X2 Digital Wireless Systems

Digital UHF Wireless System
Model XDS95
Users Guide

Includes easy setup instructions for single and multi-system operation

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Introduction to the XDS95 Digital UHF Wireless

Created specifically for performing and recording musicians who demand to be untethered without compromising their sound, the XDS95 24-bit digital wireless system delivers your tone and performance with the sound and feel of a direct wire connection.

X2's proprietary digital technology provides superior fidelity while the XDS95's "stomp-box" style receiver houses a micro-processor that selects the digital data stream from among the four internally mounted Q-diversity™ antennas to eliminate dropouts and interference including DTV. You'll enjoy the sound and performance of a direct wire connection free from compander ICs - and the associated 'pumping' and 'breathing' - that squash your tone, as well as other problems associated with analog wireless technology.

Operating the system is unlike any wireless you've tried before. Simply connect the transmitter to the source via the 1/8" threaded-collar locking connector and the "stomp-box" style receiver to your amplifier, mixer or pedal-board. Then power up making sure the transmitter and receiver are set to the same channel. That's it. You're ready to go! No knobs to adjust and no antennas to loose or break mean you're up and running in the time it would take to connect a cable.

About the XDS95 Digital Wireless System
All of this sound and performance is provided to you with an incredible feature set including:
• 24-bit digital converters yield 117 dB dynamic range
• Frequency Clear™ 900 MHz UHF means no FCC or DTV concerns
• Q-Diversity™ receiver eliminates dropouts, multipathing and interference
• Five user-selectable channels (all five are fully compatible for simultaneous use)
• Auto-DigiScan™ to confidently select an open channel
• Frequency response all the way down to 10 Hz for truly thundering lows
• TRS 1/4" output for instrument and full-bandwidth, or 'tuner out' applications
• Five segment LED display (battery status, link status, audio level, RF level and channel)

With the XDS95 Digital UHF Wireless System you'll have the freedom and sound to deliver your most expressive performance every time without any hassles or complicated setup procedures.

To familiarize you with your new digital wireless system, we suggest that you read through this entire operation manual.
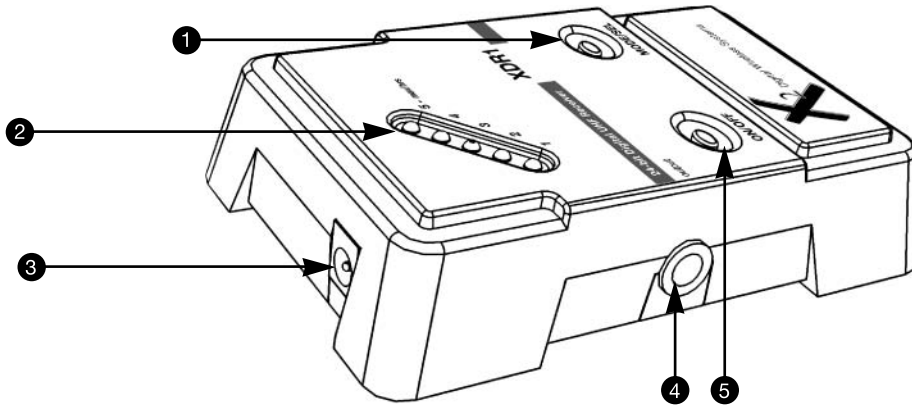
System Components
System includes:
• XDR1 Digital UHF Receiver
• XDT1 Digital UHF Transmitter
• 2 9v Alkaline Batteries
• XC1 1/4" to 1/8" locking connector instrument cable

Optional Accessories (not included):
• XAC2 (9V DC 100mA power supply for XDR1 - **PSA120 type**)
• XC2 1/4" to 1/8" cable (premium Canare wire w/Neutrik & Switchcraft ends)
• XC3R Right-angle 1/4" to 1/8" cable (premium Canare wire w/Neutrik & Switchcraft ends)
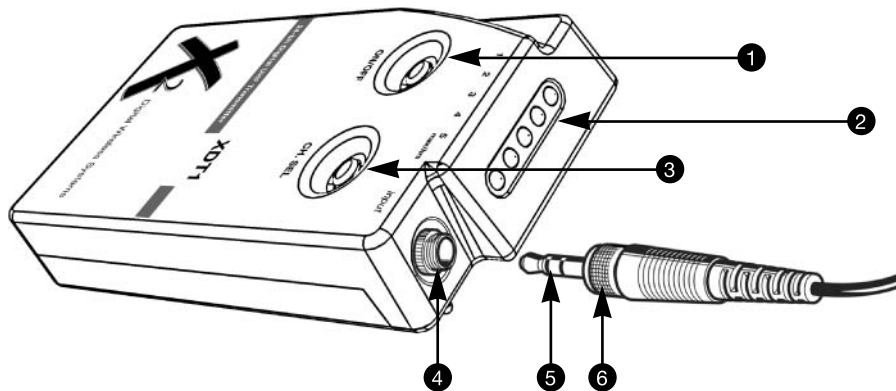
XDS95 Digital UHF System Features

XDR1 Digital UHF Receiver

1 Mode/Channel Select Button
See system setup on page 3.

2 LED Display
See system setup on page 3.

3 AC Adapter Jack
9V DC 100mA.

4 1/4" TRS Output Socket
*Signal is as follows: tip= instrument, ring= full-bandwidth, sleeve= ground.

5 Power Switch

XDT1 Digital UHF Transmitter

1 Power Switch

2 LED Display
See system setup on page 4.

3 Channel Select Switch
See system setup on page 4.

4 Threaded Input Jack Socket

5 Jack Plug
Insert jack plug into jack socket.
*Cable polarity is as follows: ring (+), sleeve (-), tip (open).

6 Threaded Sleeve
Secure the 1/8" jack plug in place by screwing down the threaded sleeve onto the socket threads approximately two turns.
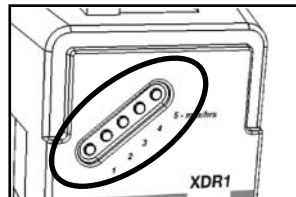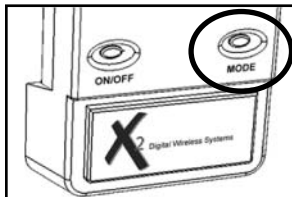
Setting Up Your Receiver

Power Up Procedure

Press on/off button to turn unit on. LEDs will cycle blue-red-blue on power up sequence. Once unit is powered on the unit will display current channel number with a blue LED and battery life with a red led.

The unit will automatically scan for your digital RF signal. This is indicated by the blue LEDs cycling back and forth 1-5 then 5-1. After each cycle, the unit will stop on the current red batt life LED then blink the current blue channel LED. The unit will stay in this mode until a transmitter is turned on and transmitting on the same channel. Once the link is established and the receiver is receiving data, the unit will display current channel number with a blue LED and battery life with a red LED by continually toggling between the two LEDs.
As the user inputs audio into transmitter and sends it to the receiver unit, the LEDs on the receiver become an audio level indictor. Blue LEDs are displayed from left to right as the audio level increases. After a few seconds pause in audio input the unit switches back to channel/battery display mode.
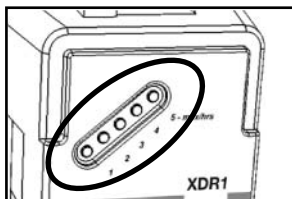
Channel Selection

There are 5 different frequency channels which you can choose to transmit and receive data, they are labeled 1-5 on both transmitter and receiver. In order to operate on any one of these channels, you must have both the transmitter and receiver on the same channel number. In order to change the receive frequency, push the channel button. The unit will then increment and display the channel number with a blue LED each time the user presses the button down. Continue this until the desired channel number is reached. The unit will then go back to the mode displaying battery life and channel number.

Receiver Battery Metering

The battery is displayed on the receiver as follows: LED #5 (furthest to the right looking at the front of the unit) means 5hrs or greater of batt life remaining. As the battery expires the unit will change the red LEDs to #4 for 4hrs, #3 for 3hrs, etc.. Once the unit has less than 1hr left of battery life the #1 LED will then blink at a high rate until the battery expires. This alerts the user to the need of battery replacement.

Power Down Procedure

To turn the unit off press and hold the on/off switch until the LEDs flash a red/blue alternating pattern then release the on/off button the unit will then power down. All LEDs off indicate power down is complete.

Setting Up Your Transmitter

Power Up Procedure

Press on/off button to turn unit on. LEDs will cycle blue-redblue on power up sequence.Once unit is powered on the unit will display current channel number with a blue LED and battery life with a red led by continuously toggling between the two LEDs.

As the user inputs audio into the unit the LEDs automatically become an audio level indictor where blue LEDs are displayed from left to right as the audio level increases. LED #5 will light red during audio display if the units input reaches a maximum level. After a few seconds pause in audio input the unit switches back to channel/battery display mode.

Channel Selection

There are 5 different frequency channels which you can choose to transmit and receive data, they are labeled 1-5 on both transmitter and receiver. In order to operate on any one of these channels, you must have both the transmitter and receiver on the same channel number. In order to change the transmit frequency push the channel button, the unit will then increment and display the channel number with a blue LED each time the user presses the button down. Continue this until the desired channel number is reached. The unit will then go back to the toggling LED mode to display battery life and channel number.
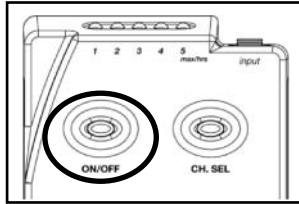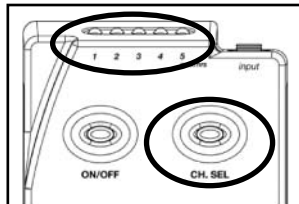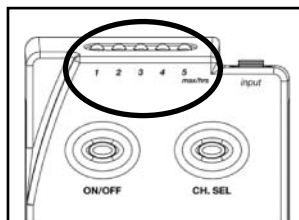
Transmitter Battery Metering

The battery is displayed on the transmitter as follows: LED #5 (furthest to the right looking at the front of the unit) means 5hrs or greater of battery life remaining. As the battery expires the unit will change the red leds to #4 for 4hrs, #3 for 3hrs, etc.. Once the unit has less than 1hr left of battery life the #1 LED will then blink at a high rate until the battery expires. This alerts the user to the need of battery replacement.

Power Down Procedure

To turn the unit off press and hold the on/off switch until the LEDs flash a red/blue alternating pattern then release the on/off button. The unit will then power down. All LEDs off indicate power down is complete.

Connecting the System

Plug your instrument into the transmitter with the provided cable. Next, connect the output of the receiver to the input of your effects pedal, amplifier, recording device, etc.. When using a standard 1/4" (mono) cable, the receiver will output audio signal optimized for instrument applications. When using a stereo 1/4" (TRS) cable, the tip sends instrument out, the ring sends full-bandwidth signal. This can be used as a 'tuner out' or 'direct out' for interfacing with a variety of devices. PLEASE NOTE: when using 'full bandwidth' for typical instrument/amplifier setups there will be a noticeable increase in high frequency response. High frequencies are not boosted by the system, rather, they are allowed to 'pass through'.

Additional Information

Multi-system Operation

Up to five systems can operate simultaneously. In situations where it is necessary to have more than one person wireless, each transmitter and receiver combination must be set to the same channel. Set the first system to transmit and receive on channel 'one', the second system to transmit and receive on channel 'two'... and so on.

DigiScan™ Special Receiver Power Up Mode

While holding down the channel select button on the receiver, push the on/off button and release. Continue to hold the channel select button until the LEDs are all solid red. Then release the channel select button. The unit will now do a RF scan on all 5 frequencies. While in this mode the receiver will continue to scan and report. If the channel has no RF signal then a blue LED will light for the corrosponding channel number. If there is currently RF in the channel the LED will be red. Blue LEDs mean channel is clear, red means the channel is not clear. To monitor RF signal strength, you must first select the desired channel then power off. Power up as above, then press the channel select button one more time. If there is currently RF in the channel, red LEDs will light left to right showing signal strength (min. to max.). To enter regular operating mode push and hold down the on/off button until the unit enters the normal mode.

Optimizing Your Wireless Performance

Place the receiver on or near the desired amplification system, pedalboard or with your effects pedals. FOR BEST RESULTS, PLACE RECEIVER HIGH ABOVE ANY OBSTRUCTIONS, as the system works best when transmitter and receiver are in line of sight.

Battery Life Information

Fresh Alkaline batteries should last about ~12 hours in the XDT1 and ~8 hours in the XDR1, NiCad rechargeable batteries will only last about 4.5 hours. Standard batteries are not recommended. THE BATTERY HOUR DISPLAY WILL ONLY BE ACCURATE FOR ALKALINE BATTERIES. The battery life is calculated inside the each component and displayed in 1 hour increments. Upon power up the battery info will take about one minute to stabilize, the battery gauge is then accurate within + or - 30 min. You may use batteries until they are completely drained without affecting the performance of the unit in any way.

Warranty Information

X2 will repair or replace any defective system within the first two years free of charge. X2 will cover 2-day return shipping costs in the continental United States. This warranty is transferrable, but does not cover abused systems. Terms and conditions subject to change without notice. Please retain a copy of your dated sales receipt for proof of warranty status should repairs become necessary.

Warning:

Changes or modifications not expressly approved in writing by X2 Corporation may void the users authority to operate this equipment.

This device complies with part 15 of the FCC rules. 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.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numerique de la classe B est conforme a la norme NMB-003 du Canada.

Troubleshooting

Symptom	Cause	Solution
No sound	System not turned on. Improper connection or improper channel selection.	Check that the system is powered on. Check that the transmitter and receiver are set to the same operating channel. Check that the receiver is receiving data. Check that the source is operating correctly. Check that the receiver displays audio level. Check connections.
Intermittent sound or distorted sound	Improper source performance. Improper connection. Multiple transmitters are set to the same operating channel. Transmitter has gone out of range. Transmitting through metal wall. Unknown source of RF in local vicinity.	Check source. Check connections. Turn your transmitter off. Check to see if receiver still displays data being received. If so, locate and either turn off or switch channels on extra transmitter. Adjust receiver positioning closer to transmitter. Check that other local communication systems are not interfering with your performance. They will most likely be within close proximity to receiver.

Refer All Servicing to X2

We believe that the XDS95 is one of the most reliable wireless systems that can be made using current technology, and should provide years of trouble-free use. However, should problems occur, DO NOT attempt to service the unit yourself. Service on this product should only be performed by X2. THERE ARE NO USER SERVICEABLE PARTS INSIDE.

Obtaining Repair Service

Before contacting X2, check over all your connections, and make sure you've read the manual. Your X2 dealer may be able to offer further assistance. If the problem persists, call X2 at 916-779-1040 and request the customer service department. Talk the problem over with one of our technicians; if necessary, you will be given a return authorization (RA) number and instructions on how to return the unit. All units must be shipped prepaid and COD shipments will not be accepted. For prompt service, indicate the RA number on the shipping label. Tape a note to the top of the unit describing the problem, include your name and phone number where X2 can contact you if necessary, as well as instructions where you want the system returned. X2 will pay for 2nd-day shipping back to you on any repair covered under the terms of this warranty.

Service address for customers in the USA:
X2 Digital Wireless Systems
4630 Beloit Drive, Suite 20
Sacramento, CA 95838
(916) 779-1040

Specifications

Overall System Specifications

Transmission Format:	X2 proprietary digital audio transmission
Frequency Response:	10 Hz - 12 kHz
Audio Dynamic Range:	>117 dB
Distortion:	0.03% THD
RF Carrier	Frequency: 902 MHz to 928 MHz, FSK
Selectable Frequencies:	Five
RF Output Power:	10mw
Audio Output Level:	Unity gain with transmitter input
Polarity:	Positive voltage at input yields positive voltage at output
Operating Range:	>150 feet line-of-sight (may vary due to local conditions)
FCC Approval:	Part 15 approved, no user-license required
RF Exposure Statement:	This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.
Operating Temperature Range:	–18° to +57° C (0° to +135° F)

XDR1 Receiver Specifications

D/A Conversion:	24-bit Delta Sigma, 128 times over sampling
Output:	2.12V RMS (Unbalanced: 1.8KΩ)
Connectors:	1/4" Unbalanced TRS output, tip= instrument voicing, sleeve= full bandwidth
LED Display:	Five segment - operating channel, battery life, audio level meter, plus a unique Scan mode
Controls:	Power On/Off, Channel/Mode Select
Dimensions:	3.078" W x 1.17" D x 4.7" H
Power Requirements:	9V DC via battery or PSA120 type power supply
Battery Life:	Switching power supply ~8 hours (9V Alkaline)
Weight:	.45 lbs (with 9v battery installed)
Construction:	Polycarbonate (same material as bullet-proof glass)

XDT1 Transmitter Specifications

A/D Conversion:	24-bit Delta Sigma, 128 times over sampling
Input Impedance:	1.3 MΩ
Connectors:	1/8" unbalanced locking connector
Controls:	Power On/Off, Channel Select
LED Display:	Five segment - operating channel, battery life, audio level meter
Dimensions:	2.4" W x .66" D x 4" H
Battery Life:	Switching power supply, ~12 Hours (9V alkaline)
Weight:	.25 lbs (with 9V battery installed)
Construction:	Polycarbonate (same material as bullet-proof glass)

June 2007