases the probability of losing audio.

Examples

- RSSI level received from the TX is critical.
- The packet loss received from TX and RP is low.
  We recommend to increase the transmission power of the TX.

- RSSI level received from TX and RX are OK
- The color of the bars indicate a high (TX) and a critical (Repeater) packet loss.
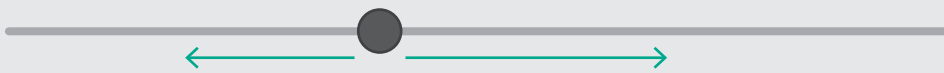 We recommend to relocate the devices and / or change the RF channel.

> **i** An improper RSSI level can be modified by increasing or decreasing the transmission power.

> **i** If the packet loss is high, the position of the devices have to be modified. Double-check if there are other devices operating on the some channel and change the RF channel.

4.4.4 Transmission power

Depending on the application, the transmission power should be adjusted with the app so the RSSI level on the receiver remains in the recommended range. However, the 10-foot minimum distance between the TX/RX must always be maintained. This minimum distance applies when the 6 dBi antenna and a transmission power of -3 dB are used. If the 9 dBi antenna and/or a higher transmission power are used, the minimum distance increases.

SET TRANSMISSION POWER

Decreasing transmission power
In indoor areas and over short distances.

Increasing transmission power
In outdoor areas and over longer distances.

4.4.5 XROC mode

If only 1 audio signal per RF channel is needed, we recommend using XROC mode. XROC stands for "Extreme Ruggedized One Channel". In XROC mode, only 1 audio signal at 6 Mbit/s is available for each RF channel. The connection between the devices is much more stable in XROC mode, because external influences do not interfere with the RF signal between the XIRIUM PRO devices as much. External influences include strong reflections of the RF signal in a room or from buildings, or external signals. The power consumption of the devices is higher in XROC mode.
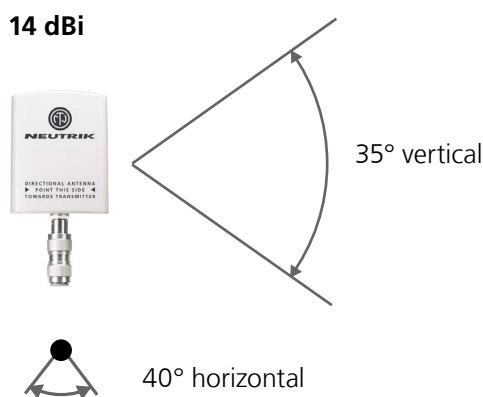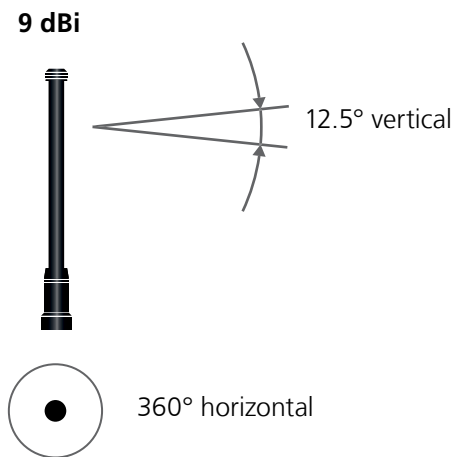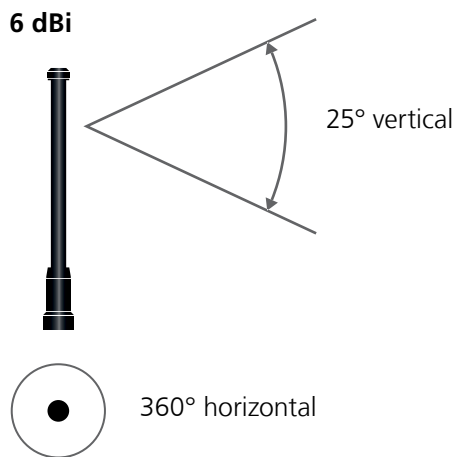
LOW   OVERLOAD

-80   -70   -28   -25

The increase in the performance range is illustrated in the RX signal quality bar, which displays a smaller "low" area when XROC mode is used.

> ℹ If XROC mode is enabled on a TX, only audio channel 1 is being transmitted. Therefore a linked RX will have no audio on channel 2.

4.4.6 Antennas

XIRIUM PRO uses omnidirectional antennas with fixed vertical radiating angles. Neutrik offers two different antennas: the standard 6 dBi antenna, featuring a 25° vertical angle, and an optional 9 dBi antenna with a 12.5° vertical angle.

6 dBi

25° vertical

360° horizontal

9 dBi

12.5° vertical

360° horizontal

14 dBi

35° vertical

For pure receivers Neutrik recommends to use a directional antenna. It helps focusing on the TX signal and avoids disturbances from other systems. There's an N-type adapter provided with the antenna to mount it directly on the device.

40° horizontal

For pure receivers!

2 dBi

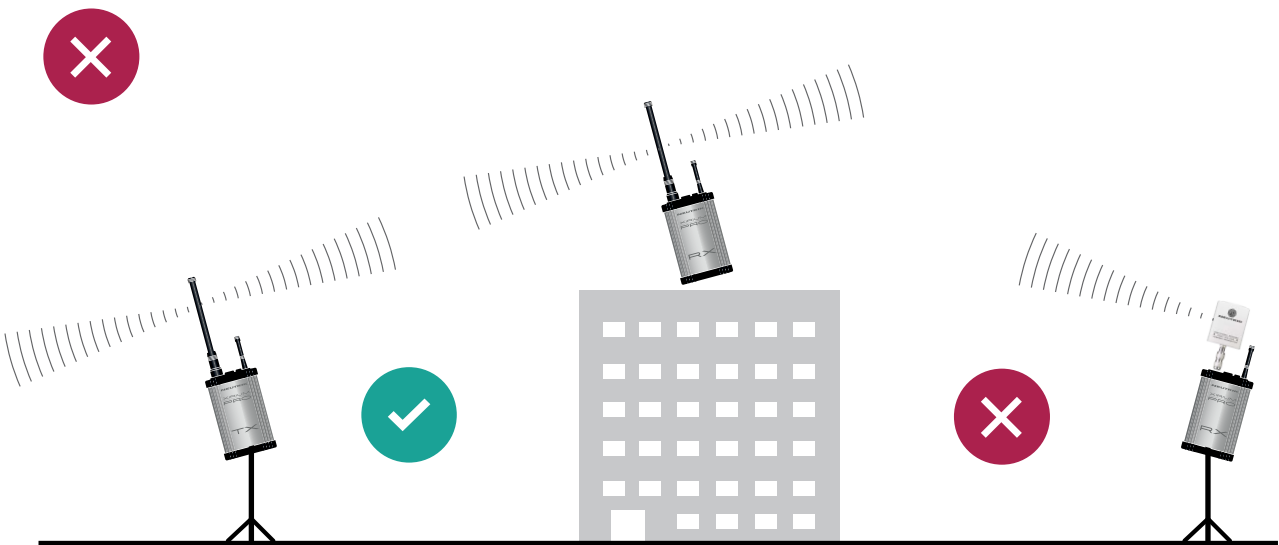360° vertival

360° horizontal

For receiver with a repeater module inserted!

The 2 dBi omnidirectional antenna should be used for applications where a parallel alignment of the TX - RX antenna on the same height can't be established.
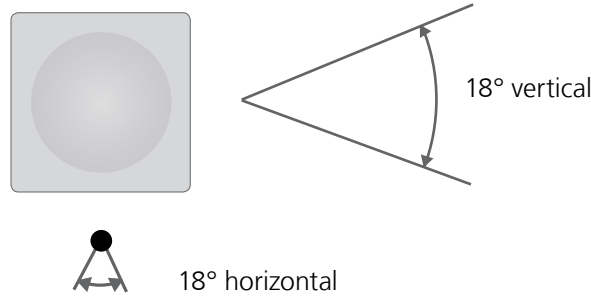Due to a lower antenna gain, the transmission range is less.

Not correct positioning

Correct positioning

4.4.7 Remote antennas

If the 5 GHz antenna and the 2,4 GHz antenna need to be aligned differently in terms of angle, it's advisable to remote the 5 GHz link. For that purpose Neutrik offers an antenna cable (NKXPA-5) with a length of 5 meters and an attenuation of 4 dB. There is also an additional directional antenna available for such applications having a gain of 18 dBi. This antenna must be used only for pure receivers and not for any transmitting device, hence also not for a repeater. Like all other XIRIUM PRO antennas this antenna has a vertical polarization. It is necessary to gear this antenna in the correct angle towards the TX antenna. A correspondent graphical indication can be found on the backside of the antenna.

18 dBi (NXPA-18-18-18)

18° vertical

18° horizontal

For pure receivers as a remote antenna.

4.4.8 Antenna combinations

These are possible antenna combinations for the XIRIUM PRO system:

- common setup
- point-to-multipoint

- NXPA-6-360-25
or NXPA-9-360-12.5

- NXPA-6-360-25
or NXPA-9-360-12.5

- setup with directional antenna on RX
- point-to-multipoint
- Focusing on the TX signal and avoid disturbances from other systems

- NXPA-6-360-25
or NXPA-9-360-12.5

- NXPA-14-40-35

- remote setup on RX
- point-to-multipoint
- different alignment of 2,4 GHz- and 5 GHz antenna required

- NXPA-6-360-25 or NXPA-9-360-12.5
- NKXPA-5
- NXPA-14-40-35
- NKXPA-5
- NXPA-18-18-18

- remote setup on TX + RX
- point-to-multipoint
- Option to mount the antennas outdoor and keep the devices indoor due to temperature reasons (< 0°C / > 50°C)
- Shorter range than with the other setups

ℹ️ For a remote setup of the TX antenna an adapter (NXPA-N-FF) is required.

- NKXPA-5
- NXPA-N-FF
- NXPA-6-360-25 or NXPA-9-360-12.5
- NKXPA-5
- NXPA-14-40-35
- NKXPA-5
- NXPA-18-18-18
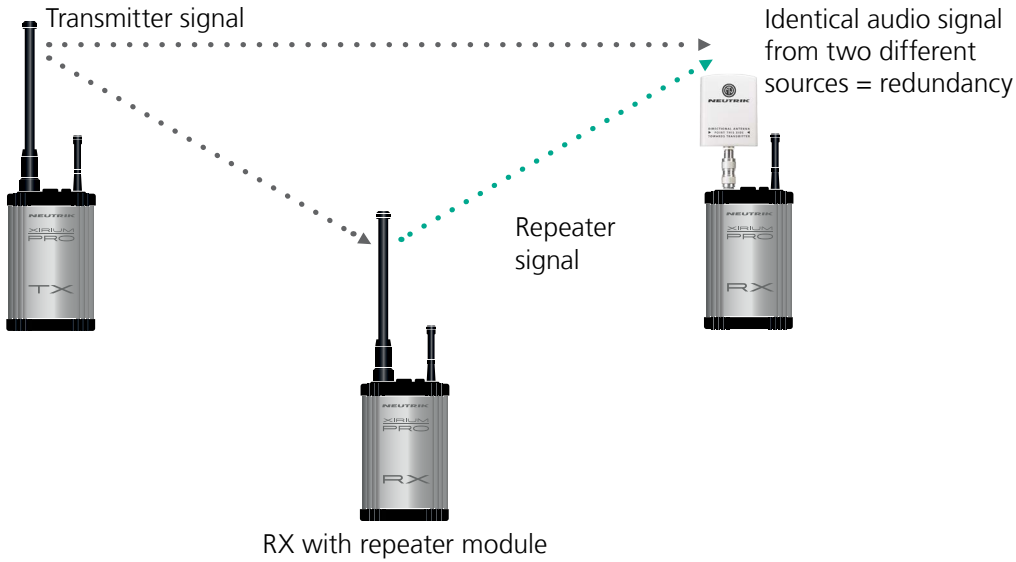
Transmitter

Repeater

Note!

Due to RF regulations it's not allowed to use the directional antennas on a transmitter or repeater!
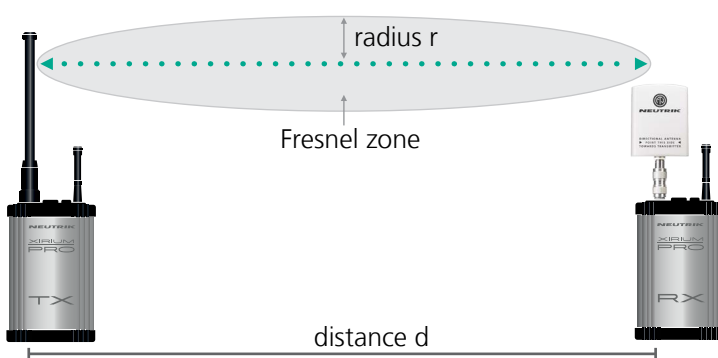
4.4.9 Line-of-sight and redundant RF path

For a reliable wireless audio link, make sure all XIRIUM PRO devices have a line-of-sight connection. If a line-of-sight connection cannot be established, the receiver may be in a drop-out zone. A drop-out zone is a point where phase cancellation occurs between the direct signal and the deflected one. Relocating the transmitter (TX) and/or receiver (RX) can help eliminate this phase anomaly. Using a repeater can also eliminate the problem of the drop out zone. A repeater effectively provides a redundant RF path to all receivers within range. The RX receives identical audio signals from both the transmitter and repeater.

Transmitter signal

Identical audio signal from two different sources = redundancy

Repeater signal

RX with repeater module

4.4.10 Antenna height + distance

Consider the Fresnel zone, which is an ellipsoidal area between wireless devices. For XIRIUM PRO TX and RX devices, there should be no obstacles within the Fresnel zone. Maintaining proper antenna height is essential to ensure trouble-free communication between XIRIUM PRO devices. To define an area that is free of obstacles, use the following chart to estimate proper antenna height.

radius r

Fresnel zone

distance d

distance d	radius r
150 ft	2.7 ft
300 ft	3.8 ft
900 ft	6.6 ft
1500 ft	8.5 ft
3000 ft	12 ft

4.5 Selecting transmission channels

4.5.1 Automatic selection of transmission channels

A TX is assigned to channel 149 by default. If channel 149 is already occupied by a different TX, the device searches for the next free channel. The TX saves the last channel used. When switched on again, the TX uses the last channel used, as long as it is not occupied. If the TX changes the channel, all devices in the transmission path are assigned to the new channel.

4.5.2 Manual selection of transmission channels

The transmission channel can also be manually adjusted with the app. To guarantee a trouble-free process, the app prevents an adjacent channel from being selected. The transmission channel can be changed on the Edit page. More information in Section "Changing the transmission channel" on page 40.