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ULX-D® DIGITAL WIRELESS

Shure ULX-D® Digital Wireless offers uncompromising 24-bit audio clarity and extremely efficient RF performance with single, dual, and quad channel receivers for any size professional sound reinforcement application. Generations ahead of any other available system in its class, ULX-D brings a new level of performance to professional sound reinforcement.

Uncompromising Professional Digital Wireless

- 24-bit/48 kHz digital audio that delivers incredibly clear and accurate sound reproduction
- 20 Hz – 20 kHz frequency range with flat response
- Greater than 120 dB dynamic range
- Wide selection of trusted Shure Microphones

Extremely Efficient and Reliable RF Performance

- Up to 64 MHz overall tuning range (region dependent)
- Up to 17 active transmitters in one 6 MHz TV channel (23 on an 8 MHz TV channel)
- High Density mode enables up to 47 active transmitters in one 6 MHz TV channel
- Rock-solid signal stability with no audio artifacts over the entire 100 meter range
- Optimized scanning automatically finds, prioritizes, and selects the cleanest frequencies available

Scalable, Intelligent Hardware

- Single (half-rack), Dual and Quad (full-rack) receiver form factors
- AES 256-bit encryption equipped for secure wireless transmission
- Dante™ digital networked audio over Ethernet
- Wireless Workbench® 6.11.2 compatible for advanced coordination, monitoring and control; features Site Survey tool for scanning frequencies in the 902-928 MHz ISM band
- Compatible with the Shure SB900A Rechargeable Battery and SBC chargers

APPLICATIONS

A/V Production & Rental

Installed Sound

House of Worship

Presentation

PRODUCT HIGHLIGHTS

24-bit/48 kHz Digital Wireless Audio

High Density Mode

Single, Dual, and Quad Channel Receivers

Advanced Rechargeability

Dante™ Networked Audio over Ethernet

Wireless Workbench® 6.11.2 Site Survey Tool

ULX-D® System Specifications

RF Carrier Range	470–932 MHz, varies by region (See Frequency Range and Ouput Power table)
Working Range	100 m (328 ft) Note: Actual range depends on RF signal absorption, reflection and interference.
RF Tuning Step Size	25 kHz, varies by region
Image Rejection	>70 dB, typical
RF Sensitivity	-98 dBm at 10^{-5} BER
Latency	<2.9 ms
Audio Frequency Response	ULXD1: 20 Hz – 20 kHz (±1 dB) ULXD2: 30 Hz – 20 kHz (±1 dB) Note: Dependent on microphone type
Audio Dynamic Range System Gain @ +10	XLR Analog Output: >120 dB, A-weighted Dante Digital Output (Dual and Quad receivers): 130 dB (typical), A-weighted
Total Harmonic Distortion –12 dBFS input, System Gain @ +10	<0.1%
System Audio Polarity	Positive pressure on microphone diaphragm produces positive voltage on pin 2 (with respect to pin 3 of XLR output) and the tip of the 6.35 mm (1/4-inch) output.
Operating Temperature Range	-18°C (0°F) to 50°C (122°F) Note: Battery characteristics may limit this range.
Storage Temperature Range	-29°C (-20°F) to 74°C (165°F) Note: Battery characteristics may limit this range.

Frequency Range

Band	Range (MHz)	Transmitter Output (mW)
G50	470 to 534	1/10/20
G51	470 to 534	1/10/20
G52	479 to 534	1/10
H51	534 to 598	1/10/20
H52	534 to 565	1/10
J50	572 to 636	1/10/20
K51	606 to 670	1/10
L50	632 to 696	1/10/20
L51	632 to 696	1/10/20
P51	710 to 782	1/10/20
R51	800 to 810	1/10/20
JB (Tx only)	806 to 810	1/10
AB (Rx and Tx)	770 to 810	“A” band (770.250-805.750): 1/10/20 “B” band (806.125-809.750): 1/10
Q51	794 to 806	1/10/20
X52	902 to 928	1/10/20
X50	925 to 932	1/10

NOTE:
This Radio equipment is intended for use in musical professional entertainment and similar applications. This Radio apparatus may be capable of operating on some frequencies not authorized in your region. Please contact your national authority to obtain information on authorized frequencies and RF power levels for wireless microphone products.

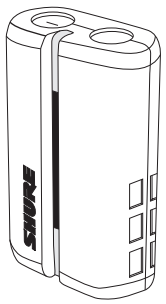
Furnished Accessories

All Systems	
PS41US*	Power supply
95T9279*	1/2 Wave Receiver Antenna (2)
95K2035	2‘ BNC Cable (2)
98A8994	BNC Bulkhead Adapter (2)
90AZ8100	Rackmout Hardware kit
95A16941	5‘ ethernet cable
80B8201	2 x AA batteries (bodypack systems)
Handheld Systems	
95T9279	Microphone Clip (handheld systems)
95B2313	Handheld Zipper Bag (bodypack systems)
Bodypack Systems	
95G9043*	Bodypack Antenna
95A2313	Bodypack Zipper Bag (bodypack systems)

*: region specific part # (US part listed)

Rechargeable Power Management (sold separately)

SB900A Rechargeable Battery
ULX-D transmitters are compatible with the SB900A lithium-ion rechargeable battery, which provides over 12 hours of continuous use and precise tracking of remaining life and charge cycle details.



SBC200 Dual Docking Recharging Station
This compact and portable unit charges batteries while in transmitters or out. Up to 4 SBC200‘s can be chained together to run off one power supply.

SBC800 Eight Battery Recharging Station
This compact and portable unit charges up to 8 SB900A batteries to full capacity within 3 hours, with status LEDs to indicate power levels. SB900A batteries fit securely in the charger for easy, efficient storage and transport.

Battery Runtime

Battery Type	1 mW	10 mW	20 mW
SB900A	>11 hours	>11 hours	>7 hours
Alkaline	<11 hours	<11 hours	<5.5 hours
NiMH	<11 hours	<11 hours	<8 hours
Li-primary	12.5-18 hours	12.5-18 hours	9.5-12 hours

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Component Specifications

ULXD4 Digital Wireless Receiver

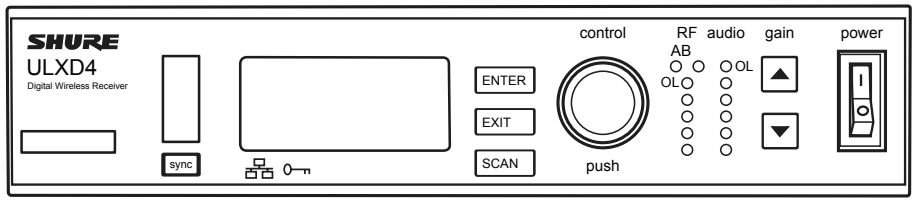
Overview

The Shure ULXD4 is a half-rack wireless receiver for use with ULX-D® Digital Wireless Systems. With an expansive set of professional features, including 24-bit/48kHz digital audio quality, efficient and intelligent RF performance, and AES 256-bit encryption, ULX-D offers uncompromising wireless tailored for professional sound reinforcement.

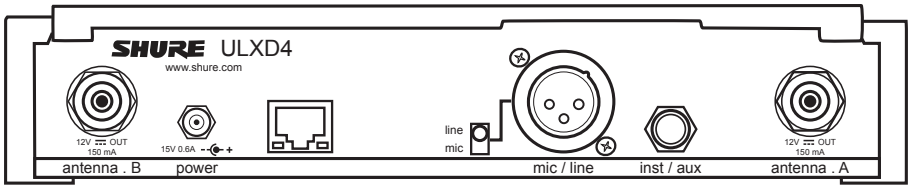
- Up to 64 MHz tuning range
- Predictive switching diversity
- Intelligent scanning automatically finds and deploys the cleanest frequencies to transmitters over IR sync
- Interference detection and alerts provided on both the receiver and WWB6
- Front panel gain adjustment buttons provide up to 60 dB additional gain
- AES 256-bit encryption-enabled for applications where secure transmission is needed
- Ethernet networking for streamlined setup across multiple receivers, WWB6 integration (coming soon), and AMX/Crestron control
- Support for frequency coordination with Axient Spectrum Manager (coming soon)
- Rugged metal chassis
- Intuitive front panel LCD menu and controls
- Easily readableUpgraded LCD with adjustable contrast and brightness
- Audio and RF LED meters with peak indicator
- Front panel lockout
- XLR and ¼" outputs
- Remoteable ½ wave antennas
- Furnished rack hardware

Product Specifications

Dimensions	197 mm x 171 mm x 42 mm (7.75 in. x 6.75 in. x 1.65 in.), H x W x D
Weight	913 g (2.0 lbs), without antennas
Housing	Galvanized Steel
RF Input	
Spurious Rejection	>80 dB, typical
Connector Type	BNC
Impedance	50 Ω
Bias Voltage	12 - 13 V DC, 170 mA maximum, per antenna
Audio Output	
Gain Adjustment Range	-18 to +42 dB in 1 dB steps (plus Mute setting)
Configuration	1/4" (6.35 mm):: Impedance balanced (Tip=audio, Ring=no audio, Sleeve=ground) XLR: Balanced (1=ground, 2=audio +, 3=audio -)
Impedance	1/4" (6.35 mm):: 100 Ω (50 Ω Unbalanced) XLR: 100 Ω
Full Scale Output	1/4" (6.35 mm):: +12 dBV XLR: LINE setting= +18 dBV, MIC setting= -12 dBV
Mic/Line Switch	30 dB pad
Phantom Power Protection	1/4" (6.35 mm): Yes XLR: Yes
Networking	
Power Over Ethernet (PoE)	No, protected
Network Interface	Single Port Ethernet 10/100 Mbps
Network Addressing Capability	DHCP or Manual IP address
Maximum Ethernet Cable Length	100 m (328 ft)



ULXD4 Front Panel



ULXD4 Back Panel

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Component Specifications

ULXD4D Dual Channel Digital Wireless Receiver

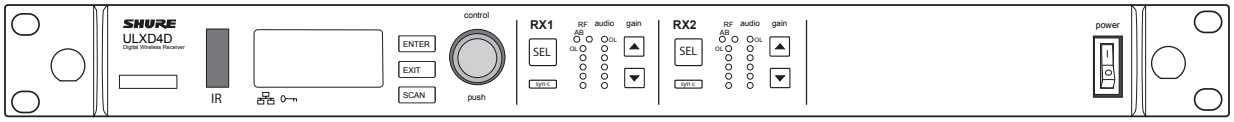
Overview

The Shure ULXD4D Dual Channel Digital Wireless Receiver offers two channels of uncompromising audio quality, RF signal stability, and advanced setup features in a space-efficient single rack unit. Digital wireless processing delivers premium 24-bit/48 kHz audio and RF spectrum efficiencies that dramatically increase the number of available compatible channels. With an expansive set of enhanced features including AES 256-bit encryption for security and Dante™ digital networking for audio over Ethernet, the ULXD4D brings a new level of performance to professional sound reinforcement.

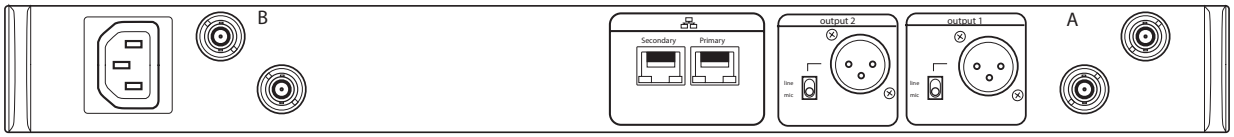
- Two receivers in a rugged 1RU metal chassis with internal power supply
- Individual gain controls, LED meters, and XLR outputs for each channel
- Up to 64 MHz tuning range (region dependent)
- Digital predictive switching diversity
- High Density mode optimizes ULX-D systems to simultaneously operate significantly more channels in applications up to 30 meters
- RF cascade ports allow distribution of RF signal to another unit
- Optimized scanning automatically finds, prioritizes, and deploys the cleanest
- frequencies to transmitters over IR sync
- Bodypack Frequency Diversity ensures uninterrupted audio for mission-critical applications
- AES 256-bit encryption-enabled for secure transmission
- Audio summing routes both audio channels to each XLR receiver output
- Dante™ digital networked audio over Ethernet
- Up to 60 dB independently adjustable gain for each channel
- Ethernet networking for streamlined frequency coordination and deployment across multiple receivers
- Wireless Workbench® 6 (WWB6) software integration for advanced coordination, monitoring, and control
- Interference detection and alerts provided on both the receiver and WWB6
- AMX/Crestron control
- AXT600 Axient™ Spectrum Manager compatible
- Intuitive front panel LCD menu and controls with lockout feature
- Audio and RF LED meters with peak indicator
- XLR connectors with switchable mic/line output level
- Remoteable ½ wave antennas

Product Specifications

Dimensions	44 mm x 482 mm x 274 mm (1.73 in. x 18.97 in. x 10.79 in.), H x W x D
Weight	3.36 Kg (7.4 lbs), without antennas
Housing	Steel; Extruded Aluminum
Power Requirements	100 to 240 V AC, 50-60 Hz, 0.26 A max.
RF Input	
Spurious Rejection	>80 dB, typical
Connector Type	BNC
Impedance	50 Ω
Bias Voltage	12 - 13 V DC, 150 mA maximum, per antenna
Audio Output	
Gain Adjustment Range	-18 to +42 dB in 1 dB steps (plus Mute setting)
Configuration	XLR: Balanced (1=ground, 2=audio +, 3=audio -)
Impedance	100 Ω
Full Scale Output	LINE setting= +18 dBV, MIC setting= -12 dBV
Mic/Line Switch	30 dB pad
Phantom Power Protection	Yes
Networking	
Network Interface	Dual Port Ethernet 10/100 Mbps, 1 Gbps
Network Addressing Capability	DHCP or Manual IP address
Maximum Ethernet Cable Length	100 m (328 ft)
Cascade Output	
Connector Type	BNC: For connection of 1 additional receiver
Configuration	Unbalanced, passive
Impedance	50 Ω
Insertion Loss	0 dB



ULXD4D Front Panel



ULXD4D Back Panel

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Component Specifications

ULXD4Q Quad Channel Digital Wireless Receiver

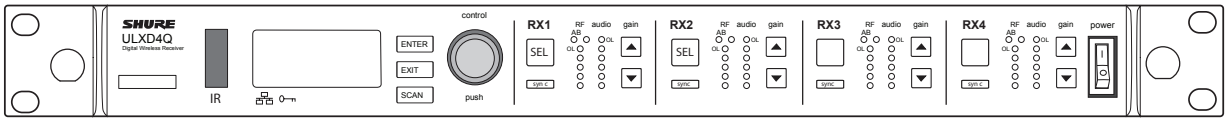
Overview

The Shure ULXD4Q Quad Channel Digital Wireless Receiver offers four channels of uncompromising audio quality, RF signal stability, and advanced setup features in a space-efficient single rack unit. Digital wireless processing delivers premium 24-bit/48 kHz audio and RF spectrum efficiencies that dramatically increase the number of available compatible channels. With an expansive set of enhanced features including AES 256-bit encryption for security and Dante™ digital networking for audio over Ethernet, the ULXD4D delivers the most wireless performance per square inch.

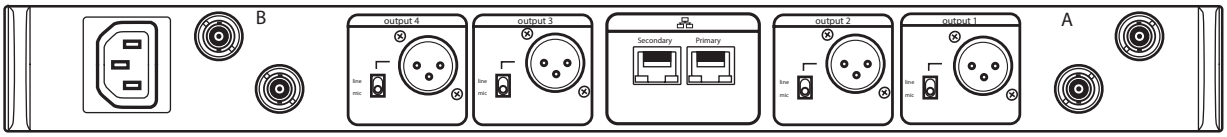
- Four receivers in a rugged 1RU metal chassis with internal power supply
- Individual gain controls, LED meters, and XLR outputs for each channel
- Up to 64 MHz tuning range (region dependent)
- Digital predictive switching diversity
- High Density mode optimizes ULX-D systems to simultaneously operate significantly more channels in applications up to 30 meters
- RF cascade ports allow distribution of RF signal to another unit
- Optimized scanning automatically finds, prioritizes, and deploys the cleanest frequencies to transmitters over IR sync
- Bodypack Frequency Diversity ensures uninterrupted audio for mission-critical applications
- AES 256-bit encryption-enabled for secure transmission
- Audio summing routes two or more audio channels to combinations of receiver outputs. Use each channel's gain adjustment to reach the desired mix.
- Dante™ digital networked audio over Ethernet Two receivers in a rugged 1RU metal chassis with internal power supply
- Individual gain controls, LED meters, and XLR outputs for each channel
- Ethernet networking for streamlined frequency coordination and deployment across multiple receivers
- Interference detection and alerts provided on both the receiver and WWB6
- Up to 60 dB independently adjustable gain for each channel
- Wireless Workbench® 6 software integration for advanced coordination, monitoring, and control AMX/Crestron control
- Compatible with the AXT600 Axient™ Spectrum Manager
- Intuitive front panel LCD menu and controls with lockout feature
- Upgraded LCD with adjustable contrast and brightness
- Audio and RF LED meters with peak indicator
- Switchable mic/line output level
- Remoteable ½ wave antennas

Product Specifications

Dimensions	44 mm x 482 mm x 274 mm (1.73 in. x 18.97 in. x 10.79 in.), H x W x D
Weight	3.45 Kg (7.6 lbs), without antennas
Housing	Steel; Extruded Aluminum
Power Requirements	100 to 240 V AC, 50-60 Hz, 0.32 A max.
RF Input	
Spurious Rejection	>80 dB, typical
Connector Type	BNC
Impedance	50 Ω
Bias Voltage	12 - 13 V DC, 150 mA maximum, per antenna
Audio Output	
Gain Adjustment Range	-18 to +42 dB in 1 dB steps (plus Mute setting)
Configuration	XLR: Balanced (1=ground, 2=audio +, 3=audio -)
Impedance	100 Ω
Full Scale Output	LINE setting= +18 dBV, MIC setting= -12 dBV
Mic/Line Switch	30 dB pad
Phantom Power Protection	Yes
Networking	
Network Interface	Dual Port Ethernet 10/100 Mbps, 1 Gbps
Network Addressing Capability	DHCP or Manual IP address
Maximum Ethernet Cable Length	100 m (328 ft)
Cascade Output	
Connector Type	BNC: For connection of 1 additional receiver
Configuration	Unbalanced, passive
Impedance	50 Ω
Insertion Loss	0 dB



ULXD4Q Front Panel



ULXD4Q Back Panel

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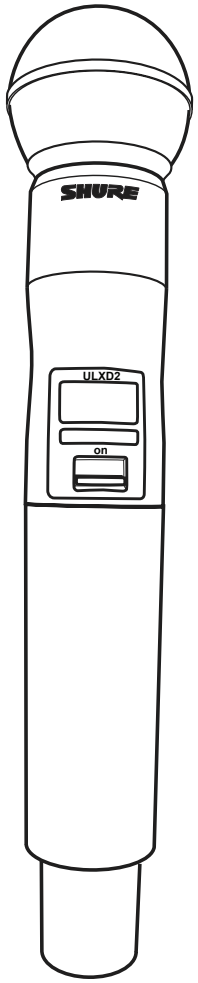
Component Specifications

ULXD2 Wireless Handheld Transmitter

Overview

The Shure ULXD2 is a handheld wireless transmitter compatible with ULX-D® Digital Wireless Systems. Offering premium 20 Hz – 20 kHz audio quality, advanced rechargeability options, and a wide selection of interchangeable Shure microphone heads, the ULXD2 delivers uncompromising wireless performance for professional sound reinforcement applications. The ULXD2 is offered with SM58®, SM86, SM87A, Beta 58A®, Beta 87A, and Beta 87C.

- 30 Hz to 20 kHz range with flat frequency response (actual response is microphone dependent)
- Interchangeable Shure microphone cartridges, including the legendary SM58®
- >120 dB dynamic range
- 1, 10, and 20 mW selectable RF output power
- 5 segment battery fuel gauge
- Shure lithium-ion rechargeable battery pack provides up to 12 hours of battery life, precision metering, and zero memory effect
- Up to 11 hours continuous use with 2 x AA batteries
- Backlit LCD with easy to navigate menu and controls
- 100 meter (300 ft) operating range
- Rugged metal construction
- Frequency and power lockout



ULXD2
Wireless Handheld Transmitter

Product Specifications

Gain Offset Range	0 to 21 dB (in 3 dB steps)
Battery Type	Shure SB900A Rechargeable Li-Ion or LR6 AA batteries 1.5 V
Battery Runtime @ 10 mW	Shure SB900A: >11 hours Alkaline: 11 hours See Battery Runtime Chart
Dimensions	256 mm x 51 mm (10.1 in. x 2.0 in.) L x Dia.
Weight	340 g (12.0 oz.), without batteries
Housing	Machined aluminum
Audio Input	
Configuration	Unbalanced
Maximum Input Level 1 kHz at 1% THD	145 dB SPL (SM58), typical Note: Dependent on microphone type
Preamplifier Equivalent Input Noise (EIN) System Gain Setting ≥ +20	120 dBV, A-weighted, typical
RF Output	
Antenna Type	Integrated Single Band Helical
Occupied Bandwidth	<200 kHz
Modulation Type	Shure Proprietary Digital
Power	1 mW, 10 mW, 20 mW See Frequency Range and Ouput Power table, varies by region

Microphone Options

ULXD2/SM58	ULXD2 Handheld Transmitter with SM58® Cardioid Microphone
ULXD2/SM86	ULXD2 Handheld Transmitter with SM86 Cardioid Microphone
ULXD2/SM87A	ULXD2 Handheld Transmitter with SM87A Supercardioid Microphone
ULXD2/BETA 58	ULXD2 Handheld Transmitter with Beta®58A Supercardioid Microphone
ULXD2/BETA 87A	ULXD2 Handheld Transmitter with Beta®87A Supercardioid Microphone
ULXD2/BETA 87C	ULXD2 Handheld Transmitter with Beta®87C Cardioid Microphone
ULXD2/KSM9	ULXD2 Handheld Transmitter with KSM9 Dual-Pattern Condenser Vocal Microphone
ULXD/KSM9HS	ULXD2 Handheld Transmitter with KSM9HS Dual-Pattern Condenser Vocal Microphone
ULXD2/K8B	ULXD2 Handheld Transmitter with KSM8 Dualdyne™ Dual-Diaphragm Cardioid Dynamic Microphone (Black)
ULXD2/K8N	ULXD2 Handheld Transmitter with KSM8 Dualdyne™ Dual-Diaphragm Cardioid Dynamic Microphone (Nickel)

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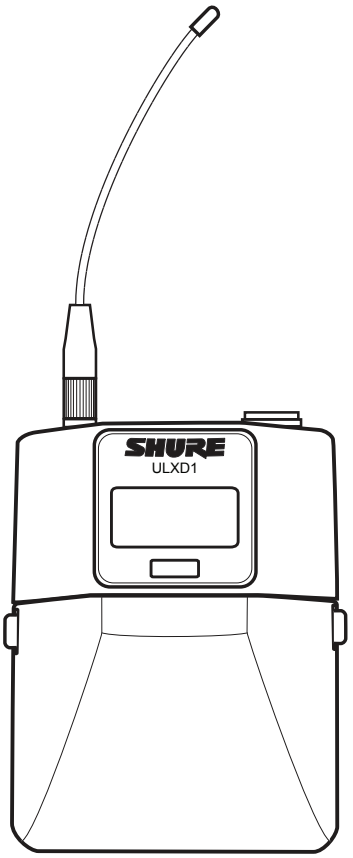
Component Specifications

ULXD1 Wireless Bodypack Transmitter

Overview

The ULXD1 is a wireless bodypack transmitter compatible with ULX-D® Digital Systems. With a rugged yet lightweight aluminum case, the ULXD1 delivers uncompromising audio quality and RF performance, AES 256-bit encryption for secure transmission, and advanced rechargeability options for professional sound reinforcement applications.

- 20 Hz to 20 kHz range with flat frequency response (actual response is microphone dependent)
- AES 256-bit encryption-enabled for applications where secure transmission is needed
- >120 dB dynamic range
- 1, 10, and 20 mW selectable RF output power
- 5 segment battery fuel gauge
- Shure lithium-ion rechargeable battery pack provides up to 12 hours of battery life, precision metering, and zero memory effect
- Up to 11 hours continuous use with 2 x AA batteries
- Backlit LCD with easy to navigate menu and controls
- Available with TA4M and LEMO3 input connectors
- 100 meter (300 ft) operating range
- Rugged metal construction
- Frequency and power lockout



ULXD1
Wireless Bodypack Transmitter

Product Specifications

Gain Offset Range	0 to 21 dB (in 3 dB steps)
Battery Type	Shure SB900A Rechargeable Li-Ion or AA batteries
Battery Runtime @ 10 mW	Shure SB900A: >11 hours Alkaline: 11 hours
Dimensions	86 mm x 66 mm x 23 mm (3.4 in. x 2.6 in. x 0.9 in.) H x W x D
Weight	142 g (5.0 oz.), without batteries
Housing	Cast aluminum
Audio Input	
Connector	4-Pin male mini connector (TA4M) LEMO3 connector
Configuration	Unbalanced
Impedance	1 MΩ
Maximum Input Level 1 kHz at 1% THD	Pad Off: 8.5 dBV (7.5 Vpp) Pad On: 20.5 dBV (30 Vpp)
Preamplifier Equivalent Input Noise (EIN) System Gain Setting ≥ +20	120 dBV, A-weighted, typical
RF Output	
Connector	SMA
Antenna Type	1/4 wave
Impedance	50 Ω
Occupied Bandwidth	<200 kHz
Modulation Type	Shure Proprietary Digital
Power	1 mW, 10 mW, 20 mW See Frequency Range and Ouput Power table, varies by region

Microphone Options (see catalog for more)

WL93	WL93 condenser capsule, omnidirectional lavalier mic
WL183	WL183 condenser capsule, omnidirectional lavalier mic
WL184	WL184 condenser capsule, supercardioid lavalier mic
WL185	WL185 condenser capsule, cardioid lavalier mic
WL50	WL50 condenser capsule, omnidirectional lavalier mic
WL51	WL51 condenser capsule, cardioid lavalier mic
SM31FH	SM31FH condenser capsule, moisture repellant cardioid headset mic
SM35	SM35 condenser capsule, cardioid headset mic
WCM16	WCM16 condenser capsule, hypercardioid headworn mic
WBH53	WBH53 condenser capsule, omnidirectional headworn mic
WBH54	WBH54 condenser capsule, supercardioid headworn mic
WB98H/C	WB98H/C condenser capsule, cardioid instrument clip mic

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