



XIRIUM

DIGITAL WIRELESS AUDIO NETWORK



XIRIUM



DWA
DIGITAL WIRELESS AUDIO

NEUTRIK®

“The sound quality with XIRIUM has been the same as it would have been over a cable.”

Pascal Lehner, Owner, Lehner Acoustik
www.lehner-akustik.com

“Xirium is a cable replacement and a real money saver - after only a few projects the investment for XIRIUM has been payed off.”

Peter Flückiger, Project Manager, tpc ag - technology and production center switzerland ag
www.tpcag.ch



XIRIUM

The Vision – the Technology – the Product

NEUTRIK – the vision

Neutrik, the worldwide leading supplier of professional entertainment connector products, establishes yet another milestone. Today, you can hardly imagine any stage, concert or public event without wireless applications. Therefore, Neutrik undertook intensive research looking into the subject of wireless audio data transmission.

DIWA – the technology

With DIWA (Digital Wireless Audio) Neutrik has developed a technology which stands for digital data transmission without data compression but provides high-level sound quality. Though wireless, the audio signals are transmitted by DIWA in cable quality. As a result no compromise from an audio point of view needs to be made in situations where no cable can be used.

The technical data proves this impressively: 24 bit / 48 kHz sampling, THD (total harmonic distortion) < 0.01% @ 1 kHz, SNR (signal-to-noise ratio) > 105 dB @ 1 kHz (dynamic) and last but not least a very short delay of 3 msec.

Choosing the 5 GHz frequency band eliminated the need for time-consuming approval processes and extensive channel management. A transmission and receiving protocol specifically developed for DIWA as well as patented error correction functions guarantee a robust and noiseless transmission of the data packet and best functionality.

The vision of a wireless transmission system between two connectors and to transmit audio signals in studio quality has been turned into reality by Neutrik with the help of the innovative DIWA technology and the product XIRIUM, a digital, wireless audio network.

XIRIUM – the product

With the digital, wireless audio network XIRIUM, the first product based on the DIWA technology, Neutrik ventures a glimpse into the future. XIRIUM combines digital transmission and receiving lines in one system and delivers highest sound quality, unique reliability and ease of handling.

A 4 channel base unit (XIRIUM TRX) together with mobile transmission (XIRIUM TX) and receiving units (XIRIUM RX) give first access to the XIRIUM network. With an extension unit the network can easily be upgraded to a total of 8 channels. Allocation and the selection of input and output channels are flexibly configurable and allow the versatile use of the network.

The innovative DIWA technology together with the usability and easy handling of the XIRIUM products deliver a unique flexible package that eliminates time-consuming planning and set-up work.

XIRIUM

Eliminate cables keep pure sound



Crystal clear highs and full lows

Full frequency range

DIWA works on the 5 GHz band, this allows the transmission of the full frequency range of 20 – 20 kHz.



Sounds like a cable

No compression

With DIWA (Digital Wireless Audio) Neutrik has developed a technology which stands for digital data transmission without data compression but high-level sound quality. Though wireless, the audio signals are transmitted by DIWA in cable quality.

Impressive technical data

DIWA provides 24 bit / 48 kHz sampling, THD (total harmonic distortion) < 0.01% @ 1 kHz, SNR (signal-to-noise ratio) > 105 dB @ 1 kHz (dynamic) and last but not least a very short delay of 3 msec.



XIRIUM used for measurement purposes

Crosby, Stills & Nash - Europe concert tour

“Just a quick email to let you know about the resounding success the XIRIUM system has been for us so far on the CSN tour. Measurements have been sped up drastically and the Xirium system has been very dependable and robust for our purposes. Thanks Kevin”

Kevin Madigan
www.crosbystillsnash.com

XIRIUM

Robust Transmission

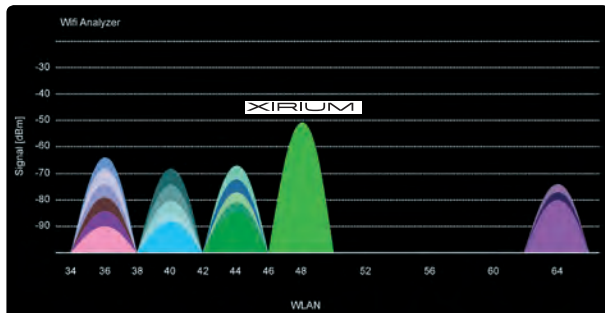
Interference-free transmission

Additional channels

Working on 5 GHz XIRIUM adds wireless connectivity on top of existing UHF channels.

Channel occupation

The constant DIWA data stream avoids interference with users of the 5 GHz frequency band.



Secure operation

Data redundancy

The specifically developed and patented protocol transmits redundant data packages effectively providing robust forward error correction on top of antenna diversity.

Concealment algorithm

Loss of up to 17 data packages without audio skips, delays or drops.

Robustness of XIRIUM confirmed in tough environment

POOLgroup - Mobile World Congress

„I was surprised that XIRIUM worked so perfectly in such an extreme environment and that a stable connection could be set up and kept up.“

Johannes Roesel, Director POOLsound
www.pool.de



XIRIUM

Plug & Play



Ready to use in seconds

Simple as a cable

The devices are linked with a push of a button and ready to go and the memory function allows quick future set-ups.

Hassle-free set-up

The licence-free automatic frequency management eliminates the need of channel request compared to conventional wireless UHF systems.

Saves time and money

Fast amortisation

The investment of XIRIUM pays off after a few projects.
Being a real cable replacement XIRIUM solves awkward and time-consuming cable runs.



XIRIUM is the perfect solution for all kinds of galleries and balconies

MDS PAtec - Sportfreunde Stiller in concert at BMW museum

“XIRIUM brought us ease of work thanks to omitted cable connections over two floors, time saving and thereby more time for other tasks.”

Marco Evert, MDS PAtec
www.mdspatec.com

Flexible audio network

Easily adapted to your need

The XIRIUM network can run up to 8 transmitting or receiving audio channels or even 24 lines in broadcast mode.

Status information and remote control

Due to the exchange of control data, battery status and transmission quality can be monitored.
The XIRIUM configurator allows remote control of the devices.



The toolbox

Standard solution and problem solver

XIRIUM is the toolbox for awkward setup requirements and offers the flexibility to be used in whatever situation you may face.

No cabling through the audience seating area

British Pageant for the LDS Church

“You made it work so successfully at the Pageant, that it stuck in my mind. This first impression of XIRIUM resulted in my SKY Sports enquiry. We’re using it ourselves now and it’s all good!!”

Davie Dion, VME
owner and SKY Senior Television Sound Supervisor

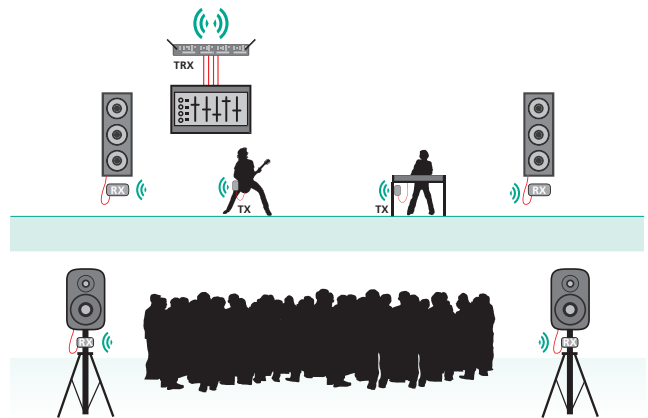


Stage



Quick set-up and reliable operation

Highest reliability yet facilitating rapid set-up and dismantling – this is the fundamental concept of XIRIUM. Conventional signal sources as well as active loudspeakers can be integrated in the set-up without complex wiring.



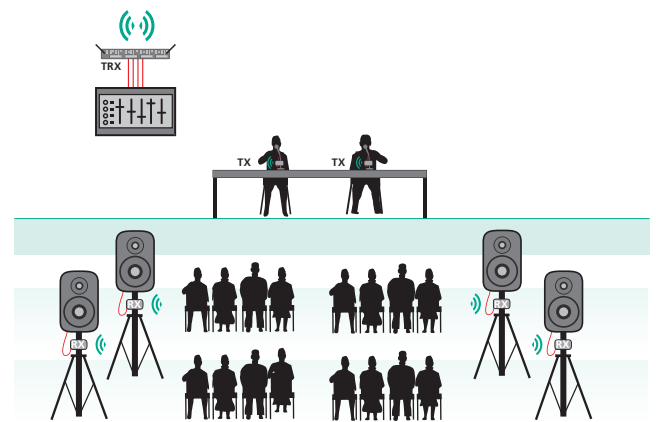
TX – Send RX – Receive

Conference



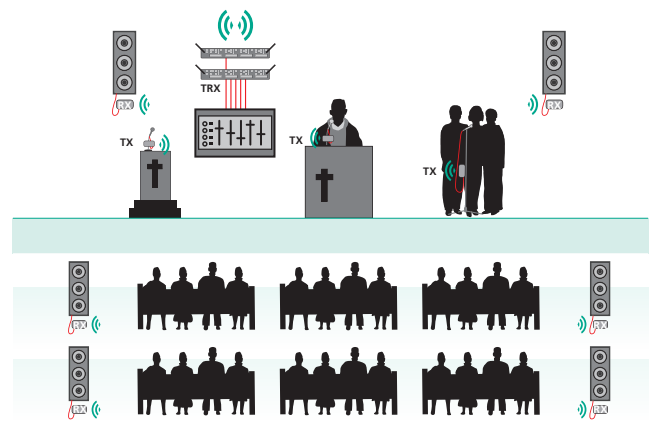
Easy to use and flexible application

Whether a conference, election event or a presentation, the XIRIUM network allows the successful operation of many applications without time-consuming technical planning and set-up work. The flexibility of the system is unique and enables swift and efficient set-ups without complex wiring.



TX – Send RX – Receive

Church



Inconspicuous and yet efficient

In churches or historical buildings post-wiring of an audio system is often not possible or only possible after considerable time-consuming technical effort. In such cases XIRIUM impresses not only with its concept but allows also the integration of microphones and loudspeakers in one system, which is both, easy to handle and efficient.

“The design of the XIRIUM is absolutely suitable for the rental business. It has more than convinced us and we are confident that it will have a future in the rental business where there will be sufficient fields of application.”

Jörg Birrfelder, Technical Director
www.mediarent.ch

“Thanks for the transmission. Good job, good system.”

Bruce Odland
bruceodland.net

“I was very pleased with the performance of XIRIUM during the live broadcast on SKY Sports of the recent Rugby Super League match.”

Davie Dion, VME
owner and SKY Senior Television Sound Supervisor

“Three complex and extremely long distance connections were realized with XIRIUM. The system worked instantly and is a real plug and play solution.”

René Gnann, Owner, LIGHT & SOUND PROJECT
www.light-sound.ch

“One of our goals was to provide a 100 % trip-proof and wheelchair-accessible audience area which we attained with the help of XIRIUM.”

Marco Scandola, CEO
www.scandola.ch

XIRIUM

System Components



Ordering Information

Ordering Information

Type No.	Description	Consisting of
XIRIUM System Components		
NX4TRX	XIRIUM Base Station 4CH	19" access point, 2 rod antennas, power supply, mounting hardware
NX1TX	XIRIUM Remote Transmitter TX	Remote unit, power supply USB
NX1RX	XIRIUM Remote Receiver RX	Remote unit, power supply USB
NX1TX-T	XIRIUM Touring Transmitter TX	Remote unit, power supply MiniXLR, 1 rod antenna
NX1RX-T	XIRIUM Touring Receiver RX	Remote unit, power supply MiniXLR, 1 rod antenna

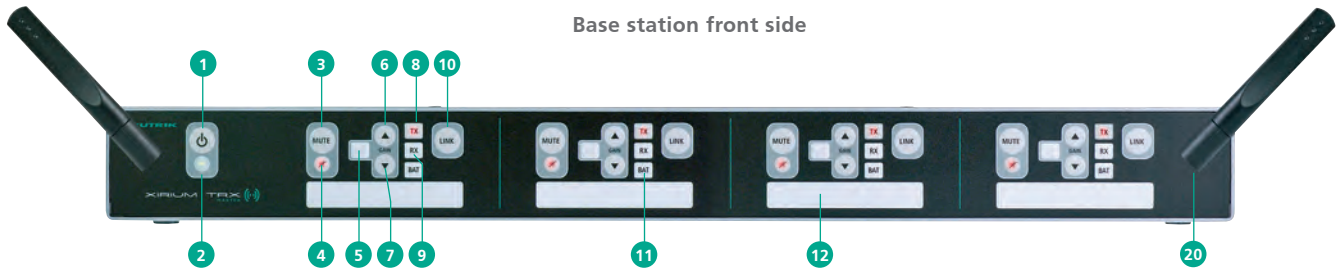
Accessories

NXA-3-360	5 GHz Antenna 3 dBi Omnidirectional (Spare parts)	Antenna
NXA-10-60-55	5 GHz Antenna 10 dBi 60°H 55°V	and cable
NXA-14-40-35	5 GHz Antenna 14 dBi 40°H 35°V	combinations
NXA-10-360-10	5 GHz Antenna 10 dBi, 360°H 10°V, including mounting accessories for NXUC-M-15	see table
NKXA-4.5	Antenna cable RG142, SMA, 4.5 m	below.
NKXA-8	Antenna cable S04162B, SMA, 8 m	
NKXA-12	Antenna cable S04262B, SMA, 12 m	
NKXA-15	Antenna cable S04162B, SMA, 15 m	
NKX-DATA	Data Cable to connect the touring units with a computer (USB to Tiny XLR)	
NPS-10W	Power supply Micro USB 5 V / 2 A	
NPS-10W-T	Power supply XLR Tiny 5 V / 2 A	
NPS-24W	Power supply XLR 12 V / 2 A	
NXBP-T-6	Battery Pack including power supply, cables and mounting accessories for NXUC-M-15	
NKX-MS	Master / Slave link cable	
NXM-20	20 mm stand holder for remote unit	
NXM-35	35 mm stand holder for remote unit	
NXUC-M-15	Manfrotto™ universal mounting clamp	
CAS-NX-ALU	Xirium aluminium case	

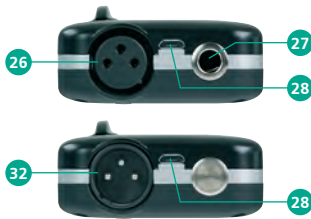
Recommended combinations of antenna and cable

Antenna Type		NXA-10-60-55	NXA-10-360-10	NXA-14-40-35
Cable Type	Cable length (m)			
NKXA-4.5	4.5	●	●	-
NKXA-8	8	●	●	-
NKXA-12	12	-	-	●
NKXA-15	15	-	-	●

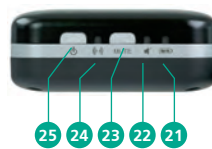
Technical Information



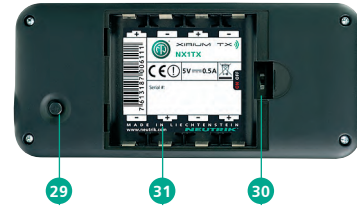
TX and RX remote unit bottom side



TX and RX remote unit front side



TX and RX remote unit rear side



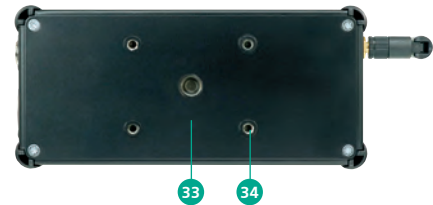
RX Touring remote unit front side



TX Touring remote unit front side



RX / TX Touring rear side



TX Touring unit rear side



Technical Information

Operating element	Function
Base station	
1 Power key	Powers the unit on / off
2 Power LED	Indicates powered unit
3 Mute key	Switches muting on / off
4 Mute LED	Indicates mute status
5 Gain LED	Indicates gain level
6 Gain Up key	Increases the gain in 8 dB steps
7 Gain Down key	Reduces the gain in 8 dB steps
8 TX Link LED	Indicates association to TX unit
9 RX Link LED	Indicates association to RX unit
10 Link key	Starts association process. Press short to see associated remote unit.
11 Battery LED	Indicates battery life of associated remote unit.
12 Title block	Labelling and marking
13 Link switch	Connects adjacent audio channels
14 XLR male OUT	Electrically balanced XLR output
15 XLR Combo IN	Accepts balanced XLR or TRS input
16 Reset switch	Reset base station to factory default
17 RJ45 connector	Connects to computer for remote software operation
18 M / S connector	Interconnects two base stations (Master/Slave)
19 Power supply	DC power input 12V, 1A
20 Antenna connector	Connects antennas
Remote unit	
21 Battery LED	Indicates battery life
22 Mute LED	Indicates association status
23 Mute key	Switches muting on / off
24 Link LED	Indicates mute and phantom power / Hi-Z status
25 Power key	Powers the unit on / off and starts the association process. Press quickly to see associated channel on the base station
26 XLR female IN	Accepts balanced XLR input
27 TRS 1/4" IN	Accepts balanced (TRS) or unbalanced (TS) input
28 DC power input	Accepts DC power adapter
29 XLR lock button	Press to remove XLR cable
30 Phantom HI-Z switch	Switches phantom power on and activates 1/4" connector HI-Z
31 Battery holder	Allows insertion of 4 AA batteries
32 XLR male OUT	Output to destination audio device
33 Mounting bore	M10 mounting bore
34 Mounting bore	M6 mounting bore

Technical Information

XIRIUM – Specifications

General specifications

Radio frequency carrier range	IEEE 802.11a, 5.15-5.25 GHz, channels 36-48, licence-free
Data protocol	proprietary (DIWA technology)
Transmit power	ETSI compliant
Range	Typically 30 m line of sight, up to 300 m point to point Longer range depending on obstacles, reflexions, interferences

Audio Performance (analog to analog per wireless link)

THD + Noise (TX Gain = min.)	< 0.01 % @ 1 kHz, 4 dBu < 0.05 % @ 20 Hz – 10 kHz, 4 dBu
Frequency Response	+0.5 dB / -1.5 dB @ 20 Hz – 20 kHz ref. 1 kHz
Dynamic Range	> 105 dB @ 1 kHz, A-weighted
Crosstalk	< -90 dB @ 20 kHz
Number of audio channels	4 per TRX unit, max. 8 with two linked TRX units
Broadcast mode (RX only)	3 per audio channel (12 per TRX unit)
Converter Resolution (AD & DA)	24 bit
Sampling Rate	48 kHz
Latency (Delay)	3.4 msec
Transmission method	Compression-free, no reduction of converted data
Operating Temperature	0 °C to +50 °C
Storage Temperature	-20 °C to +80 °C

TRX specific characteristics

Antenna	2 x 1/2 wave dipole with SMA male connectors
Diversity	Antenna diversity
Number of audio channels	4 per unit

Analog Input / Output specs:

In- / Output Type	Impedance kΩ	Rated Source / Load kΩ	Nominal dBu	Max. Level dBu	Connector type
Line Input (balanced)	28	1	+4	+22	Combo XLR / TRS
Line Output (balanced)	0.8	10	+4	+22	XLR

Indicators	LEDs:	Mute status, transmission quality level, TX/RX mode, remote battery status
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Controls	Front panel:	On / Off, Mute, TX remote audio gain, Link / Show associated channels
	Rear panel:	Reset, adjacent audio channel links

Interface ports	Remote	Host connection via UDP / IP protocol Master / Slave link between TRX units	etherCON RJ45 12 pole miniCON
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Power Supply	12 V dc
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Max. Current Draw	610 mA
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Dimensions (w x h x d)	432 mm x 46 mm x 237 mm, without protruding antennas
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Weight	3.2 kg
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TX specific characteristics							
Number of audio channels	1						
Remote controlled preamp gain	8 dB steps via TRX frontpanel, 1 dB steps via TRX Remote Software						
Phantom Power (when activated)	48 V dc / 7 mA						
Analog Input specs:							
Input Mode	Input Level						
	Input Imp.	Rated Source Imp.	Sensitivity*	Max.**	Gain	Phantom	Connector
	kOhm	Ohm	dBu	dBu	dB	Switch	type
Line (balanced)	10	1000	-36	+22	0..40		XLR, TRS
Mic (balanced)	2.5	200	-68	+1	21..72		XLR, TRS
Mic Phantom Power (balanced)	2.1	200	-68	+10	12, 20..72	X	XLR
Hi-Z (unbalanced)	2200	150000	-50	+8	10, 18..54	X	TRS
Indicators	LEDs:	Mute status, transmission quality level, TX/RX mode, remote battery status					
Controls	On / Off / Show-channel, Mute, Phantom / Hi-Z enable switch						
Power Supply	4 x 1.2 V (AA) rechargeable batteries (recommended), optional 4 x 1.5 V (AA) / 5 V DC / 2 A via Micro-USB connector						
Continuous operation time	Typically 5.5 h @ rechargeable batteries 2500 mAh (SANYO Eneloop XXX)						
Dimensions (w x h x d)	138 mm x 62 mm x 25 mm (excluding antenna fin)						
Weight	120 g						

TX-T specific characteristics							
Antenna	1 x 1/2 wave dipole with SMA male connectors						
Number of audio channels	1						
Remote controlled preamp gain	8 dB steps via TRX frontpanel, 1 dB steps via TRX Remote Software						
Phantom Power (when activated)	48 V dc / 7 mA						
Analog Input specs:							
Input Mode	Input Level						
	Input Imp.	Rated Source Imp.	Sensitivity*	Max.**	Gain	Phantom	Connector
	kOhm	Ohm	dBu	dBu	dB	Switch	type
Line (balanced)	10	1000	-36	+22	0..40		Combo XLR, TRS
Mic (balanced)	2.5	200	-68	+1	21..72		Combo XLR, TRS
Mic Phantom Power (balanced)	2.1	200	-68	+10	12, 20..72	X	Combo XLR
Hi-Z (unbalanced)	2200	150000	-50	+8	10, 18..54	X	Combo TRS
Indicators	LEDs:	transmission quality, Mute/Phantom power (blinking)/Hi-Z (permanent) status					
Controls	Phantom / Hi-Z enable switch						
Power Supply	5 V DC / 2 A via Mini-XLR connector (4 pole male)						
Dimensions (w x h x d)	168 mm x 78 mm x 41 mm (excluding antenna)						
Weight	400 g						
Optional Accessories	Antenna + cable extension (see page 4)						

Technical Information

RX specific characteristics					
Number of audio channels	1				
Analog Output specs:					
Output Type					
	Output Imp. Ohm	Rated Load Imp. Load kOhm	Nominal dBu	Output Level Max. Level dBu	Connector type
Line Output (balanced)	800	10	-2	+16	XLR
Indicators	LEDs: transmission quality, Mute and Battery status				
Controls	On / Off / Show-channel, Mute				
Power Supply	4 x 1.2 V (AA) rechargeable batteries (recommended), optional 4 x 1.5 V (AA) / 5 V DC / 2 A via Micro-USB connector				
Continuous operation time	typically 5.5 h @ rechargeable batteries 2500 mAh (SANYO Eneloop XXX)				
Dimensions (w x h x d)	138 mm x 62 mm x 25 mm, excluding antenna fin				
Weight	110 g				

RX-T specific characteristics					
Antenna	1 x 1/2 wave dipole with SMA male connectors				
Number of audio channels	1				
Analog Output specs:					
Output Type					
	Output Imp. Ohm	Rated Load Imp. Load kOhm	Nominal dBu	Output Level Max. Level dBu	Connector type
Line Output (balanced)	800	10	-2	+16	XLR
Indicators	LEDs: transmission quality, Mute status				
Power Supply	5 V DC / 2 A via Mini-XLR connector (4 pole)				
Dimensions (w x h x d)	168 mm x 78 mm x 41 mm, excluding antenna				
Weight	400 g				
Optional Accessory	antenna + cable extension (see below)				

Optional Antennas – Linear polarised directional WI-FI antenna			
Frequency band: 5.150 GHz - 5.875 GHz			
Type	NXA-10-60-55	NXA-10-360-10	NXA-14-40-35
Gain	10 dBi	10 dBi	14 dBi
Beam width horizontal	60°	360°	40°
Beam width vertical	55°	10°	35°
Connector	SMA jack	N incl. SMA connector	SMA jack
Dimension (mm)	101 x 80 x 20	24 x 630	101 x 80 x 35
Weight	0.13 kg	0.20 kg	0.11 kg
Operating temperature	-40° C to +80° C	-40° C to +80° C	-40° C to +80° C

Battery Pack	
Energy	33.3 Wh = 6.600 mAh
Operating time	12 h
Operating temperature	0 °C to +50 °C
Dimensions (w x h x d)	155 mm x 62 mm x 29 mm
Weight	254 g

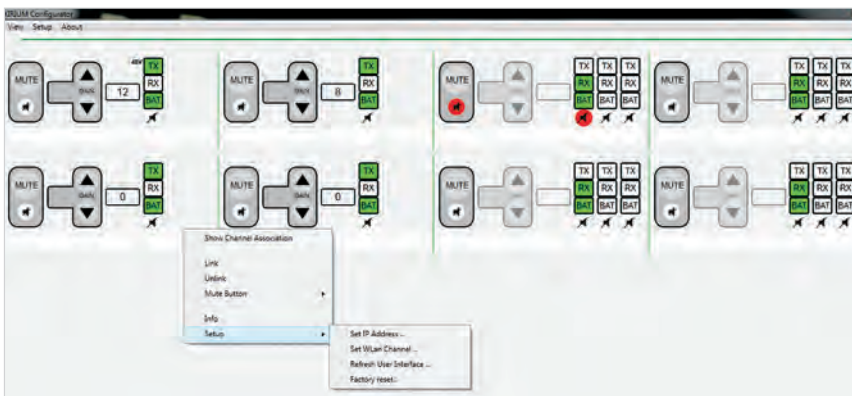
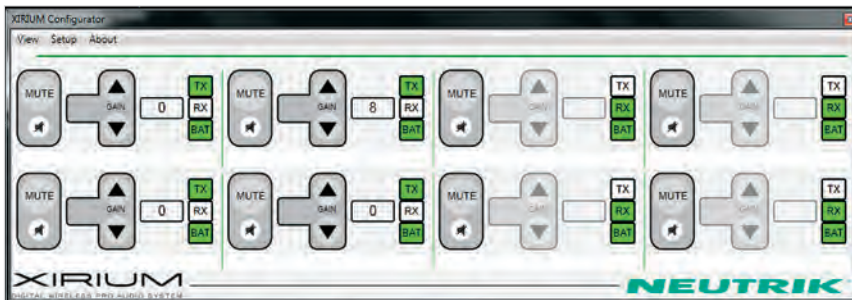
*: Sensitivity corresponds to value where a nominal output voltage is achieved at maximum gain setting.
 **: Maximum input level corresponds to value where almost signal clipping occurs at minimum gain setting.
 0 dBu = 0.775 V rms

XIRIUM Configurator

The XIRIUM Configurator software (Windows only) allows the optional use and configuration of XIRIUM systems via a graphical user interface.

Configuration:	Set up of transmission and receiving channels (link and unlink TX / RX units) Fine adjustment of gain in 1dB steps
Advanced configuration:	IP address assignment WLAN channel selection
Operation:	ON / OFF Mute Gain adjustment

XIRIUM Configurator: Screenshot examples



Free Download of XIRIUM Configurator Software and Manual on the Web “www.neutrik.com” section “XIRIUM”.



XIRIUM

Mounting Examples



NXA-*-60/40* & NXUC-M-15



NXUC-M-15 & NXBP-T-6

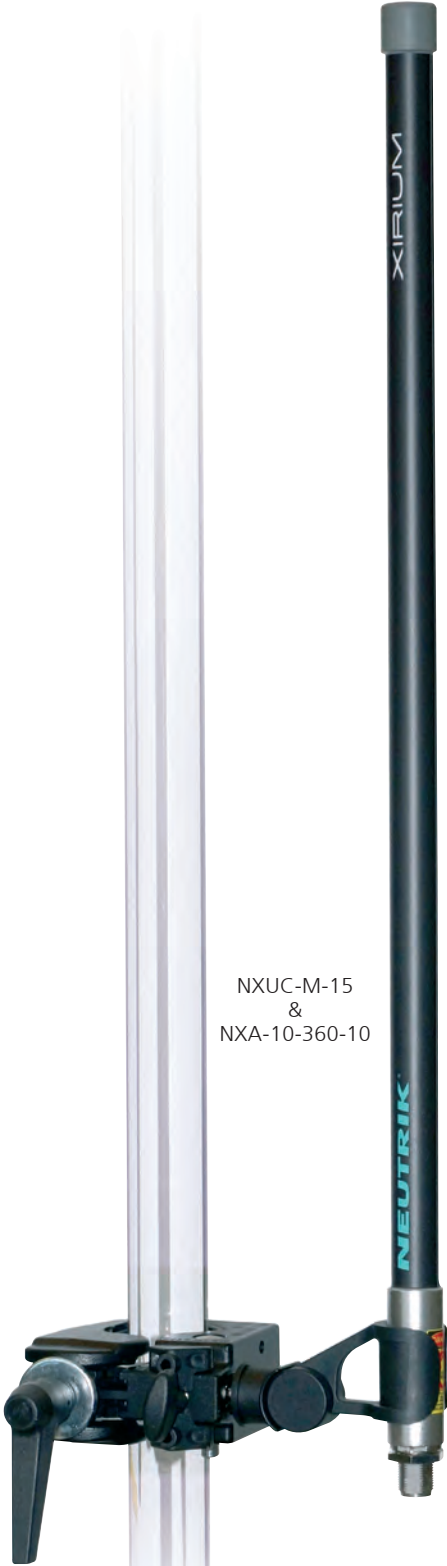
Remote unit & NXM-20



Remote unit & NXM-35



NXUC-M-15
&
NXA-10-360-10



“We were amazed by the performance of the system.”

Stage Electrics
www.stage-electrics.co.uk

“I was thrilled and relieved as I witnessed the quick setup and easy operation of XIRIUM.”

Matthias Pohl, freelancer at SOUNDHOUSE
www.k-o-h-l.com

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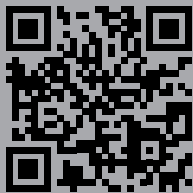
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