

Pro Plus Application Notes

January 1st 2021

X10DR Pro Plus Handset



X10DR Pro Plus Gateway



base view



XIVG Pro Plus Gateway

Plus Secure Wireless Handset



Plus Gateway Mobile Charger



Plus Gateway base view



XIVG Gateway

SMA external antenna port

Interface port

Status light



USB programming port

Function button
- Manual Off/On
- Master reset
- Find Me
- Touchless pairing

	Page
Handset Parts	2
Gateway Parts	3
Antennas	6
Interface Cables	7
After Hours charging	8
TDMA DC isolation solutions	9
XSJB & XHJB Overview	10
1 Single Pro Plus Handset / One Gateway	11
2 Multiple Pro Plus Handset / One Gateway	12
3 Pro Plus with Public Address	13
4 Pro Plus with PA /Footswitch (Bus)	14
5 Pro Plus with Dual Mobiles	15
6 Pro Plus Mandown with 1/2 Mobiles	16
7 Pro Plus Motorcycle	17
8 Pro Plus handset with multiple gateways	18



"Sharkfin" version being phased out

XMPA

Multipolarity roof/rack mount antenna kit



XMAK

Multipolarity rack mount antenna kit



XMMA

Magnetic mount vehicle 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 has an unobstructed view in all areas where the user may walk.

On some installations however, it may make sense to mount the 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/XMAK/XMMA 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 usually supplied with a **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 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 or XIVG gateway unit.

XIC/XEC Series

Interface Cables Use with radio specific XCA series adaptors



XEC-4.5



XIC-6.2/1.5



XIC-0.5



XIC-0.15



XIC-0.4



XIC-1.8



XIC-6.0



XIC-10/25

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.

XIC-0.15/ XIC-0.4 / XIC-0.5 are short interface cables intended to connect between interface boxes and devices.

Remote mount 6.2 meter (22') /10m (33') /25m (83') are available when a single cable is preferred.

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') /10m (33') /25m (83') are available when a single cable is preferred.

Installations requiring custom requested specific length cables- available on special order - MOQ 200 pieces.



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



XHJB Handsfree Junction Box
Multi interface unit
- Up to three X10DRs
- Use Single Radio Access
- Use Dual Radio Access



XJB-DCI Junction Box
with DC isolation
Multi interface unit
- Up to 4 X10DRs
- 2 raw DC charger ports
- For any radio (including TDMA)



XDIA Dual Interface Adaptor
- Dual X10DR non TDMA radios
- Simple splitter for:
Pro 2nd Mic-Charger
Dual XJB/ XSJB / XJB-DCI ,etc



XSJB Smart Junction Box
Multi interface unit
- Up to two X10DRs
- Use Dual Radio Access



XCA-* Radio Specific Adaptor**
- ** refer price pages for currently available models

XPB-C14 “After hours” Power Backup Box for “isolated” vehicle battery installations 10-16 Volt DC input-7.5VDC output

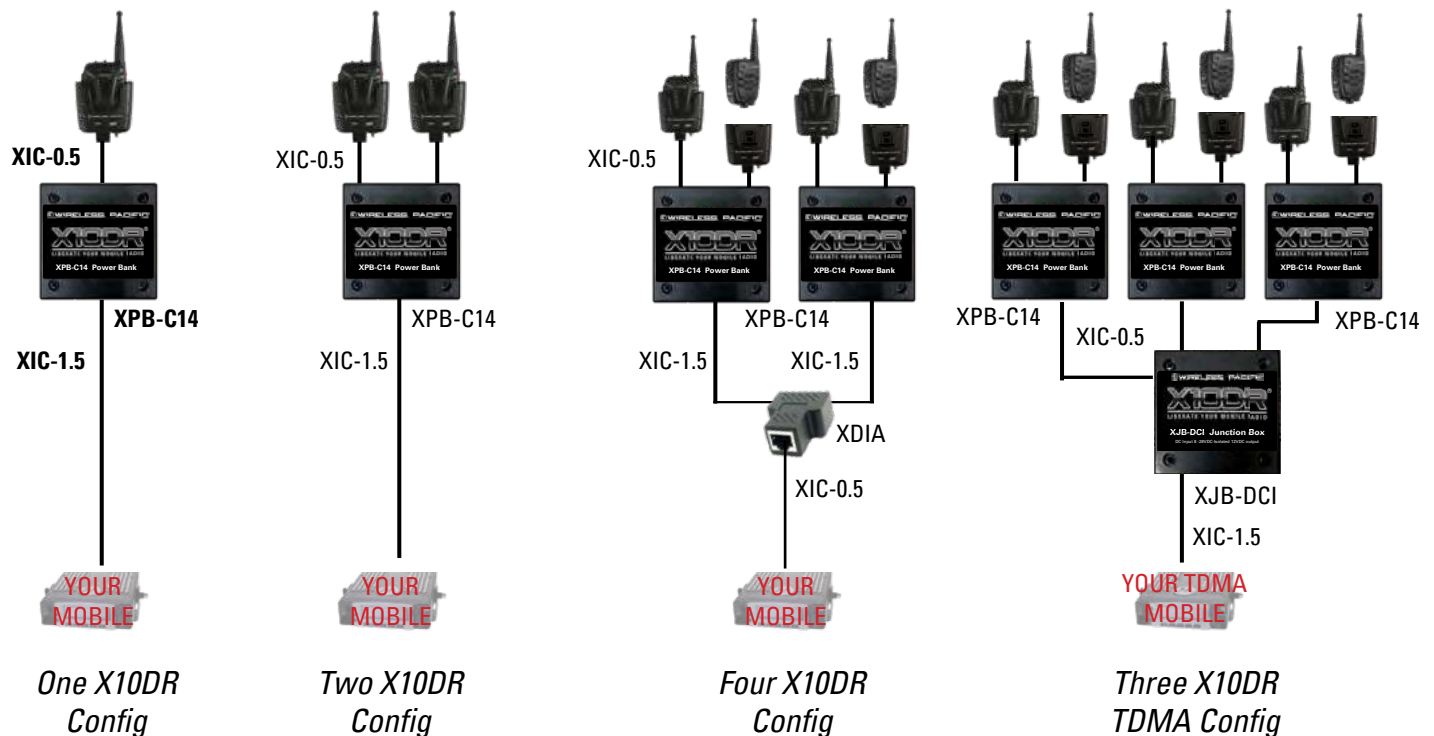


Operational regulations in some agencies require that vehicles have their batteries isolated and disconnected from auxiliary electronic devices at night or whenever the vehicle is being garaged. In such installations, DC power will not be subsequently available for re-charging X10DR Secure Mics that only are returned to the charging cradle at the end of the work day.

For such installation Wireless Pacific created the XPB-C14 Power Bank. The power bank is fitted in line with the standard XIC interface cable that connects the X10DR Gateway Cradle to the host mobile radio. The power bank constantly charges when ever a vehicle’s power is available ensuring it is always fully charged and available, should the vehicles’s battery be isolated from the X10DR device. When a vehicle’s DC power is removed, the XPB Power Backup Box instantly provides enough reserve to fully re-charge one or two X10DR handsets while the vehicle is garaged. When the vehicle battery is reconnected the XPB automatically re-charge while powering the attached X10DR devices. The XPB-C14 can also two X10DR’s to be connected to the one mobile radio. Connection to a TDMA radio may also require use of XJB-DCI DC isolation junction box.

Suggested configurations are shown below:

Ordering: 1 x XPB-C14 for every two X10DR connected
1 x XIC-0.5 per XPB-C14 ordered



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



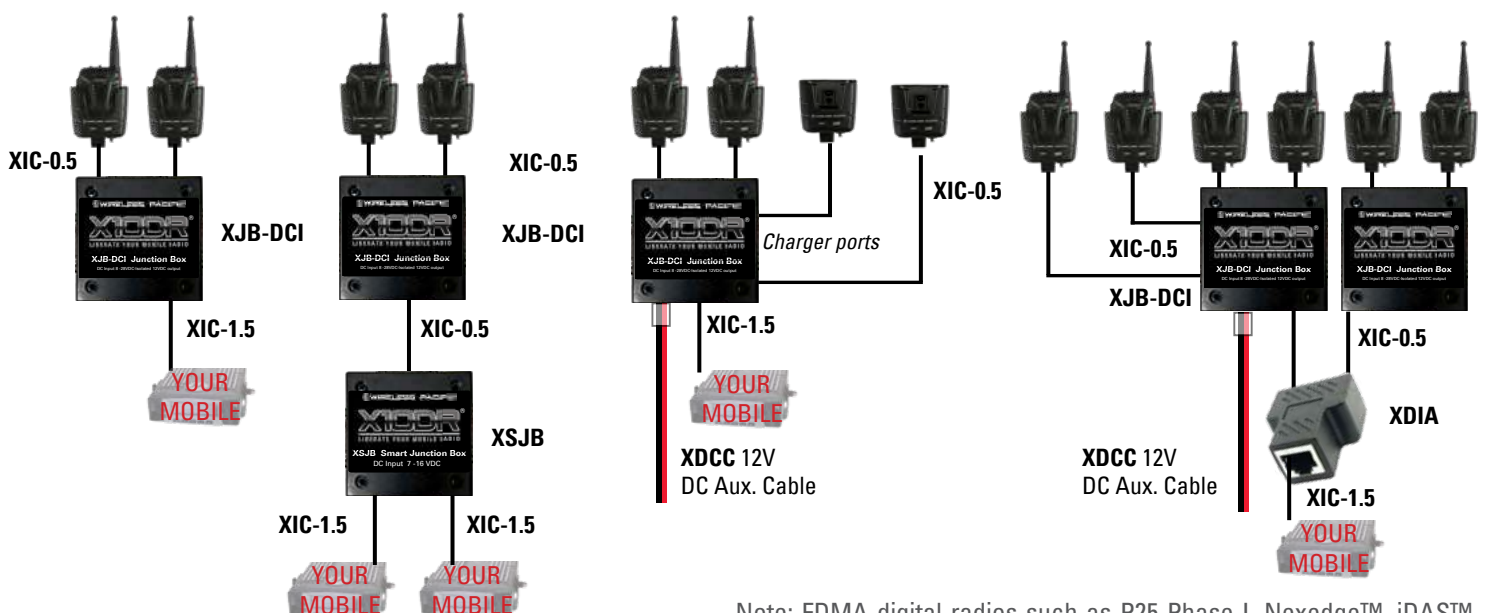
Connecting modern day digital devices requires careful attention to device **grounding**. Installers should pay special attention to ensuring good grounds are achieved to all antenna mounts and power supplies of all electronic devices. The necessity for good grounding becomes especially important where 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 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 XMVC 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™, iDAST™ and dPMR® types allow the use of any combinations of XDIA, XJB, XJB-DCI and XSJB type interface boxes.

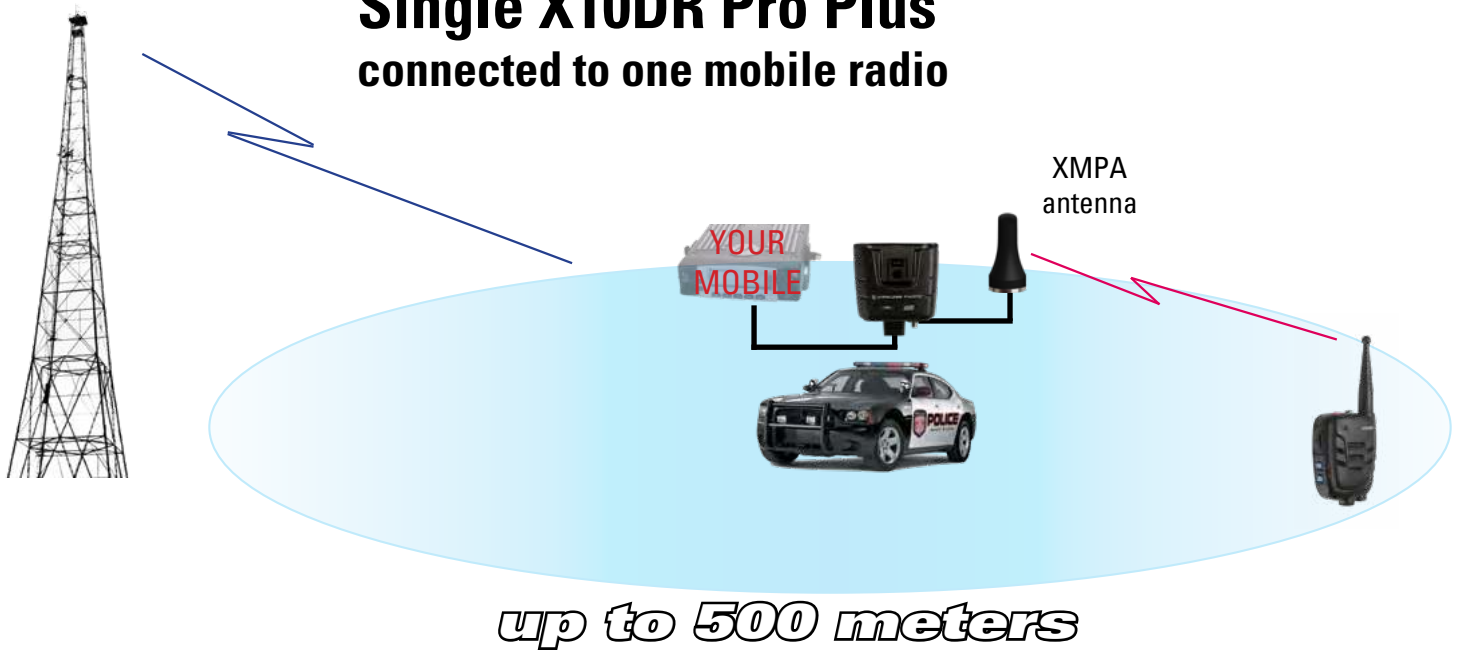
XSJB Smart Junction Box

Provides for dual radio control with single or dual gateway connectivity.
Refer to XSJB installation instructions for further details.

Dual radio transmit is achieved by pressing normal handset PTT for radio 1 and pressing the top “Control” (normally used for Talkaround) button for radio 2 transmit. All received audios are mixed and sent to handset/s. If desired, radio 2 receptions can have a short audio beep attached to end of each reception so that users can be sure on which radio the reception occurred. The audio level adjustments allow you to set transmit and receive volume levels to each radio as well as the audio level of the radio 2 audio tag.



Single X10DR Pro Plus connected to one mobile radio

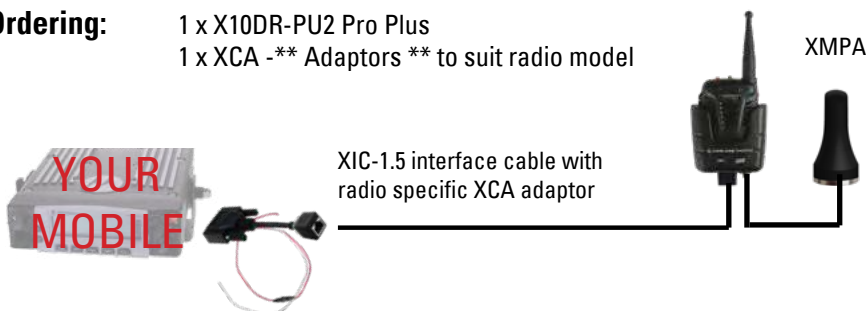


The X10DR is connected to the one mobile radio. The user can hear all radio communications as well transmit over the network using the highly textured PTT button. All radio system tones or those emanating from the host mobile will generally be heard by the X10DR user via its duplex audio capability regardless 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.

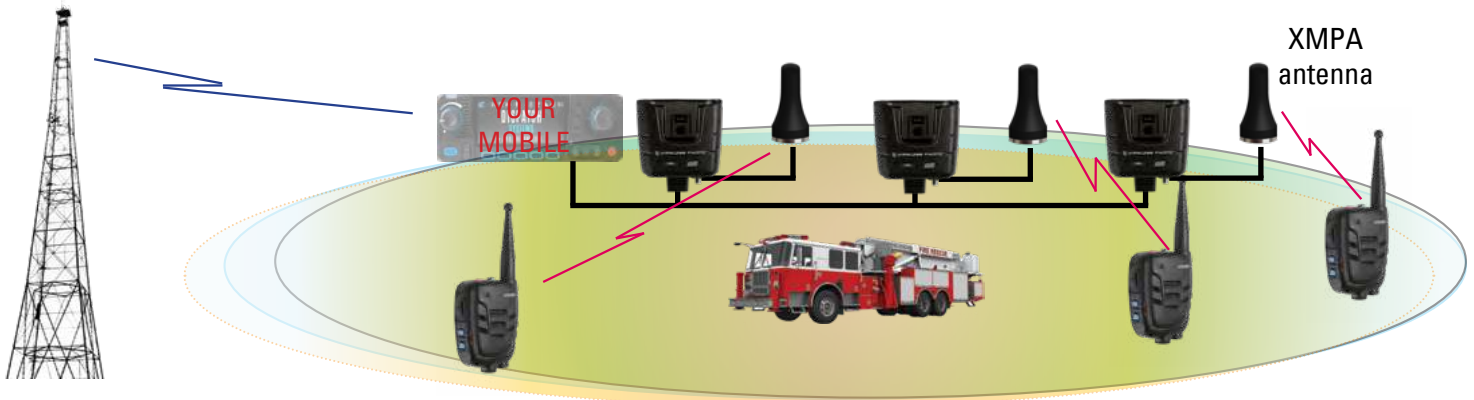
Ordering:

- 1 x X10DR-PU2 Pro Plus
- 1 x XCA -** Adaptors ** to suit radio model



Multiple X10DR Pro Plus connected to one mobile radio

While this application is possible, we strongly recommend you implement a multihandset configuration using Elite Plus models - Refer Elite Plus Application Notes



up to 500 meters

The smart design of the X10DR allows up to three 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 Pro mics occurs via their specific paired gateway unit.

To talk locally off net (talkaround), users simply press the talkaround PTT to communicate amongst 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.

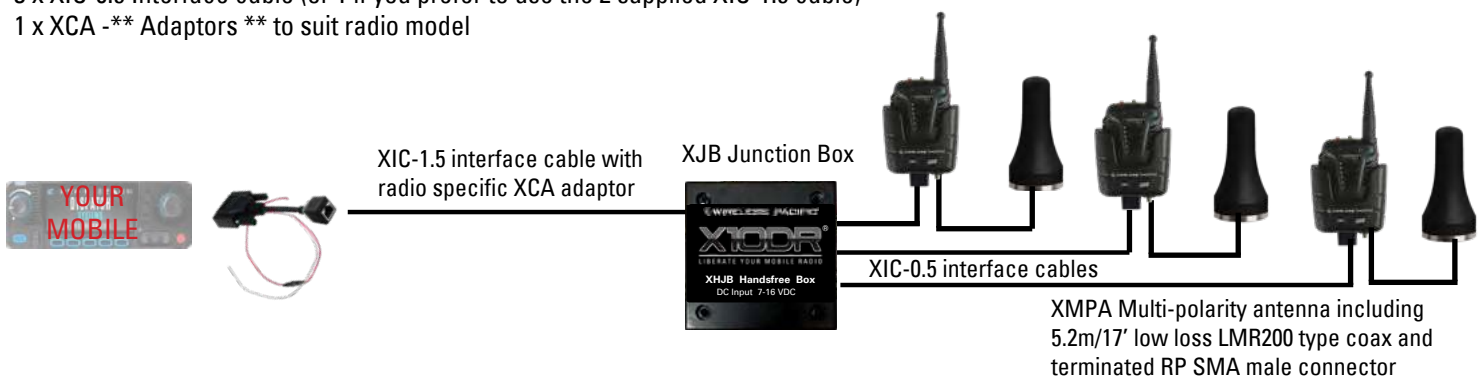
Special Note: For installations incorporating the use of TDMA radios such as MotoTrbo, DMR or TETRA radios, we recommend the alternate use of the XJB-DCI isolation box so as to minimize the possibility of TDMA switching noise being transposed by the radio over the X10DR units.

All other functions remain the same.

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

Ordering:

- 3 x X10DR-PU2 Pro Plus
- 1 x XJB Junction Box
- 3 x XIC-0.5 Interface cable (or 1 if you prefer to use the 2 supplied XIC-1.5 cable)
- 1 x XCA -** Adaptors ** to suit radio model



X10DR Pro Plus with Public Address connected to one mobile radio



up to 500 meters

The X10DR is connected to the one mobile radio. The user can hear all 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.

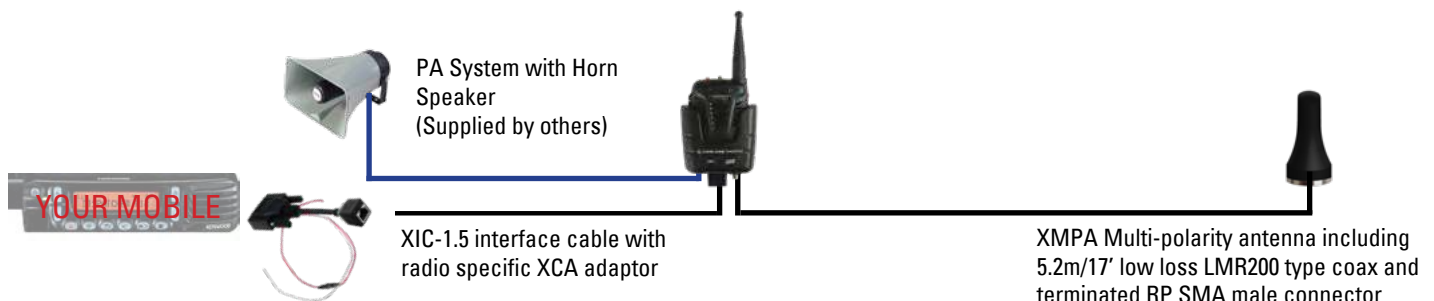
Designed for mission critical users, the Pro Plus X10DR provides a 180mV RMS audio output as standard. To utilize the facility as a public address system and suitably rated, horn speaker can be plugged in directly to the 3.5mm audio jack on the base of the gateway unit. The user then utilizes the X10DR Pro mic's Control button as a PA Talk button. The volume is preset set by the attached PA system volume control. The user should preset the required volume before leaving their vehicle.

All other functions remain the same. If multiple X10DRs* have been installed in the vehicle, the other users hear all public address announcements as local talkaround audio. If local talkaround is required between users, the public address system must be turned off (set to minimum volume) to maintain audible privacy. *** Consider using Elite Plus Model. Elite Plus models can be ordered with X10W option, which provides a built-in 10W RMS audio amplifier with volume levels set by buttons on the base of the gateway charging cradle.**

Note: Public address mode needs to be activated by programming the gateway with the XFPK field programmer.

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

- Ordering:**
- 1 x X10DR-PU2 Pro Plus
 - 1 x XCA -** Adaptors ** to suit radio model
 - 1 x 12 Volt Public Address System with Horn Speaker to suit. (supplied by others)



Pro Plus with 10W audio, footswitch PTT and Public Address for Coach/ Bus applications



For Bus and Coach applications, the user typically wears a lightweight single muff headset to maintain communications privacy and to minimize passenger noise when transmitting. The driver is free* to transmit over the radio channel by pressing a floor mounted footswitch whenever seated behind the wheel, or by pressing the highly textured handset's PTT button on all other occasion, either in, or out of the vehicle. Naturally all radio system tones emanating from the host mobile will be heard by the X10DR user via its duplex audio capability regardless of whether the user is transmitting or not.

The Pro Plus X10DR provides a 180mV RMS audio output as standard. To utilize the facility as a public address system and suitably rated, horn speaker can be plugged in directly to the 3.5mm audio jack on the base of the gateway unit. The user then utilizes the X10DR Pro mic's Control button as a PA Talk button. The volume is preset set by the attached PA system volume control. The user should preset the required volume before leaving their vehicle. **Consider using Elite Plus Model. Elite Plus models can be ordered with X10W option, which provides a built-in 10W RMS audio amplifier with volume levels set by buttons on the base of the gateway charging cradle.**

Notes:

- i/ Public address mode needs to be activated by programming the gateway with the XFPK field programmer.
- ii/ In vehicles already equipped with a Public Address system, the PA line input can alternatively be connected to the gateway's 3.5mm audio jack using its up/down press buttons to preset the desired output level.

* where permitted by local regulatory requirements for use of a radio transmitting device when driving.

Ordering:

- 1 x X10DR-PU2 Pro Plus
- 1 x WPHFH-X10 Noise cancelling headset
- 1 x XCA -** Radio specific adaptor
- 1 x XFS footswitch
- 1 x 12 Volt Public Address System with Horn Speaker to suit.
(supplied by others)



X10DR Pro Plus connected to dual mobile radios



The XSJB smart junction box can be used to allow 2 mobile radios to be connected to the one X10DR unit. The user simply presses the PTT button to talk on radio one and uses the Pro mic's Control button as PTT for radio two. A unique marker tone with a pre-adjustable volume level is attached to the tail of each secondary radio reception to inform the user which radio's audio they have just heard. Should either user press their emergency button, both radio's emergency can be triggered.

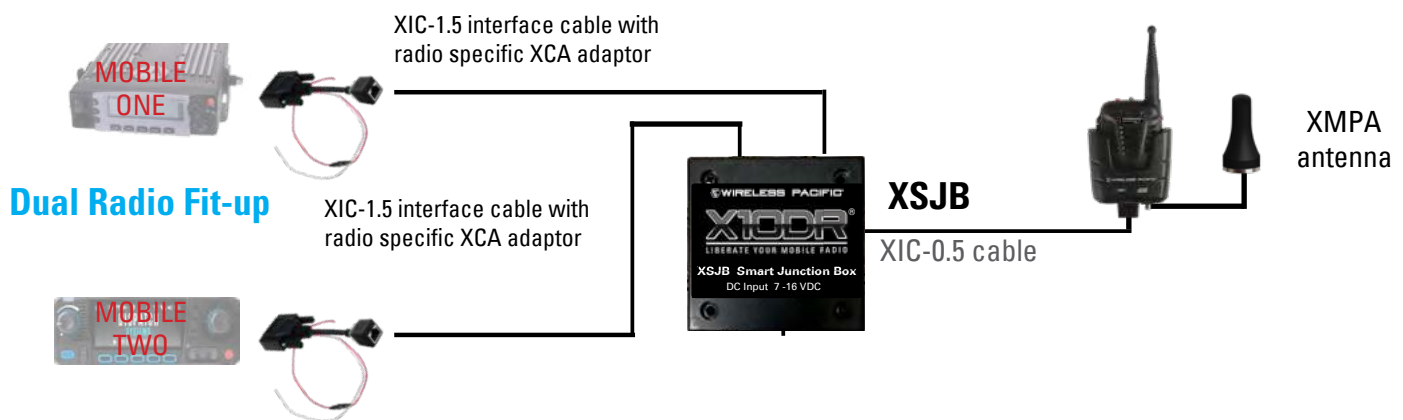
The XSJB connects to the two host radios via radio model specific XCA series cable adaptors using XIC interface cables. The X10DR connects to the XSJB via a XIC-0.5 interface cable.

All other functions remain the same.

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

TDMA Radios: Check with Wireless Pacific distributor before ordering. (TDMA = TETRA, DMR & MotoTrbo)

- Ordering:**
- 1 x X10DR-PU2 Pro Plus
 - 1 x XSJB smart junction box
 - 1 x XIC-1.5 interface cable
 - 1 x XIC-0.5 interface cable
 - 2 x XCA -** adaptors ** to suit radio models



X10DR Pro Plus with Mandown connected to one/two mobile radio/s



The XMD Mandown Biometric Monitor user safety feature is factory fitted. The function turns on automatically whenever you remove the handset from its cradle or charger. If there is no user movement or transmit activity for 2 minutes, quickening alert tones will sound for 30 seconds. If there is still no user activity, the radio's emergency input will be triggered. Mandown is disabled when the handset is placed into any charger/gateway.

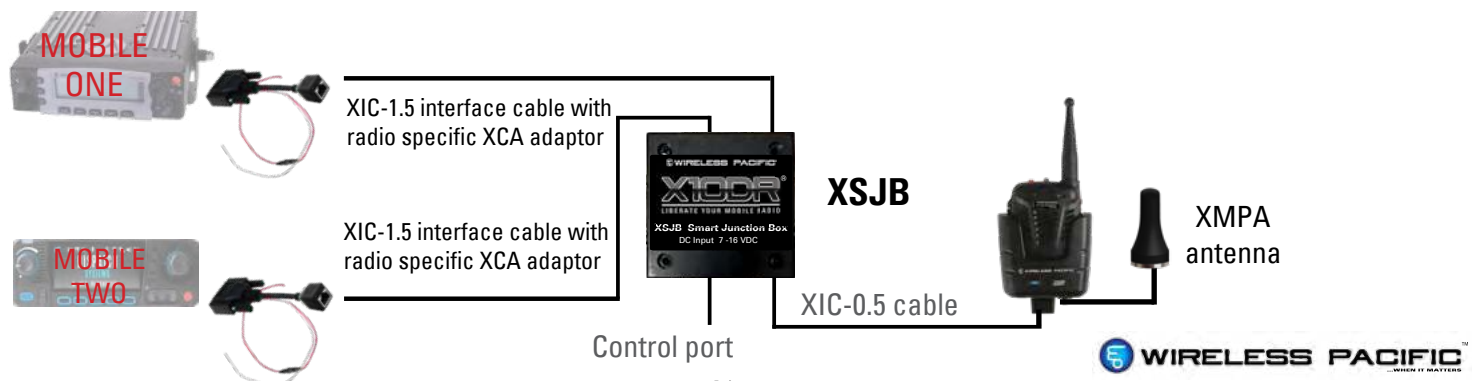
To temporarily disable Mandown operation, either power up the handset or remove it from its charger while pressing the top grey Control button until a 4 beep "pause" confirmation sounds. A gentle reminder beep will sound every 2 minutes until re-enabled. To re-enable Mandown, either power off/on the handset or place the handset into a charger and then remove.

All other functions remain the same.

Ordering: 1 x X10DR-PU2 Pro Plus X10DR
(single radio) 1 x XMD Mandown Biometric Monitor
1 x XIC-0.5 interface cable
1 x XCA -** adaptors ** to suit radio model

Ordering: 1 x X10DR-PU2 Pro Plus X10DR
(dual radios) 1 x XMD Mandown Biometric Monitor
1 x XSJB smart junction box
1 x XIC-0.5 interface cable
1 x XIC-1.5 interface cable
2 x XCA -** adaptors ** to suit radio models

Dual Radio Fit-up



X10DR Pro Plus - Motorcycle connected to one mobile radio

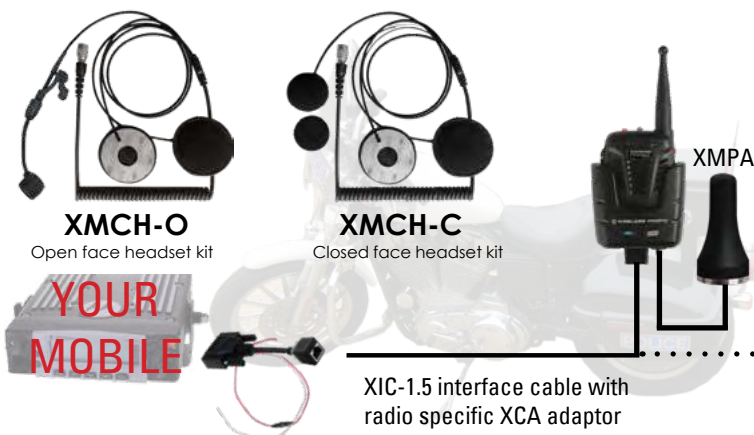


One of X10DR key design criteria was to ensure motorcycle users would be able to enjoy the full benefit of the secure wireless microphone whether on, or off the bike. When on the bike, the officer needs only press the traditional handle bar PTT button to talk through the helmet's microphone connected 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 helmet on and press the Pro mic's PTT button to talk. Nothing to un-plug! Alternatively, the officer can unplug their helmet, remove, and use the Pro mic like a traditional remote speaker microphone. No longer will an officer need to return to their bike to do a license check, whilst staying in complete radio contact when at their most vulnerability. Importantly they can stay ready to mount the bike and make pursuit 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 Pro Plus
(Closed face) 1 x XMCH-C Closed helmet headset kit
1 x XCA -** adaptors ** to suit radio model

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

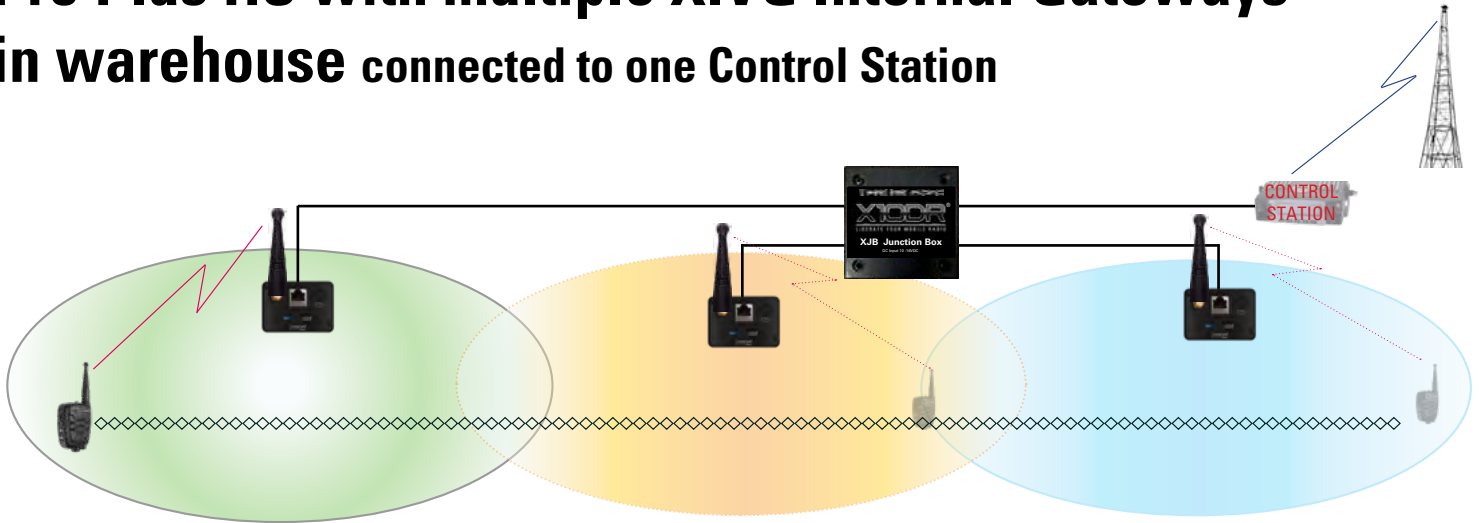


Alternate gateway with desktop charging.

Ordering: 1 x X10DRSM-PU2 Pro Plus Handset
1 x XDTC Desktop charger
1 x XIVG-PU2 gateway
1 x XIC-* Interface cable (flat)*desired length
1 x XCA -** adaptors ** to suit radio model
(Closed face) 1 x XMCH-C closed helmet headset kit
(Open face) 1 x XMCH-O Open helmet headset kit
1 x XCA -** adaptors ** to suit radio model



Pro Plus HS with multiple XIVG Internal Gateways in warehouse connected to one Control Station



X10DR is ideal for helping stay connected in large open areas such as sports arenas or perhaps for use in multiple warehouses that cannot be covered by a single gateway. Personnel equipped with an X10DR Pro Plus handset is now free to move around while always monitoring the control station and talking back with the simple press of the PTT. The handset continually monitor their current connected gateway signal strength and will connect to another gateway where available when their current connection becomes poor. Additionally, the user can short press the side RED Search button to manually select and reconnect to a stronger gateway if available.

Pro Plus gateways can be connected over a 100 meters from a centralized junction box connected to the host mobile radio. Note: The Pro Plus handset need to be paired with all the XIVG gateway units BEFORE they are installed. The handset can be recharged in a single desktop charger..

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 arenas.

The X10DR XIVG connects to the control station by way of a XJB junction box and appropriate length XIC-6.0 Interface cable and a separately purchased XCA radio specific adaptor. Extension cables and advice regarding use of custom length cables is also available. **Note:** Refer to interface cable, antenna and TDMA application notes before ordering.

- Ordering:**
- 1 x X10DRSM-PU2 Pro Plus X10DR Handsets
 - 1 x XJB 6 way junction box
 - 1 x XDTC-US Desk top charger-US AC Plug
 - 3 x XIVG-PU2 Pro Plus Internal Gateway
 - 3 x XSMA2 Ground independent antennas
 - 1 x XCA -** adaptor ** to suit radio model
 - 4 x Desired length XIC shielded interface cables as required (refer pricebook)

