X10DR Pro
Application Notes

- Feb 20th 2017

X10DR Pro Gateway

X10DR Pro Secure Mic

base view

X10DR®

Liberate Your Mobile Radio™

XMPA "Sharkfin"
Multipolarity
Roof/rack mount
Antenna kit

Use of an external antenna with careful placement is critical if dependable coverage range is to be achieved around the vehicle. To ensure the user experiences a consistent predictable coverage "bubble", the antenna should be ideally installed on a vehicle so that it is has an unobstructed view in all areas where the user may walk.

On some installations however, it may make sense to mount the XMPA antenna on a front bull bar if, for example, the user typically would generally try to park the vehicle in the direction of where they intend to mostly communicate. By the same token, if the rear of the vehicle would normally face the users work area, then it may make sense to mount the antenna in a location overseeing the rear of the vehicle. Each vehicle may have its own natural obstacles to deal with, whether they be light bars, ladder racks, storage tubes, etc but as a general rule, the installer should always endeavour to mount the antenna where the user could visually see the XMPA antenna from the area they would expect to communicate from. If there is any particular directivity anticipated due to the antenna's placement, sharing that anticipated coverage bias with the user will help them establish a clearer understanding of where they should get good reception and where it may be less than perfect when they park their vehicle.

The X10DR is supplied with a XMPA "Sharkfin" **multi-polarity antenna** so that the best possible coverage in all overall operating environments can be experienced to each user. Multi-polarity antennas generally provide superior coverage in non 'line of sight' coverage situations, especially when talking into concrete walled buildings or around building corners or other physical obstacles to line of sight communications.

Where X10DR installations require use of multiple XMPA antennas, endeavour to keep the antennas ideally at least 1 meter (39") apart for best performance. The installer should also pay careful attention to the mounting locations of all antennas to make sure that each user have as similar coverage experience as is practically possible.

XSMA2 antenna (shorter range - internal use)

In some installations only limited coverage may be required around a vehicle, for example: a pump attendant on fire appliance or when an X10DR is used for mobility for fixed radio console operators in a control room. In those situations it may be more practical to alternatively, simply screw on a XSMA2 antenna directly to the base of the X10DR gateway unit.

Liberate Your Mobile Radio™

XIC/XEC Series
Interface Cable

XCA Series Adaptor
(typical style shown)

The X10DR gateway device connects to the mobile radio's rear accessory port by way of a supplied 1.5m (5') XIC interface cable and a separately ordered radio model specific XCA series adaptor.

XCA adaptors are available for most popular mobile radios while adaptors for other models or for unique equipment interfaces can be supplied by custom order.

For remote mounted mobiles, XEC-4.5 extension cables are 4.5 meters (15') in length are available to facilitate mounting the mobile radio in the vehicles trunk. Multiple XEC-4.5 cables can be connected for long installation runs although the number of X10DRs connected to the cable run must be considered with regard to possible DC voltage drops. Additionally, a remote mount 6.2 meter (22') is available when a single cable is prefered.

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For those installations requiring custom requested specific length cables, then these are available on special order - MOQ 200 pieces.

 XIC-0.5 is a short 50cm interface cable to connect between the following interface boxes and X10DR devices.

XJB Junction Box
Multi interface unit
- Up to 6 X10DRs
- Use for non-TDMA radios

XJB-DCI Junction Box
with DC isolation
Multi interface unit
- Up to 4 X10DRs
- 2 Charger ports
- Use on any radio
``(including TDMA)

XDIA Dual Interf. Adaptor
Dual interface unit
- Dual X10DR non TDMA radios
- Simple splitter for:
    Dual XJB-DCI
    Dual XJB
    Dual XSJB

Distributed by: **American International Radio(A.I.R.), Inc.** | sales@airadio.com

XJB-DCI Multi interface unit
with DC isolation
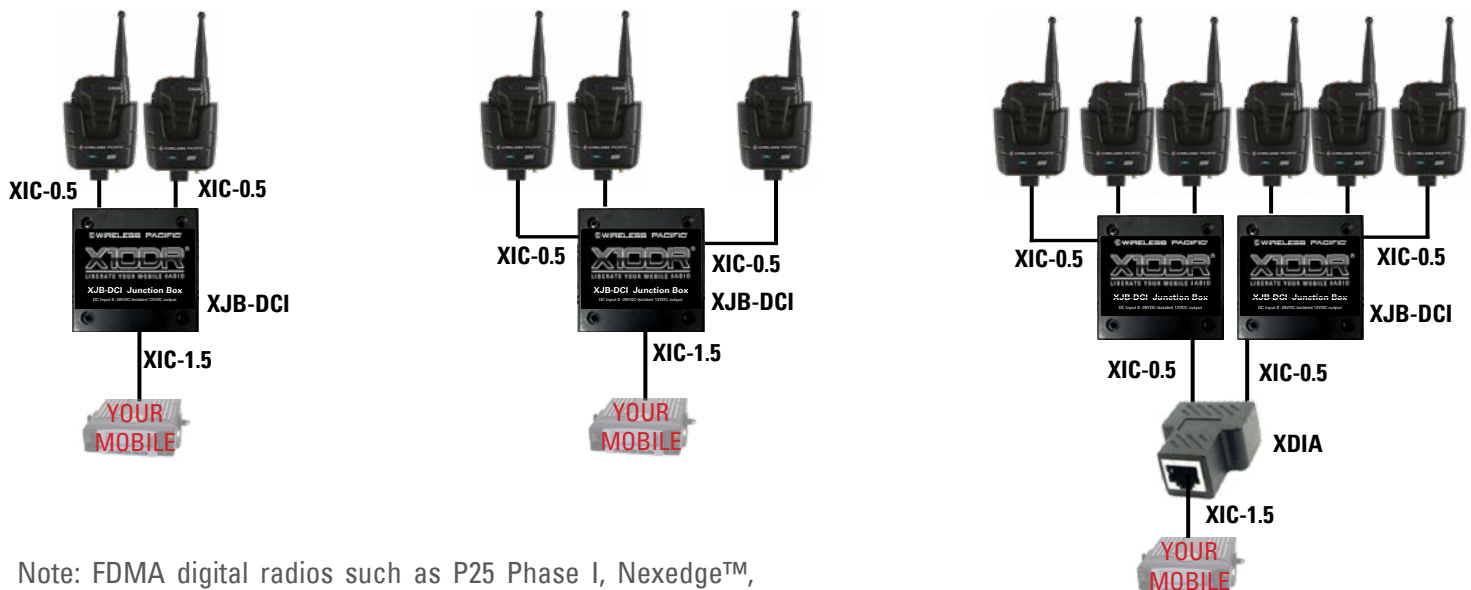9-16Volt DC input-12VDC output

Connecting modern day digital devices requires careful attention to device **grounding**. Installers should pay special attention to ensuring good grounds are achieved to all antenna mounts and power supplies of all electronic devices. The necessity for good grounding becomes especially important where the quantity of devices sharing a common power supply expands in complexity.

Modern radios incorporating TDMA digital modulation are especially susceptible to creating "ground noise" especially in higher power circuits. Unfortunately, these unwanted ground noises can sometimes be superimposed onto sensitive audio circuits resulting in an annoying buzz being audible in voice transmissions. Experience tells us also the amount of noise heard can be dependent not only on the number of devices connected but by the manufacturer or even by production run of various third party equipment.

The XJB-DCI has been designed to significantly reduce the levels of these TDMA ground noises and provides four 12V isolated DC outputs to connect to X10DR Gateways and two non-isolated direct Batt+ outputs for powering X10DRMC mobile chargers.

We recommend use of our XJB-DCI Junction box rather than the standard XJB and XDIA interface devices when interfacing multiple X10DRs to ALL TDMA radios. TDMA radios include all TETRA, DMR, MotoTrbo and P25 Phase II radios. The XJB-DCI provides DC isolated 12 volts to operate the X10DR devices.

Suggested configurations are shown below.

Note: FDMA digital radios such as P25 Phase I, Nexedge™, iDAS™ and dPMR® types allow the use any combinations of XDIA, XJB, XJB-DCI and XSJB type interface boxes.
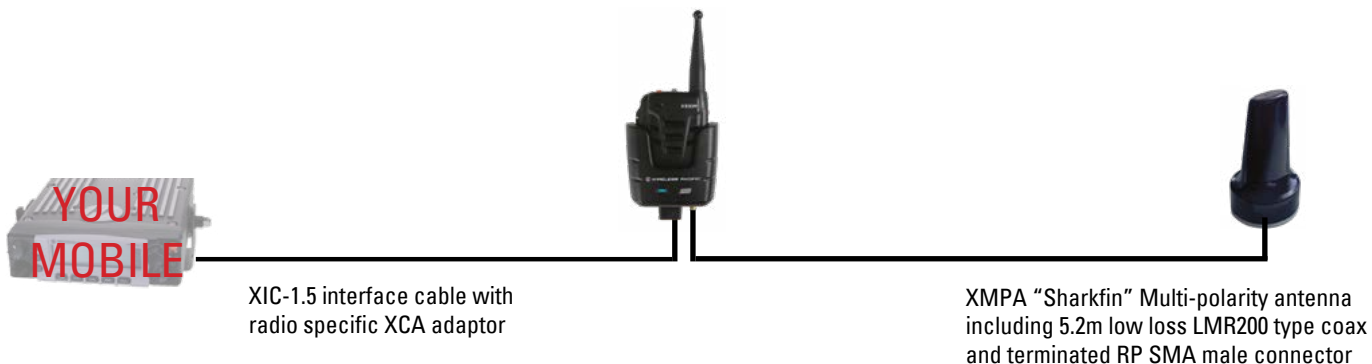
X10DR®

Liberate Your Mobile Radio™

Single X10DR Pro
connected to one mobile radio

XMPA antenna

YOUR MOBILE

up to 1600 feet

The X10DR is connected to the one mobile radio. The user can hear all radio communications as well transmit over the network using the highly textured PTT button. All radio system tones or those emanating from the host mobile will generally be heard by the X10DR user via its duplex audio capability regardless of whether the user is transmitting or not from the X10DR Secure Mic. These tones may include but are not limited to: transmit timer alerts, channel busy tones, talk permit tones, failsoft trunk tones, radio out of range tones, ruthless pre-emption transmissions, etc.

Note: Refer to interface cable, TDMA and antenna application notes before ordering.

Ordering: 1 x X10DR-PU2 X10DR Pro
                 1 x XCA -** adaptors ** to suit radio model

YOUR MOBILE

XIC-1.5 interface cable with radio specific XCA adaptor

XMPA "Sharkfin" Multi-polarity antenna including 5.2m low loss LMR200 type coax and terminated RP SMA male connector

X10DR®

Liberate Your Mobile Radio™

Multiple X10DR Pro
connected to one mobile radio

XMPA antenna

YOUR MOBILE

up to 500 meters

The smart design of the X10DR allows up to six or more X10DR's to be connected via **one** host mobile radio. All units can hear each others communications as well as all conversations over the radio network.
This multiple unit capability provides all users with full access to the radio network as well as local off net talkaround capability.
Note: all communications between the secure mics occurs via their specific paired gateway unit.

To talk locally off net, users simply press the talkaround PTT to communicate with each other. **All** host mobile radio communication will instantly be heard by all users even if they are transmitting in talkaround mode, so as to ensure no network transmission is ever missed

Normally, a XJB junction box is used to connect to the host radio via the XIC/XCA series interface cable/adaptor. The XJB then allows each X10DRMD gateway to be connected by way of short 50cm (20") XIC-0.5 interface cables for simple installation.
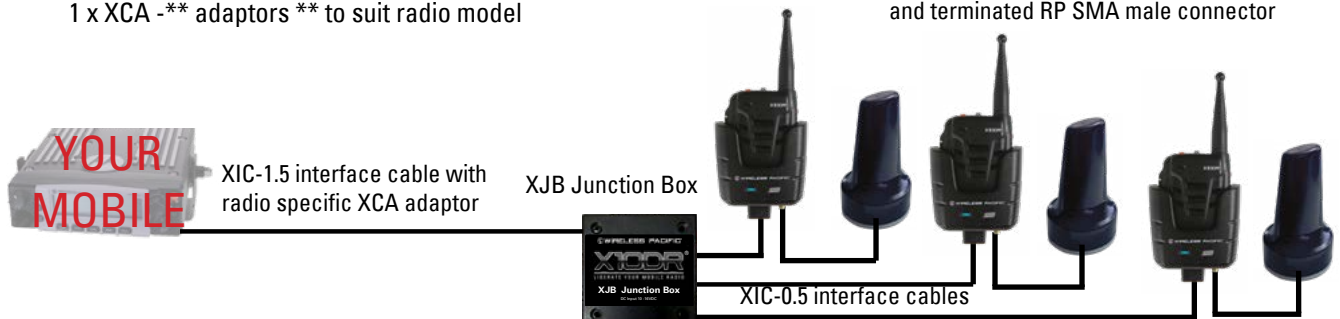
We recommend use of our XJB-DCI Junction box rather than the standard XJB and XDIA interface devices when interfacing multiple X10DRs to ALL TDMA radios. TDMA radios include all TETRA, DMR, MotoTrbo and P25 Phase II radios. The XJB-DCI provides DC isolated 12 volts to operate the X10DR devices.

All other functions remain the same.
Note: Refer to interface cable, TDMA and antenna application notes before ordering.

Ordering: 3 x X10DR-PU2 X10DR Pro
                       1 x XJB junction box
                       3 x XIC-0.5 interface cable
                       1 x XCA -** adaptors ** to suit radio model

XMPA "Sharkfin" Multi-polarity antenna including 5.2m/17' low loss LMR200 type coax and terminated RP SMA male connector

YOUR MOBILE

XIC-1.5 interface cable with radio specific XCA adaptor

XJB Junction Box

XJB Junction Box

XIC-0.5 interface cables

X10DR®

Liberate Your Mobile Radio™

X10DR Pro - Motorcycle
connected to one mobile radio

XMPA antenna

YOUR MOBILE

secure mic PTT when off bike

handle bar PTT when riding

up to 500 meters

One of X10DR key design criteria was to ensure motorcycle users would be able to enjoy the full benefit of the secure wireless microphone whether on, or off the bike. When on the bike, the officer needs only press the traditional handle bar PTT button to talk thru the helmet's microphone connected to the X10DR Pro mic which then wirelessly connects to the gateway connected to the mobile radio mounted on the bike. When the rider leaves the bike, they can choose to leave their helmets on and press the X10DR Pro mic's PTT button to talk. Nothing to un-plug! Alternatively, the user can unplug their helmet, remove, and use the X10DR Pro mic like a traditional remote speaker microphone. No longer will the officer need to return to their bike to request support, whilst staying in complete radio contact when at their most vulnerability. Importantly, they can stay ready to mount the bike if they need to at any time.

All radio system tones or those emanating from the host mobile will generally be heard by the X10DR user via its duplex audio capability regardless of whether the user is transmitting or not from the X10DR Secure Mic.
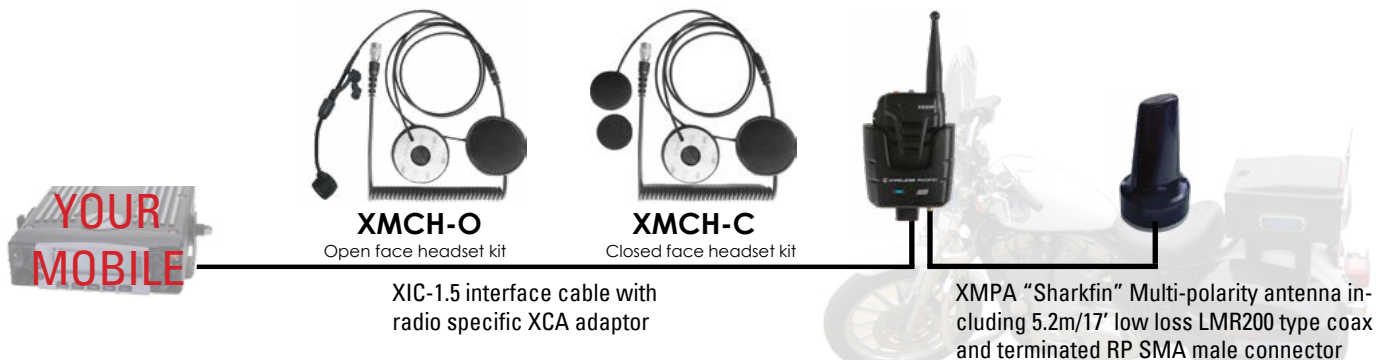These tones may include but are not limited to:transmit timer alerts, channel busy tones, talk permit tones, failsoft trunk tones, radio out of range tones, ruthless pre-emption transmissions, etc

Customer supplied handle bar PTT is connected to the white remote PTT wire coming from each XCA adaptor. Two types of Helmet kits are available: XMCH-O for open face helmets and XMCH-C for closed face helmets. Use XFPK field programmer to set optimum mic sensitivity once headset kit is fitted to helmet.

All other functions remain the same.

Ordering:	1 x X10DR-PU2 X10DR Pro		**Ordering:**	1 x X10DR-PU2 X10DR Pro
(Closed face)	1 XMCH-C closed helmet headset kit		(Open face)	1 XMCH-O open helmet headset kit
	1 x XCA -** adaptors ** to suit radio model			1 x XCA -** adaptors ** to suit radio model

YOUR MOBILE

XMCH-O
Open face headset kit

XMCH-C
Closed face headset kit

XIC-1.5 interface cable with radio specific XCA adaptor

XMPA "Sharkfin" Multi-polarity antenna including 5.2m/17' low loss LMR200 type coax and terminated RP SMA male connector

X1ODR ®

Liberate Your Mobile Radio™

Dual X10DR Pro in the office
connected to one control Station

CONTROL STATION

XMPA antenna
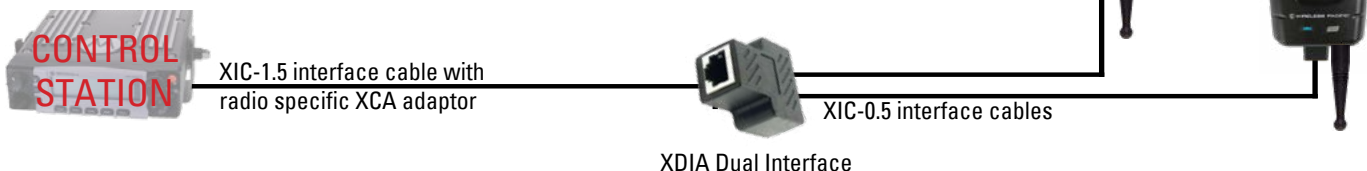
X10DRMC
mobile charger

up to 500 meters

X10DR is ideal for helping free up desk bound radio operator personnel whose other job responsibilities often cause them to leave the radio control station unattended. A radio dispatcher equipped with an X10DR is now free to move around the office. Additionally, in situations where a number of staff share radio dispatch responsibilities, or where a shift supervisor, or the office in charge may also need to monitor radio traffic, The local off net talkaround facility allow all users to hear each others communications as well as all conversations over the network. Equipping control room staff with X10DR ensures someone will always available to take an urgent or emergency call even when taking a rest break. For many office situations use of the XSMA2 internal antenna on the gateway units will provide sufficient coverage helping reduce initial installation costs.

To further compliment the office environment, using an X10DR equipped with the Hirose® audio port allows use of lightweight noise cancelling headsets to minimize ambient noise in the control room.

Each X10DR Elite connects to the XDIA by way of short 50cm (20") XIB-CK connecting cables. Multiple XDIAs can be connected where connection to more than 2 units are required.

Note: Refer to interface cable, antenna and TDMA application notes before ordering.

Ordering:
2 x X10DR-PU2 X10DR Pro
1 x XDIA dual interface
2 x XDAK delete antenna
2 x XSMA2 spare antenna
2 x XIC-0.5 interface cables
1 x XCA -** adaptor ** to suit radio model

CONTROL STATION

XIC-1.5 interface cable with radio specific XCA adaptor

XIC-0.5 interface cables

XDIA Dual Interface

X10DR®

Liberate Your Mobile Radio™

X10DR Pro in the warehouse
connected to one Control Station

XMPA
antenna

CONTROL
STATION

up to 500 meters

X10DR is ideal for helping stay connected with remote warehouse personnel. A staff equipped with an X10DR are now free to move around the warehouse. For many office situations use of the XSMA2 internal antenna on the gateway units will provide sufficient coverage helping reduce initial installation costs. However for larger buildings it may be advisable to fit the supplied XMPA antennas.

To further compliment the office environment, using an X10DR equipped with the Hirose® audio port allows use of lightweight noise cancelling headsets to minimize ambient noise in the warehouse area.

Each X10DR connects to the control stations by way of a 1.5 meter (5') XIC Interface cable and a XCA radio specific adaptor.

Note: Refer to interface cable, antenna and TDMA application notes before ordering.

Ordering: 1 x X10DR-PU2 X10DR Pro
1 x XCA -** adaptor ** to suit radio model

CONTROL
STATION
XIC-1.5 interface cable with
radio specific XCA adaptor

XMPA "Sharkfin" Multi-polarity antenna
including 5.2m low loss LMR200 type coax
and terminated RP SMA male connector

X10DR®

Liberate Your Mobile Radio™

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