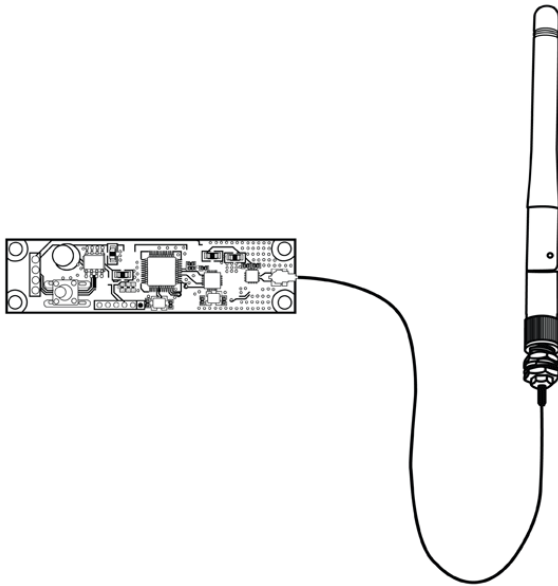
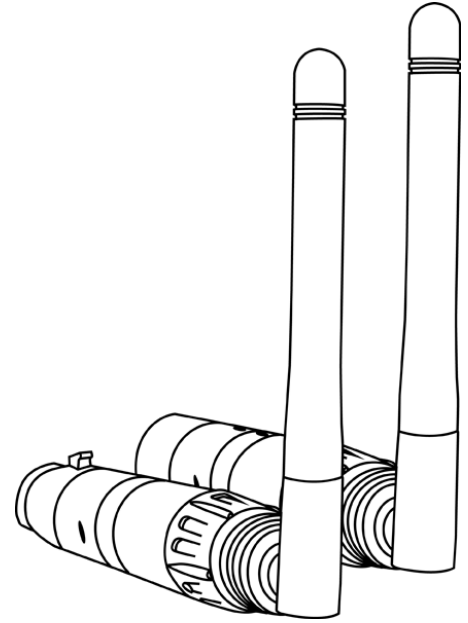
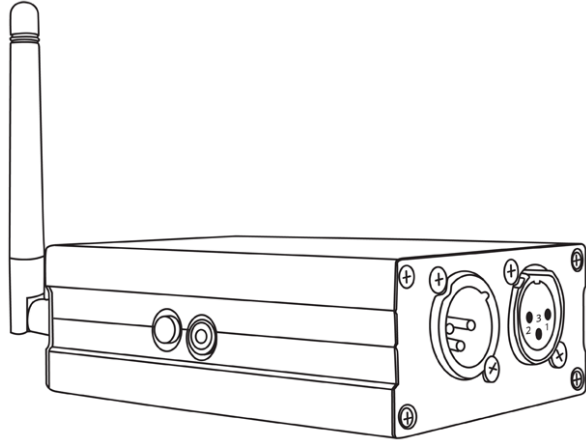


Wtlx512 Wireless DMX Transceivers



Information specifically for:

| | |
|----------------|----------------------|
| AC-WTLX512/X5M | XLR-Male 5pin |
| AC-WTLX512/X5F | XLR-Female 5pin |
| AC-WTLX512/X3M | XLR-Male 3pin |
| AC-WTLX512/X3F | XLR-Female 3pin |
| AC-WTLX512/B | Standalone Black Box |
| AC-WTLX512/PK | PCB w/Antenna |

This manual contains important information.
Please read before operating fixture.

IMPORTANT INFORMATION

Save original packing and documentation for warranty, service and return issues.

Limited Warranty: This warranty covers defects or malfunctions in this equipment. This warranty lasts for a period of one year from date of purchase. It is the owner's responsibility to provide invoices for proof of purchase, purchase date and dealer or distributor. If purchase date cannot be provided, warranty period will start at manufacture date. It is the sole discretion of Techni-Lux to repair or replace parts or equipment. Purchaser will pay all shipping. This warranty does not cover lamps, fuses, belts, power semiconductors, relays, cleaning, standard maintenance adjustments or normal wear items or any problem resulting from the following: improper wiring, incorrect voltage (including low or over voltage conditions and lightning), abuse, misuse, improper maintenance or an act of God or damage resulting from shipping. Warranty will be invalid if the product is altered, modified, misused, damaged, or subjected to unauthorized repairs. Lamps are covered by relevant manufacturer warranty. This warranty gives you specific legal rights, and you may have other rights, which vary from state to state. Any liability for consequential and incidental damages is expressly disclaimed. No other warranty, expressed or implied is made. Techni-Lux liability in all events is limited to, and shall not exceed, the purchase price paid.

Returning equipment and Repairs: All returns must be accompanied by a Return Merchandise Authorization (RMA) number and sent pre-paid. Contact the dealer or Techni-Lux directly to obtain an RMA. The RMA number must be clearly listed on the shipping label. Due care must be exercised in packing all merchandise to be returned. All repairs must be accompanied by a written explanation of the claimed problem or error encountered. Techni-Lux is solely responsible for determining a product's eligibility for coverage under warranty. If returning for consideration of credit, all accessories and documentation, original protective material and cartons must be included and the equipment, packing and carton must be in new resalable condition. Credit for returned merchandise will be issued at the lowest current price and is subject to a restocking fee. No returns accepted on discontinued items. Techni-Lux is not responsible for merchandise damaged in transit and reserves the right to refuse any return that is damaged by the carrier, not accompanied by a Return Authorization Number (RMA#) or sent by freight collect.

Claims: All claims must be made within seven (7) days of receipt of merchandise. Any physical damage must be reported to carrier upon receipt of merchandise.

Please record the following information for future reference:

Model Number: _____

Serial Number: _____

Dealer: _____

Date of Purchase: _____

www.Techni-Lux.com
10900 Palmbay Drive
Orlando, FL 32824 U.S.A.

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Specifications

- Regenerated Signal: START Code, Channel Number, Period, Refresh, Break & MAB.
- Adaptive Frequency Modulation and Hopping for strong anti-interference capability.
- Single Button Setup and Full Color Status LED.
- True Plug and Play:
 - Auto Linking between Transmitter and Receivers.
 - Auto Switching between Transmit and Receive.
- 6 selectable wireless Group ID able to operate in the same space at the same time.
- Unlimited Receivers per Transmitter.
- 2.4GHz Global open ISM band: License Exempt Use.
- Range: 2000' (600 m) Line of Site
- FCC, CE and RoHS Certified.
- 1 Year Limited Warranty.
- Available in 5-Pin and 3-Pin XLR, Male or Female, PCB w/pin header

Physical (excluding power supply)

AC-WTLX512/X#x XLR

| | | |
|---------------------|--------------------|-----------------------|
| Antenna straight: | 0.7" x 0.7" x 8.5" | (1.8 x 1.8 x 21.6 cm) |
| Antenna set @ 90°: | 0.7" x 3.6" x 5.5" | (1.8 x 9.0 x 14 cm) |
| Weight (w/antenna): | 7.4 oz | (210 g) |

AC-WTLX512/B Standalone Black Box

| | | |
|---------------------|--------------------|------------------------|
| Size: | 4.1" x 3.0" x 1.4" | (104.5 x 76 x 35.5 cm) |
| Weight (w/antenna): | 7.8 oz | (222 g) |

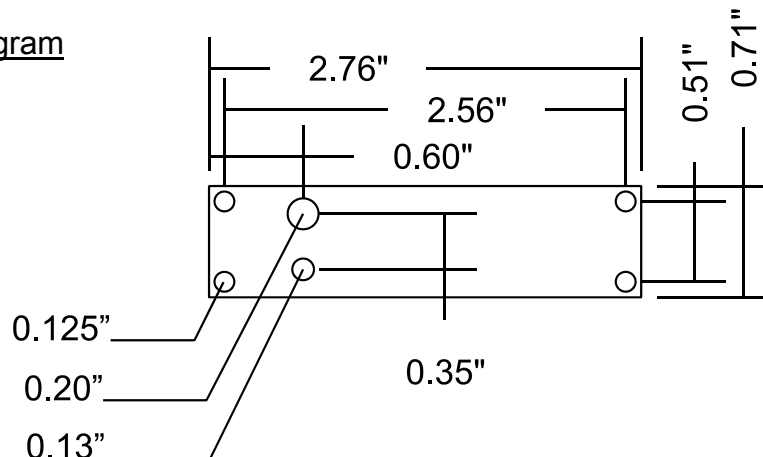
AC-WTLX512/PK PCB w/Antenna

| | | |
|------------------------|-----------------------|-------------------|
| Printed Circuit Board: | 2.76" x 0.71" x 0.39" | (70 x 18 x 10 cm) |
| Weight (w/antenna): | 0.64 oz | (18 g) |

PCB Jumper/Connector Pin Out

| | |
|----------------|---------------|
| Pin 1 – Black | Ground |
| Pin 2 – White | Data Negative |
| Pin 3 – Yellow | Data Positive |
| Pin 4 – Red | +Vdc |

PCB Mounting Diagram



Electrical

Power: 5.0 Vdc \pm 5%, 350 mA Maximum
Connector: Coaxial DC Power: 3.5 mm OD x 1.3 mm ID
Polarity: Center Positive
PCB Power: Pin header (see "DATA" for pin out)

Data

Signal: USITT DMX512, DMX512/1990, DMX512-A
Data I/O: 3-Pin M/F or 5-Pin M/F XLR (Cannon) or Wire
PCB Data I/O: Pin Header:
Pin 1 – Black Ground
Pin 2 – White Data Negative
Pin 3 – Yellow Data Positive
Pin 4 – Red +Vdc

Radio

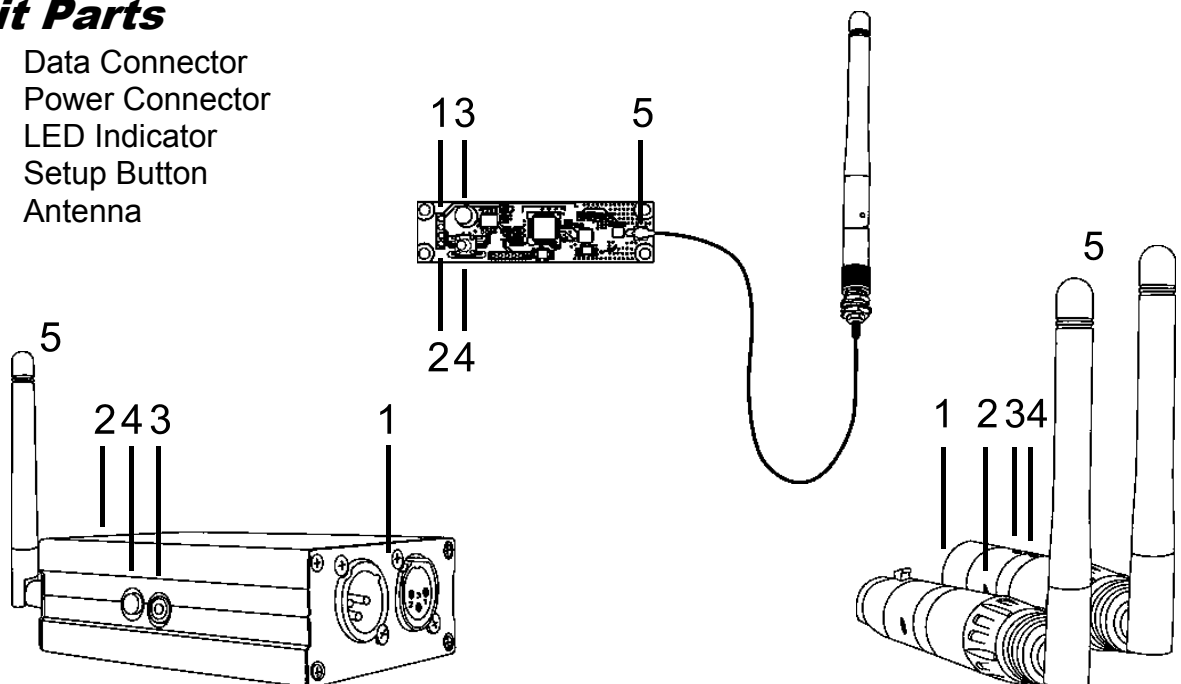
Transmit Power: 200 mW Maximum (23dBm)
Receive Sensitivity: -94dBm
Frequency: 2.4020 to 2.4800 GHz, ISM, 79 RF Channels
Modulation: GFSK
Range: 2000' line of site (600 m)
Antenna Connector: SMA Female (Models with removable antenna)

Environmental

Protection: IP50
Operating: -40 to 185°F (-40 to 85°C)
Storage: -67 to 255°F (-55 to 125°C)
Humidity: 5 to 95% RH, Non-Condensing

Unit Parts

1. Data Connector
2. Power Connector
3. LED Indicator
4. Setup Button
5. Antenna



Unpacking

Immediately upon receipt, carefully unpack and inspect items to verify all parts are present and received in good condition. If any part appears damaged from shipping or the shipping carton shows signs of mishandling, retain all packing material for inspection and notify the shipper immediately. Save original carton and packing. In the event that the merchandise is to be returned, the original carton and packing must be used. The customer will be billed for a new carton and packing if merchandise is received without or is damaged/marked-up so as not to be sellable as NEW.

Save Shipping Materials

The packing and carton are designed to provide the fixture with protection during shipping. Save original packing and documentation for warranty, service and return issues. Additional charges will be applied to return items not received in original or incomplete packing.

Power

Transceivers require 5.0 Vdc Power connected using a coaxial connector. Make sure power supply is rated for proper voltage and at minimum, rated wattage.



Before applying power, verify input voltage matches the power source voltage. Check all power cords to verify they are of proper type and sufficient rating for the equipment attached. The listed current rating is its average draw under normal conditions. All items must be powered directly from a switched circuit. This item cannot be run from rheostat or dimmer circuits - even if used solely for a 0% to 100% switching. Consult a qualified electrician if there are any concerns about proper connection to power.

Wtlx512 Wireless Protocol Setup

A single button selects the Group ID. A single RGB LED provides feedback for: Group ID, Transceiver mode, and data status. Regardless of XLR gender, all devices are Transceivers providing maximum flexibility. *Receiver* mode is **default** when powered on but automatically switches to *Transmitter* if a wired DMX signal is detected.

Receivers automatically pair to Transmitters of the same Group ID with no limit on the number of linked Receivers. No manual operation is required to set Transmit/Receive mode or to pair Receivers and Transmitters other than ensuring devices in a "Wireless Universe" have matching Group ID (color) and only one device has DMX input.

While every fixture can be fitted with a Wtlx512 Transceiver, it is permissible to Daisy Chain off one receiver to other fixtures using standard XLR cables and DMX practices. Only one Transceiver is allowed per wired run.

LED Indicator

When powered on, the LED Indicator will first flash Red/Green/Blue. If neither a DMX signal nor a Wtlx512 in Transmit mode is detected, the LED Indicator will display the Group ID (color). When in Transmit mode or detecting a Wtlx512 of the same Group ID in Transmit mode, the LED will indicate the status of the Transceiver and Data.

| | | | |
|---------------------|---|---|-------------------------|
| Group ID: | 1 - Red (Default) 2 - Green | 3 - Blue 4 - Yellow | 5 - Cyan 6 - Magenta |
| Transmitter: | No Data Present <i>Sending DMX</i> | - ID Group's Color Displayed <i>- Flashing RED</i> | |
| Receiver: | No Data Present <i>Receiving DMX</i> | - ID Group's Color Displayed <i>- Flashing GREEN</i> | |

Set Group ID

- Receivers must be set to the same Group ID (color) as intended Transmitter.
 - Only one transmitter is allowed for each Group ID.
 - Different Transmitter/Receivers Group ID can operate in the same space.
1. Powered ON with no data, press button to step through the 6 Group ID (LED Colors).
 2. All Wtlx512 devices automatically switch to appropriate Transmitter or Receiver mode and Link when powered on and data is present.
 3. Group ID setting is saved and recalled whenever powered on.

Standard Operation

1. Attach at least two Wtlx512 Transceivers, one on the DMX signal's output and the remainder on the inputs to devices.
2. Power on.
3. Run show.

Alternate Wireless Protocol Setup

The alternate Protocol is for special situations, only use if directed to alter. In this mode, there are no Group ID, no automatic Receiver/Transmitter configuration and no automatic pairing. Receivers and Transmitters must be designated during setup and be initially linked manually. Linking is saved and restored on power cycles. Multiple Transmitters can still function in the same space as each Transmitter/Receiver(s) pairing forms a discrete group.

LED Indicator

During standard operation, at Power On, LED will flash Red-Green-Blue to indicate Alternate Mode:

| | | |
|---------------------|---------------------------|-------------------------|
| Transmitter: | No Data Present | - <i>Flashing</i> BLUE |
| | <i>Sending DMX</i> | - Solid BLUE |
| Receiver: | No Data Present | - <i>Flashing</i> GREEN |
| | <i>Receiving DMX</i> | - Solid GREEN |
| | Unlinked from Transmitter | - Solid WHITE |
| | Transmitter not detected | - <i>Flashing</i> RED |

Unlinking single Receiver from Transmitter:

Press Receiver button for ~3 second, release when LED turns White.

Unlinking Transmitter from Linked Receivers:

Note: Receivers powered off or not in signal range will not be unlinked.

1. Power on Linked Receivers to be unlinked.
2. Press Transmitter button for ~3 seconds, release when LED turns Red.
3. When Transmitter LED returns to Blue, Previously Linked Receivers will show unlinked (LED=White).

Linking Receivers to a Transmitter:

Note: Receivers either powered off or not in signal range will not be linked.

1. Ensure Receivers to be linked are Powered On and unlinked (LED = White)
2. Click Transmitter button to link available Receivers.

Changing Between Standard and Alternate Protocol

AC-WTLX512/x units utilize two different wireless protocols:

- Wtlx512 Protocol – Default
 - Alternate Protocol – Special Situations
1. Powered OFF, while pressing button Power ON, release button when LED shows White.
 2. Click button to cycle through protocols:
 - Red - Wtlx512 Protocol Transceiver
 - Green - Alternate Protocol Receiver
 - Blue - Alternate Protocol Transmitter
 3. To select protocol, press button for ~1 second, release when LED turns White. LED will flash Red-Green-Blue to confirm.

DMX-512 Background

DMX-512 is a digital data transmission standard developed by the United States Institute for Theater Technology (USITT). It is designed to enable control of lighting equipment, originally dimmers. DMX deals solely with the formatting of data for transmission and does not dictate how the data is created or used.

Under DMX, signals are transmitted in much the same way a computer modem transmits data. The Data, divided in to channels, is "Framed" using a start bit, high (1), eight data bits and finally, two stop bits, both high (1). DMX uses no parity to check the integrity of the signal. Instead, DMX relies on the ultra low probability of an error occurring in the same place when the data is resent. The rate at which data is sent is fixed at 250k bps, almost four and a half times faster than a 56k modem. This speed allows all data on a DMX chain to be updated more than 44 times every second.

The transmitted data follows a specific format. DMX allows for 512 channels each with eight data bits, giving each channel the possibility of 256 values. When a data "Packet" is sent, all channels are transmitted one after another. Even if the data on a specific channel has not been changed, it must be sent. In a packet, a "start code" of all zeros is sent before the data to identify the signal as a Standard DMX transmission. This start code is transparent to the user and is handled by the controller.

The physical signals are transmitted using a twisted pair of wires and a common shield, a configuration called Balanced. The controller and all receiving equipment are connected using a "Daisy Chain" connection. The signal is jumped from the controller to a piece of DMX equipment. From there, the signal is jumped to the next piece of equipment and so on until the last piece of equipment is connected. No branches are allowed and the signal does not come back to the controller. The final piece of equipment will have only one cable connection. As a result, all equipment connected to the chain will see the same signal whether it is first or last. When connecting equipment, no particular attention needs to be paid to the order in which the equipment is connected. Depending on the conditions and equipment, a line terminator may be required. If there is any question, in most circumstances the addition of a terminator will not degrade the signal. To make a terminator, add a 120-ohm resistor between the Signal Data Negative and Signal Data Positive pins of a connector in the last piece of equipment in the chain.

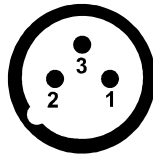
The DMX Standard calls for connections between DMX compatible equipment to be made using 5 pin XLR connectors. However, it is common to see fixtures with 3 pin XLR connectors as these types of balanced or "Lo-Z" cables are common in the audio industry. In either case, pin numbers are the same and carry the same signals.

| | | |
|-------|---|------------------------|
| Pin 1 | - | Signal Common (Shield) |
| Pin 2 | - | Signal Data Negative |
| Pin 3 | - | Signal Data Positive |
| Pin 4 | - | (not used) |
| Pin 5 | - | (not used) |

Data Link DMX-512

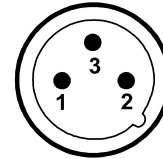
For data, this fixture uses XLR (Canon) type connectors and shielded twisted pair cable approved for EIA-422/EIA485. Fixtures are connected in Daisy Chain topography with only one data source and no branching. Systems using 3 or 5 pin DMX interfaces can be accommodated by purchasing 3-to-5 pin adapters or building adapter cables.

DMX-OUT XLR Connector - Socket:



- 1- Ground
- 2 - Signal (-)
- 3 - Signal (+)

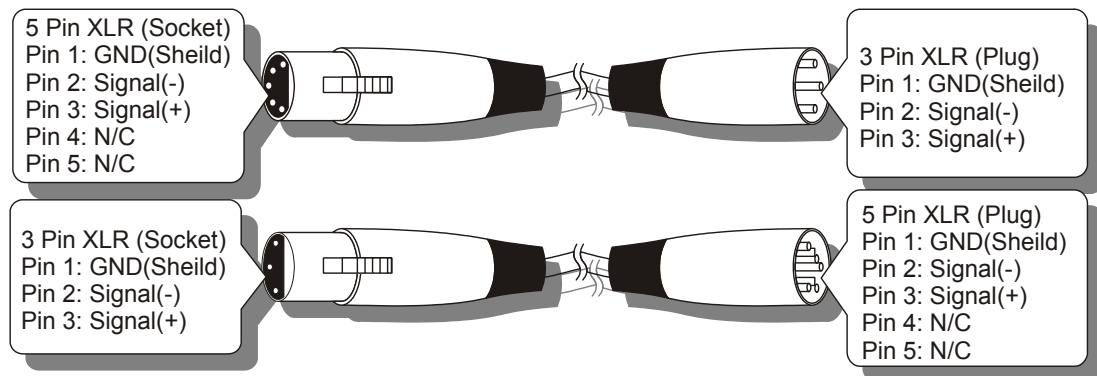
DMX-IN XLR Connector - Plug:



- 1 - Ground
- 2 - Signal (-)
- 3 - Signal (+)

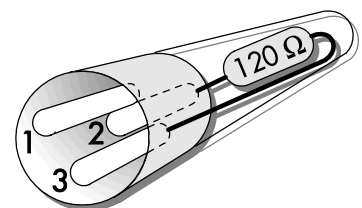
Adapter 5-to-3 pin

Numbers designating each pin can be found on connectors. Converting between the two XLR types is done in a pin-to-pin fashion. Connect the shields to pin 1, then connect pin 2 to pin 2 and pin 3 to pin 3. This is true for converting either 5 to 3 pin or 3 to 5 pin regardless of either connector's gender. Pins 4 and 5 are not used on the 5 pin XLR connectors.



Data Terminator

A Data Terminator can be connected to the DATA OUT connection of the last fixture to reduce the effects of noise in the signal; it is not required for all installations. To make a Data Terminator, connect a 120-ohm $\frac{1}{4}$ watt resistor across pin 2, Data Negative (S-) and pin 3, Data positive (S+). A qualified technician can determine if a Data Terminator is needed.



Troubleshooting

| Symptom | Possible Cause / Solution |
|---------------------------------|---|
| No Power | Check for power on mains |
| | Check power supply output |
| | Test with known good power supply |
| No or incorrect response to DMX | Check DMX signal presence |
| | Cycle power with no DMX signal connected to verify Group ID settings for Transmitter and Receivers. |
| | Verify only one Transceiver is going in to Transmitter mode. |
| | Check Data cables (faults and proper wiring) |
| | Check distance |
| | Change Group ID |
| Erratic operation | Check power supply, DC power, and XLR connections |
| | Check for properly wired DMX cables |
| | Mains Voltage too low or noisy |
| | Check distance |
| | Change Group ID |

Accessory Items

(sold separately)

| Order Code | Description |
|--------------|--|
| CA-XLR3/1 | Pre-made 1' 3-pin XLR Cable |
| CA-XLR3/5 | Pre-made 5' 3-pin XLR Cable |
| CA-XLR3/10 | Pre-made 10' 3-pin XLR Cable |
| CA-XLR3/25 | Pre-made 25' 3-pin XLR Cable |
| CA-XLR3/50 | Pre-made 50' 3-pin XLR Cable |
| CA-XLR3/100 | Pre-made 100' 3-pin XLR Cable |
| CO-XLR3M | XLR Connector 3-pin Male |
| CO-XLR3F | XLR Connector 3-pin Female |
| CO-XLR5M | XLR Connector 5-pin Male |
| CO-XLR5F | XLR Connector 5-pin Female |
| CO-XLRTERM3 | XLR 3 Pin Data Terminator |
| CO-XLR3MTO5F | XLR 3 Pin Male to 5 Pin Female Adapter |
| CO-XLR5MTO3F | XLR 5 Pin Male to 3 Pin Female Adapter |
| ZEAN0001 | Antenna 2.4Ghz 2dBi Omidirectional, Folding, Reverse Polarity SMA Male, Indoor |

www.Techni-Lux.com
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