WIRELESS PACIFIC™

X10DR®

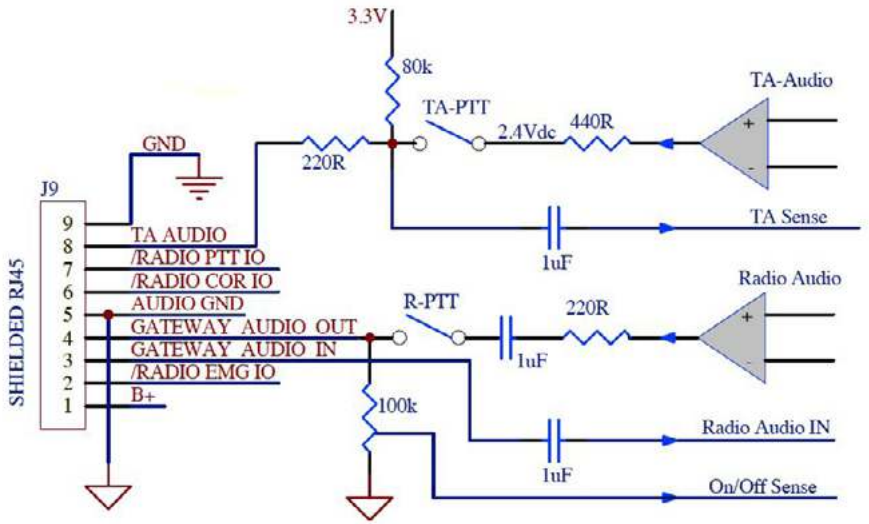
Plus

Installation Instructions & Integration Guide

Before you start!

X10DR has been designed to allow even simpler connectivity to most current digital radio models to those dating back from the 90's from most professional radio manufacturers. Additionally many users are finding X10DR the ideal way to liberate Control staff allowing them to freely talk around while maintaining strict control of the radio channel.

Understanding the basic connectivity will allow you to successfully connect to just about any wireless radio device, or to allied wired radio control consoles. The following describes the pin out connectivity of the X10DR gateway's 8 pin shielded RJ45 connector. Note: pins not used should not have DC voltages or grounds applied to them otherwise the device may be damaged or may cause incorrect operation. For simplicity ,"mobile" refers to a mobile radio, RF Control station, Radio Base station, Control Console, Satellite Communicator, Radio Link or any other electronic device designed to pass bi-directional audio.



Audio I/O Equivalent Circuit

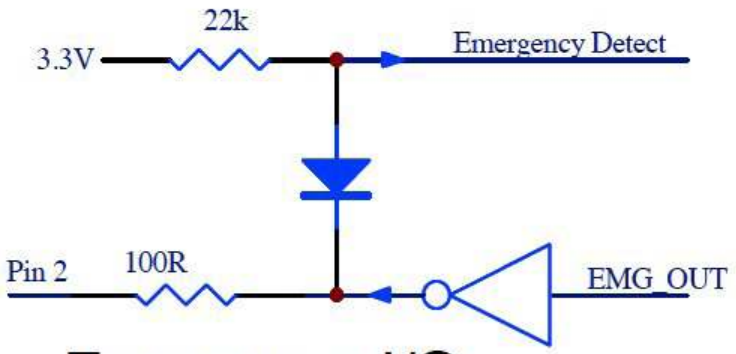
Pin 1. Power nominal +12VDC:

This pin should connect via a 3 amp in-line fuse preferably direct to a vehicle's 12V battery but can be any constant voltage from about 7-16VDC. Current consumption is typically 60mA or 20mA in standby. Max current 220mA@12V. It requires to be constantly connected to ensure the units can recharge when the host mobile may be turned off.

For vehicles that isolate the vehicle battery after hours, it is recommended the X10DR be installed with a XPB-C14 power bank connected in series with the radio interface cable. The XPB-C14 will ensure the X10DR Secure Microphone is fully charged when the vehicle is made active again. The 2nd generation X10DR Secure Mic includes a programmable auto-off timer to prevent the handset battery going flat, if left unattended. The "auto off" default timer is set to 8 hours of no connectivity to its host gateway.

Pin 2. Emergency output to radio:

Connect this pin to the host mobile radio's emergency input. It provides an active switched ground (<5mA sink) . The timing and action of the pin is programmable using the XFPK. The time held low can be set as a pulse of 'X' duration e.g. a fixed time of 2.5 seconds or alternatively, the exact time that the user presses the Emergency button. This output could be used for other functions such as to trigger the panic function of a car alarm system. On some radios this input is available as standard, on others it requires the host mobile's I/O ports to be first programmed for such. If the 100 ohm series resistor does not allow radio Emergency to be switched hard enough to ground, use a XCA-RJ adaptor to resolve. The XCA-RJ can also be used to provide a buffered Emergency output trigger max 50VDC@100mA.



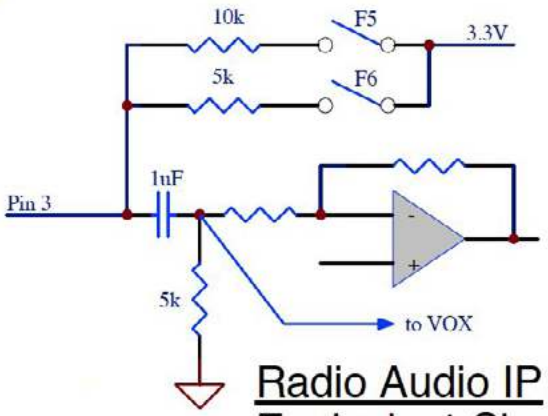
Emergency I/O Equivalent Circuit

Note: where the host radio requires active high ground input to trigger emergency, additional circuitry is included in the radio specific XCA adaptor to facilitate the correct functionality. On Elite models this pin on the gateway can be externally grounded to trigger audible alarms in the associated Secure Microphones.

Pin 3 - Radio Receive Audio:

This pin should connect to the host mobile's receive audio output which can be either high or low impedance. The audio source should be under the radio's squelch control and of a level above 40mVrms. Ideally, it should be sourced **pre-volume** control however it can be post. In such cases the host mobile radio's speaker audio has first been set for comfortable listening in the vehicle before adjusting the receive audio gain using the XFPK Field Programming Kit. The pin is multiplexed so it can also be used to indicate gateway programmable function 5&6.

A XSJB special junction box should be used to de-multiplex the function 5&6 status.

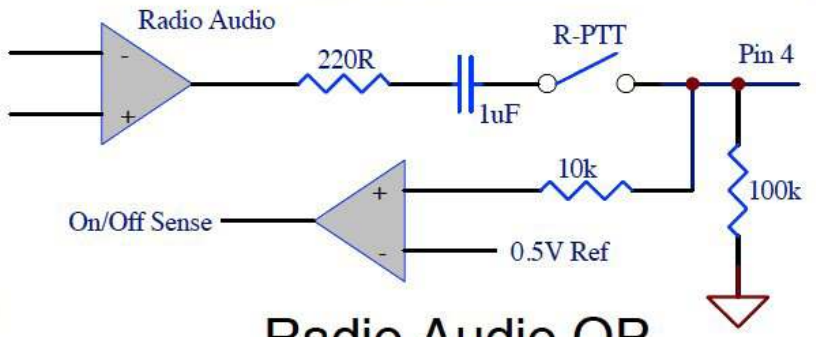


Radio Audio IP Equivalent Circuit

Pin 4 - Ext Mic Hi Output/Radio On detect

This pin should connect to the host mobile's transmit audio input. This is the audio from the Secure Wireless Microphone that is to be transmitted over the host mobile radio's transmitter. It is factory set for approx 80mV RMS. (This can be adjusted up to >400mV RMS by use of the X10DR XFPK Programming kit.)

Pin 4 is also used to automatically turn on/off X10DR by sensing the host radio's status. Generally most mobiles provide a DC voltage Mic bias for powering electret microphones on their external Mic Hi inputs. The XCA series cable adaptors provide added circuitry where Mic bias voltage is not available. Additionally some XCA adaptors also include circuitry to reduce audio levels when the host device interface specifications are outside the X10DR's normal operation range.



Radio Audio OP Equivalent Circuit

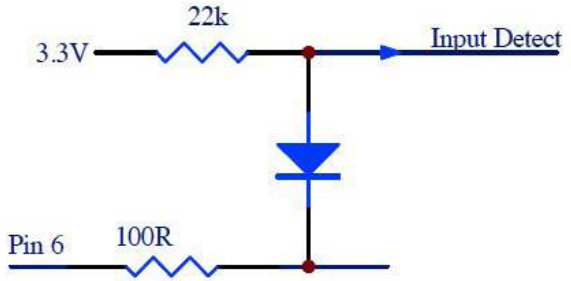
The installer should connect a 100K resistor between 12V (Batt+) to Pin 4 when a host device switched DC output is not available. **Note: The X10DR's Secure Microphone's battery will still charge when the mobile is powered off.**

Pin 5. Mic Lo:

This connects to the host mobile's microphone audio ground.

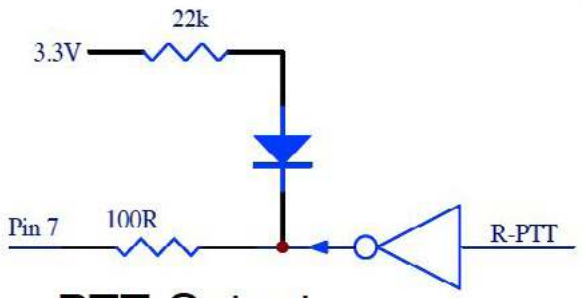
Pin 6. COR/ Audio unmute from radio:

This input is designed to monitor the receive status of the host mobile radio. For best operation it is driven by an "audio unmute" switched ground output from the host mobile. i.e. an indicator of whenever the host radio's speaker unmutes. Alternatively, it should be driven by a switched ground output that indicates the radio's squelch condition. This output should factor reception of the required correct CTCSS tones, etc. On some radios this output is available as standard, on others it requires the host mobile's I/O ports to be first programmed for such. On some radio devices a COR output is not available without modifying the host mobile. While this would be desirable, the X10DR features smart voice detect circuitry to adapt its operation in these cases where a radio COR is not available. The COR line input is normally set for active low but can be set for active high with use of the XFPK programming kit.



COR I/P Detect Equivalent Circuit

Pin 7. Ext PTT to radio:
This pin provides a switched ground output and should connect to the host mobile radio's external PTT input. Some radio models have active high PTT inputs. Those models will require the use of special interface cables that allow the X10DR output to be inverted to an active high. If the 100 ohm series resistor does not allow radio PTT to be switched hard enough to ground, use a XCA-RJ adaptor to resolve. The XCA-RJ can also be used to provide a buffered PTT output - max 50VDC@100mA.



PTT Output
Equivalent Circuit

Pin 8. Remote/ footswitch/Handle bar PTT:
This pin allows you to provide a remote PTT alternative to transmit Secure Wireless Microphone audio over the host mobile radio. You may choose to connect to a motorbike's handle bar PTT, a hidden palm or footswitch or a wireless PTT device.

When a headset is connected to a secure wireless microphone's Hirose® audio port the microphone sensitivity when the remote PTT is grounded is normal.
However, if a headset is NOT attached to the Hirose audio port, then grounding pin 8 by default causes the X10DR to transmit audio with substantially increased Mic sensitivity. The value of this Mic boost can programmed in the handset using the XFPK field programming kit.

Remote Monitor can be achieved by using a switched ground output from the host mobile to remotely activate the function. Thus a control room operator could send a remote monitor command on an equipped mobile that would enable the user's X10DR Mic and provide ambient audio to the control operator to ascertain the health or safety of the user.

Alternatively, this pin can be used with the XSJB Special junction box for other specialist applications.

Shield: . DC Ground:
This pin should connect to DC / Digital ground connection. Note: on digital radios this is usually NEVER audio ground. Connect to the vehicle's chassis or a solid DC ground from the host mobile.

Pre-Install Set Up

Radio Programming - VERY IMPORTANT

For correct X10DR operation, the host mobile radio on some occasions will require reprogramming (via its associated FPP/CPS etc) to enable correct functionality. Read carefully this instruction document and the Programming Parameters Guide (download at www.x10dr.com) to get a more complete understanding of the interfacing requirements. It is not a difficult interface but it does require common radio technical practical common-sense when interfacing to other devices. Whilst some manufacturers radios are pre-configured to suit from the factory, others require service shop programming for functions like PTT, COR (channel busy), emergency trigger and audio level settings to be accessible on the radios rear interface connector. Incorrect radio settings may cause distortion or noisy audio, the unit to not function or may damage either the X10DR or host radio if not configured properly.

Adjusting Levels - VERY IMPORTANT

Installation of the X10DR requires setting of audio levels between the X10DR and the host radio. The **XGALA** Gateway Audio Level Adjuster allows the X10DR to be configured in real time to provide optimum audio to be sent between the X10DR gateway and the attached host mobile. The X10DR is factory set to provide a nominal 80mVrms audio signal to the host radio's mic input. This level can be adjusted via setting the **Transmit Output Gain To Radio** on the **gateway** to suit the particular radios requirement. The level should be adjusted (if necessary) to match the audio level & quality when the X10DR transmit audio is compared with the host radio fist mic transmit audio level & quality (listen via a service monitor, or another radio). Additionally the **Secure Mic** can be programmed with the XFPK Field programming kit for a variety of audio level settings to optimise for your specific application. These include: Internal Mic Gain, Internal Mic High Gain Boost, External Mic Gain, External Mic High Gain Boost, Remote PTT Gain Boost and Fixed Alert Tone Volume when desired.

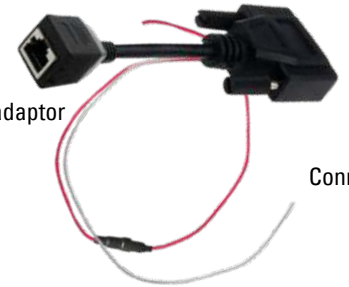
Receiver Input Gain From Radio on the **gateway** should be adjusted using XGALA to set a loud and undistorted receive audio signal on the X10DR unit when receiving from a service monitor, or another radio. Make sure the X10DR user volume control is on level 6 before adjusting (press the right blue button closest to the antenna 5 times and then press the left blue button once). Note: some radios can only provide a volume controlled audio output to the X10DR. In such cases you should first set the host radio speaker volume to a comfortable listening level in the vehicle, and then adjust the X10DR volume to suit.

Basic installation (Elite Plus model shown)

Mount on the vehicle roof or on a roof rack - clear of obstructions in the direction you wish to predominately communicate.

XMPA multi-polarity antenna including 5.2 meters of low loss LMR200 type coax and terminated RP SMA male connector (included in package)

XIC-1.5 interface cable (included in package)



Radio specific **XCA** adaptor -Order separately

Rear interface connector on your mobile radio

Connect RED wire to vehicle battery supply.

White wire is ONLY for remote PTT/handlebar PTT. Ground to PTT.

Optional installation Accessories

XEC-4.5 4.5 meter radio interface extension cable for installation requiring a long run between the mobile and the X10DR gateway. Cables may be daisy chained for longer runs.

XIC-0.5 50 centimeter radio interface cable for installation requiring a very short run between the mobile and the X10DR gateway. or when connecting XPB Power banks or other accessories

XIC-6.2 6.2 meter radio interface cable for installation requiring a long run between the mobile and the X10DR gateway.

XMDM2 Used in place of standard rear mounting plate on gateway unit to allow better positioning for user convenience or where limited mounting space is available. Installer may need to run a file over top edge of the XMDM2 mounting plate to allow a clean fit to gateway rear.

XPB-C14 Allows after hours charging for installations where the vehicle's battery is isolated when the vehicle is not in use. The XPB plugs in series with XIC-1.5 cable. Requires use of a XIC-0.5 cable for installation.

Dual Mic installation (Elite Plus model only)

Optional installation Accessories

XEC-4.5 4.5 meter radio interface extension cable for installation requiring a long run between the mobile and the X10DR gateway. Cables may be daisy chained for longer runs.

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XPB-C14 Allows after hours charging for installations where the vehicle's battery is isolated when the vehicle is not in use. The XPB plugs in series with XIC-1.5 cable. Requires use of a XIC-0.5 cable for installation.

White wire is ONLY for remote PTT/handlebar PTT. Ground to PTT.

Dual X10DR installation (Pro Plus model shown)

White wire is ONLY for remote PTT/handlebar PTT. Ground to PTT.

Optional installation Accessories

XEC-4.5 4.5 meter radio interface extension cable for installation requiring a long run between the mobile and the X10DR gateway. Cables may be daisy chained for longer runs.

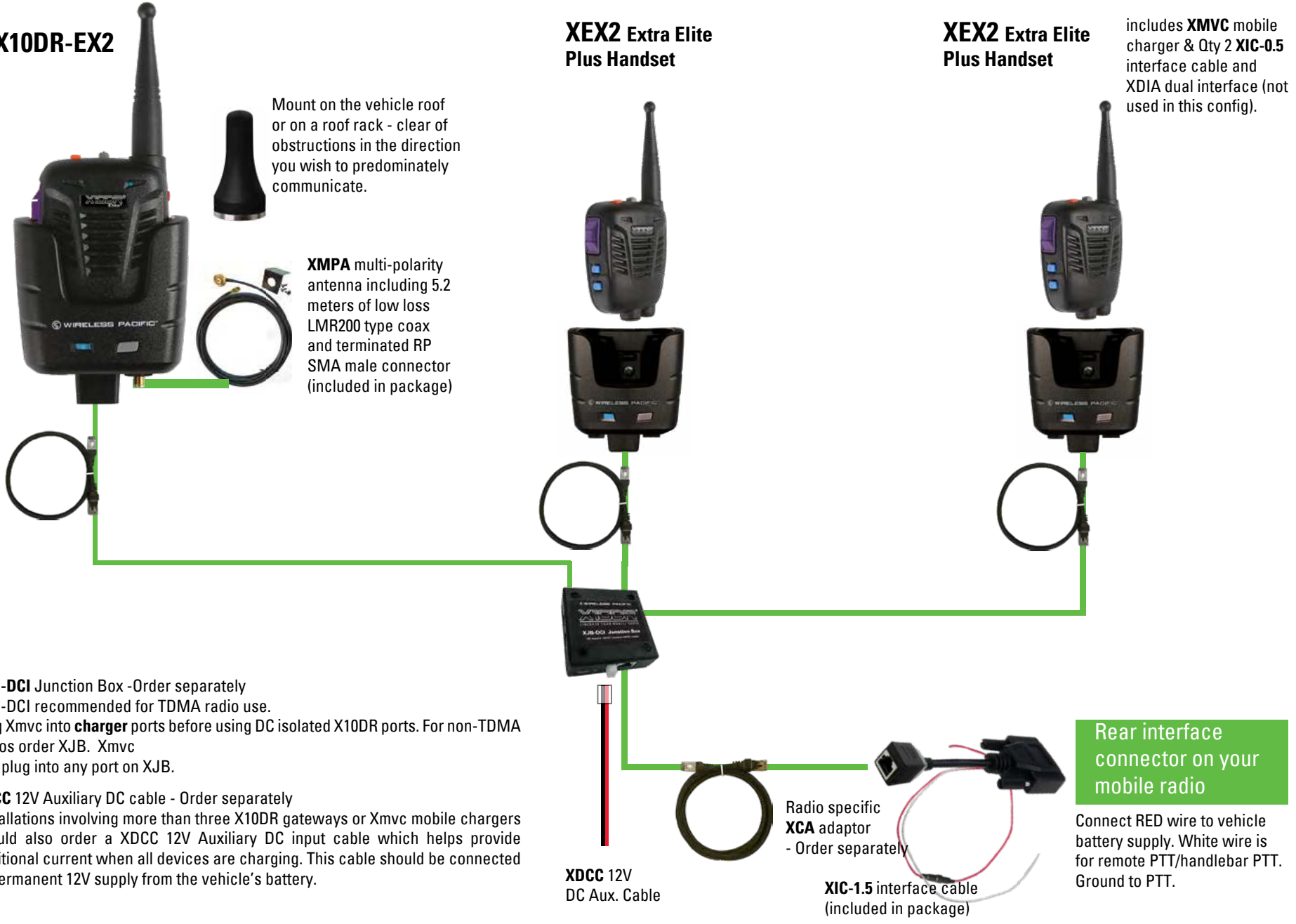
XIC-0.5 50 centimeter radio interface cable for installation requiring a very short run between the mobile and the X10DR gateway. or when connecting XPB Power banks or other accessories

XIC-6.2 6.2 meter radio interface cable for installation requiring a long run between the mobile and the X10DR gateway.

XMDM2 Used in place of standard rear mounting plate on gateway unit to allow better positioning for user convenience or where limited mounting space is available. Installer may need to run a file over top edge of the XMDM2 mounting plate to allow a clean fit to gateway rear.

XPB-C14 Allows after hours charging for installations where the vehicle's battery is isolated when the vehicle is not in use. The XPB plugs in series with XIC-1.5 cable. Requires use of a XIC-0.5 cable for installation.

Multi X10DR Elite Plus installation
3 handsets 1 gateway



Multi X10DR Elite Plus installation
6 handset 2 gateway

X10DR-EX2

XEX2 Extra Elite Plus Handset

includes **XMVC** mobile charger & Qty 2 **XIC-0.5** interface cable and XDIA dual interface (not used in this config).

XMPA multi-polarity antenna including 5.2 meters of low loss LMR200 type coax and terminated RP SMA male connector (included in package)

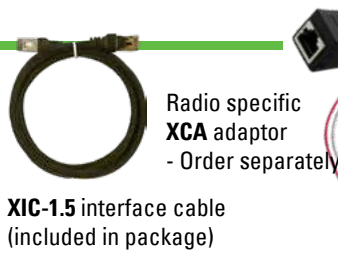
Mount on the vehicle roof or on a roof rack - clear of obstructions in the direction you wish to predominately communicate.

XIC-0.5 interface cables (included in package)

XJB-DCI Junction Box -Order separately
XJB-DCI recommended for TDMA radio use.
Plug Xmvc into **charger** ports before using DC isolated X10DR ports. For non-TDMA radios order XJB. Xmvc
can plug into any port on XJB.

XDCC 12V Auxiliary DC cable - Order separately
Installations involving more than three X10DR gateways or Xmvc mobile chargers should also order a XDCC 12V Auxiliary DC input cable which helps provide additional current when all devices are charging. This cable should be connected to permanent 12V supply from the vehicle's battery.

XDCC 12V DC Aux. Cable



XIC-1.5 interface cable (included in package)

Radio specific **XCA** adaptor - Order separately

Rear interface connector on your mobile radio

Connect RED wire to vehicle battery supply. White wire is for remote PTT/handlebar PTT. Ground to PTT.

Multi X10DR Elite Plus installation
9 handset 3 gateway

WIRELESS PACIFIC™

XMPA multi-polarity antenna including 5.2 meters of low loss LMR200 type coax and terminated RP SMA male connector (included in package)
Mount on the vehicle roof or on a roof rack - clear of obstructions in the direction you wish to predominately communicate.

XEX2 Extra Elite Plus Handset

includes **XMVC** mobile charger & Qty 2 **XIC-0.5** interface cable and XDIA dual interface (not used in this config).

X10DR-EX2

XIC-0.5 interface cables (included in package)

XIC-0.5 interface cables (included in package)

XMVC
can plug into any port on XJB.

XJB-DCI Junction Box -Order separately
XJB-DCI recommended for TDMA radio use.
Plug XMVC into **charger** ports before using DC isolated X10DR ports.
For non-TDMA radios order XJB. XMVC can plug into any port on XJB.

XDCC 12V Auxiliary DC cable - Order separately
Installations involving more than three X10DR gateways or Xmvc mobile chargers should also order a XDCC 12V Auxiliary DC input cable which helps provide additional current when all devices are charging. This cable should be connected to permanent 12V supply from the vehicle's battery.

XIC-1.5 interface cable (included in package)

XDCC 12V DC Aux. Cable

XDCC 12V DC Aux. Cable

Radio specific **XCA** adaptor - Order separately

Rear interface connector on your mobile radio

Connect RED wire to vehicle battery supply. White wire is for remote PTT/handlebar PTT. Ground to PTT.

Multi X10DR Elite Plus Handsfree installation
6 handset 2 gateway

X10DR-EX2

XMPA multi-polarity antenna including 5.2 meters of low loss LMR200 type coax and terminated RP SMA male connector (included in package)
Mount on the vehicle roof or on a roof rack - clear of obstructions in the direction you wish to predominately communicate.

XEX2 Extra Elite Plus Handset

includes **XMVC** mobile charger & Qty 2 **XIC-0.5** interface cable and XDIA dual interface (not used in this config).

XIC-0.5 interface cables (included in package)

XIC-0.5 interface cables (Order separately)

XHJB Handsfree Junction Box -Order separately

XJB Junction Box
-Order separately
Plug XMVC into **any** ports.

XDCC 12V
DC Aux. Cable

XIC-1.5 interface cable (included in package)

Radio specific **XCA** adaptor (Order separately)

Rear interface connector on your mobile radio

Connect RED wire to vehicle battery supply. White wire is for remote PTT/handlebar PTT. Ground to PTT.

XDCC 12V Auxiliary DC cable - Order separately
Installations involving more than three X10DR gateways or Xmvc mobile chargers should also order a XDCC 12V Auxiliary DC input cable which helps provide additional current when all devices are charging. This cable should be connected to permanent 12V supply from the vehicle's battery.

NOTE: Handsets must be ordered with XHFO option if handsfree operation is desired. Not all units need to have handsfree option if not required

Multi X10DR Elite Plus Handsfree installation
9 handset 3 gateway

WIRELESS PACIFIC™

XMPA multi-polarity antenna including 5.2 meters of low loss LMR200 type coax and terminated RP SMA male connector (included in package)
Mount on the vehicle roof or on a roof rack - clear of obstructions in the direction you wish to predominately communicate.

XEX2 Extra Elite Plus Handset

includes **XMVC** mobile charger & Qty 2 **XIC-0.5** interface cable and XDIA dual interface (not used in this config).

X10DR-EX2

XIC-0.5 interface cable (Order separately)

XIC-0.5 interface cable (Order separately)

XIC-0.5 interface cables (included in package)

Xmvc
can plug into any port on XJB.

XHJB Handsfree Junction Box -Order separately

XDCC 12V DC Aux. Cable

XDCC 12V Auxiliary DC cable - Order separately
Installations involving more than three X10DR gateways or Xmvc mobile chargers should also order a XDCC 12V Auxiliary DC input cable which helps provide additional current when all devices are charging. This cable should be connected to permanent 12V supply from the vehicle's battery.

XIC-1.5 interface cable (included in package)

Radio specific **XCA** adaptor (Order separately)

Rear interface connector on your mobile radio

Connect RED wire to vehicle battery supply. White wire is for remote PTT/handlebar PTT. Ground to PTT.

NOTE: Handsets must be ordered with XHFO option if handsfree operation is desired. Not all units need to have handsfree option if not required

XPB Power Bank installation (Elite Plus model shown)

X10DR-EX2

XIC-1.5 interface cable
(included in X10DR package)

XPB-C14 Allows after hours charging for installations where the vehicle's battery is isolated when the vehicle is not in use.

Radio specific **XCA** adaptor
-Order separately

XIC-0.5 interface cable
-Order separately

Rear interface connector on your mobile radio

Connect RED wire to vehicle battery supply. White wire is for remote PTT/handlebar PTT. Ground to PTT.

X10DR-PU2

X10DR-PU2

XIC-0.5 interface cable
-Order separately

Note:
Each XPB is capable of re-charging two fully discharged Secure Mics to 80% capacity. As most users will never fully consume the Secure Mic's internal battery the XPB will be sufficient for most installations. Alternatively, each gateway can be connected to its own XPB power bank device to ensure 100%recharge.

Rear interface connector on your mobile radio

Connect RED wire to vehicle battery supply. White wire is for remote PTT/ handlebar PTT. Ground to PTT.

Alternate Gateways

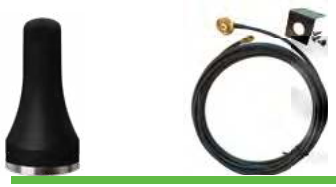
XRTG Elite Plus
Rooftop Gateway

XIC-6.0 interface cable
(Order length desired separately)

Radio specific
XCA adaptor
(Order separately)

Rear interface connector on your mobile radio

Connect RED wire to vehicle battery supply.
White wire is for remote PTT/handlebar PTT.
Ground to PTT.



XMPA multi-polarity antenna including 5.2 meters of low loss LMR200 type coax and terminated RP SMA male connector (included in package)
Mount on the vehicle roof or on a roof rack - clear of obstructions in the direction you wish to predominately communicate.

XIVG Plus Series
In Vehicle Gateway

XIC-0.15 interface cable
(Order separately)

Radio specific
XCA adaptor
(Order separately)

Rear interface connector on your mobile radio

Connect RED wire to vehicle battery supply.
White wire is for remote PTT/handlebar PTT.
Ground to PTT.

Mobile Charger Mounting

X3MK / X3MK-B 3 way mount, (B) with DC back up

Use with XMVC chargers. Includes XDCC-RJ and 3 x XIC-0.15 interface cables. Connect XDCC fused input to permanent vehicle battery 12VDC supply. If vehicle battery is isolated after-hours then fit B versions with internal battery backup. Remove cover (center screw) and then attach the rear metal sub-assembly to desired vehicle mounting space. After removing XMVC STD rear mount plates, use the same screws to attached the three charger cradles to the X3MK plastic front panel to secure the whole assembly and plug in the three XIC-0.15 interface cables. Lastly, plug the RJ45 end of DC cable into either end RJ45 receptacle. Cradle LEDs should now light. Cab be used with XIC series interface cables also.

B - Integrated Battery Back Up

The mounting kits provides back up Li-Ion battery power to recharge and maintain the handsets battery charge on vehicles that isolate the battery after hours.

XMVC Mobile Vehicle Charger

- Recharge in 3-4 hours. (Red charging / Green complete) Remove center screw and attach rear mounting plate to dash or use XMDM2 arm and screw directly to rear 4 'AMPS" spaced screws. Mounts to X3MK mounting kits with single center screw.

X1WK Mobile wireless charger

- recharge in 3-4 hours. Handset led blinks when charging. Comes with fused DC wiring. Connect to permanent vehicle 12VDC supply. Remove front screw to attach rear housing to vehicle dash or XMDM2 mounting arm, before reassembly.

X3WK / X3WK-B 3 way mount, (B) with DC back up

3 way wireless charger (B) with DC battery back up. Use with X10DR with XHWC wireless charging fitted. Includes XDCC-RJ DC cable. 12VDC input. Remove cover (3 front screws) and then attach rear metal sub-assembly to desired vehicle mounting space. After removing Use the same screw to attached the plastic front panel to secure the assembly. Place X10DR handsets with wireless charging on each Velcro pad.

XJB/XSJB/XHFB/XDIA Series Junction Boxes

XJB Junction Box

This 6 way junction box provides connectivity between multiple X10DR devices. The device has a DC input port to allow connection of a XDCC 12VDC Aux. Cable to be connected when more than three X10DRMD gateway/Xmvc mobile chargers are connected. Devices can be paralleled or daisy chained when required for greater connectivity.

XJB-DCI Junction Box

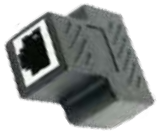
This 4 way junction box provides DC isolated connectivity between multiple X10DR devices. This is required in many situations to prevent audible noise emanating from connected TDMA radios such as TETRA and MotoTrbo and other DMR devices. The device has a DC input port to allow connection of a XDCC 12VDC Aux. Cable to be connected when more than three X10DRMD gateway/Xmvc mobile chargers are connected. The device also includes two un-isolated ports for connection of Xmvc mobile chargers. Devices can be paralleled when required for greater connectivity. A XDIA can be used for connecting two XJB-DCI to one host radio.

XSJB Smart Junction Box

This smart interface unit allows up to two X10DRs to be connected up to two radio communication devices.
It also includes a separate X10DR gateway port for Loneworker operation. The XSJB reads parameters on the X10DR communication bus that allow the Loneworker application to sense whether a handset is out of the cradle and whether it is within range of the associated gateway device. It attaches an adjustable level audio beep to the tail of each reception on radio 2.

XHJB Handsfree Junction Box

This smart interface unit allows up to three X10DR gateways to be connected up to two radio communication devices.
The XHJB reads parameters on the X10DR communication bus that allow the Handsfree application to sense whether a any handset fitted with XHFO handsfree operation has activated handsfree mode. It attaches an adjustable level audio beep to the tail of each reception on radio 2. Users cannot transmit on radio 2 if handsfree is active.

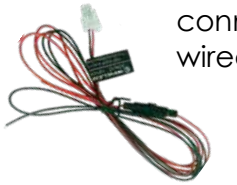


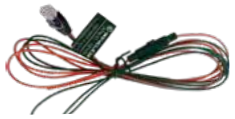
XDIA Dual Interface Adaptor

This device provides a three-way shielded RJ45 junction. It is supplied as standard with each XEX2 Elite 2nd Mic Kit to allow connection of the Xmvc mobile charger to the fused (3A) DC power carried on the XIC/XEC interface cables. It can be used to allow third party devices to be (carefully considered) connected to the X10DR communication bus as well as providing a break out port to connect a XCA-RJ buffered PTT & Emergency outputs.

XDCC 12V DC Auxiliary Cable

This cable provides away of providing addition vehicle battery current when more than three X10DRs/ mobile chargers are connected to the one host mobile radio. In installations where no host mobile radio is connected, the XDCC cable can be wired to a suitable AC/DC power supply (e.g. WP12500 12v@5A) which can used to power all connected devices.





XDCC-RJ 12V DC Auxiliary Cable

As above but terminated with RJ45 plug for any X10DR accessory wit RJ45 connector.

XIC/XEC Series Interface Cables

The X10DR gateway device connects to the mobile radio's rear accessory port by way of a supplied various length 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. Cables will overtime be migrated to the new flat white versions.

XIC-0.15/0.4/0.5 are short interface cable designed for interconnection between interface boxes and other X10DR devices or when connecting XPB Power banks or other accessories. Cables will overtime be migrated to the new flat white versions.

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 preferred.

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

XIC-0.5 50 centimeter radio interface cable for installation requiring a very short run between the mobile and the X10DR gateway. or when connecting XPB Power banks or other accessories

XIC-1.5 1.5 meter radio interface cable supplied as standard with each X10DR package.

XIC-0.4 1.5 meter radio interface flat white cable supplied as standard with each X10DR package.

XEC-1.8 1.8 meter radio interface flat white cable for installation requiring a long run between the mobile and the X10DR gateway. Cables may be daisy chained for longer runs.

XEC-4.5 4.5 meter radio interface extension cable for installation requiring a long run between the mobile and the X10DR gateway. Cables may be daisy chained for longer runs.

XIC-6.2 6.2 meter radio interface cable for installation requiring a long run between the mobile and the X10DR gateway.

XIC-0.15 15 centimeter radio interface flat white cable for installation requiring a very short run between the mobile and the X10DR gateway. or when connecting XPB Power banks or other accessories

XIC-6.0 6.0 meter radio interface flat white cable for installation requiring a long run between the mobile and the X10DR gateway.

XPB-C14 1450mA "After Hours" power supply (Dual ports)

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 DC UPS. The DC UPS is fitted in line with the standard XIC interface cable that connects the X10DR gateway cradle to the host mobile radio. The XPB-C14 has **two ports** allowing two gateways to be connected, or a gateway and a mobile charger, if desired.

This installation device is designed to provide "after hours" charging of X10DR handsets for installations in vehicles where the battery is completely "isolated" whenever the vehicle is non-operational. The XPB-C14 device plugs in series with the standard XIC-1.5 interface cable using a XIC-0.5 short cable. When the vehicle is operational, the XPB-C14 internal batteries are re-charged while the vehicles battery power is also passed to power the X10DR devices attached.

When the X10DR handsets are placed back into the gateway cradles or XMVC mobile chargers, they will immediately commence to recharge from the vehicle battery, if available, but if not, from the XPB internal battery power bank. The one power bank can typically recharge two 80% depleted handsets. Should this be felt to be insufficient then one XPB-C14 can be connected to every X10DR gateway or Mobile charger in the vehicle to assure each device is 100% charged ready for their next deployment.

AC backup - UPS use

The XPB can also be used to operate purely as a UPS (uninterrupted power supply) when the X10DR system is installed in a building with AC power rather than a vehicle. Connected as above between the X10DR gateway and the host communications device the XPB will continue to power the system in the event of loss of AC power. The XPB-C14 powering two X10DR gateways will typically last 10 hours plus.,The device will normally obtain its charging/operational volts from the connected XIC-1.5 cable but if preferred an **XDCC** 12 V DC Auxiliary cable can be connected.

XMPA Multipolarity 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. XRTG Plus external gateways are ideal.

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 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.

Hirose Interface Port

X10DR has been designed for headset use and especially for Motorcycle installations. Every X10DR Pro and Elite has an Hirose® interface port specifically designed to connect to most bike riders helmet audio or most industry standard hearing protection headsets. The following provides an overview of how to convert from being "wired to the bike" to liberating the rider to allow untethered communication for up to 500m from the bike. Firstly, the extra white colored wire that you will find on a type 1 "XCA series cable adaptor is designed to provide a wired remote PTT function and this should be connected to the bike's existing handle bar PTT switch and the existing PTT wire to the radio disconnected - assuming a fall back wired helmet is not required. If you do want to have a wired back-up capability, then it may be necessary to remove the existing wire that comes from the handle bar PTT that goes to the radios PTT input and then reconnect that via a toggle switch so user can select wired or wireless operation.

For most organizations, helmets with integrated headsets will already exist. These usually have a short wire tail dropping from the helmet with a *quick release* connector that plugs into a mating jack on a cable hard wired to the bike that connects either A/ directly to the host radio's microphone input and speaker output, or B/ via an external interface box, that allows the rider to manually or automatically switch speaker audio from their helmet to horn speakers when leaving their bikes.

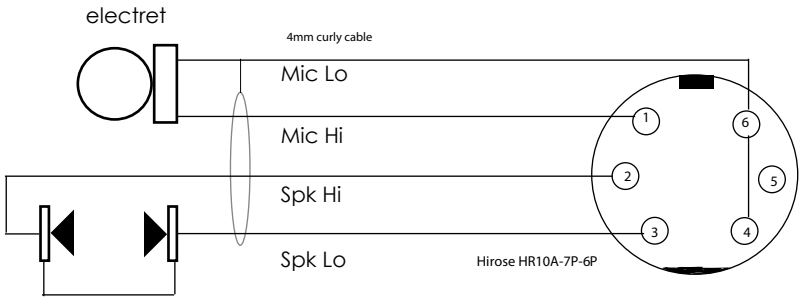
For permanent X10DR fit-ups where no wired redundancy is desired, we suggest you replace the existing helmets down cable's with one that has a Hirose HR10(A)-7P-6P connector, (ideally a molded version but if not, one that will stop water ingress when riding in torrential rain and at high speeds) or replace the existing audio headset with either the XMCH-C closed face or XMHC-O open face helmet headset accessory. Alternatively, if you wish to maintain wired redundancy, then you need to make/buy a short interface cable that correctly connects the existing helmet's Mic Hi and Mic Lo and Spk Hi and Spk Lo to the correct Hirose pins as per the following wiring charts.

As some organizations have adopted their own wiring standards for the motorcycle helmet audio "down cable", WCL has a **custom cable service** available to allow custom professionally manufactured interface cables to plug between the X10DR's 6 pin Hirose connector and your existing helmet wiring.

CAUTION: To ensure maximum range when dismounted from the bike, the rider should attach the X10DR to their shoulder area and then make sure headset cable lengths do not interfere with the riders movements on the bike.

X10DR Headset Cable Wiring

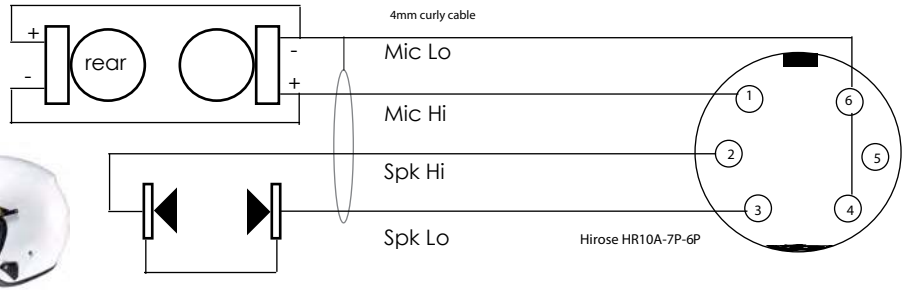
XMCH-C Interface cable - Closed face - Electret Directional



Suggested
X10DR Programming:

Set External Mic gain Std = 4
External Mic High Gain Boost = 6

XMCH-O Interface cable - Open face- Dynamic Noise cancelling

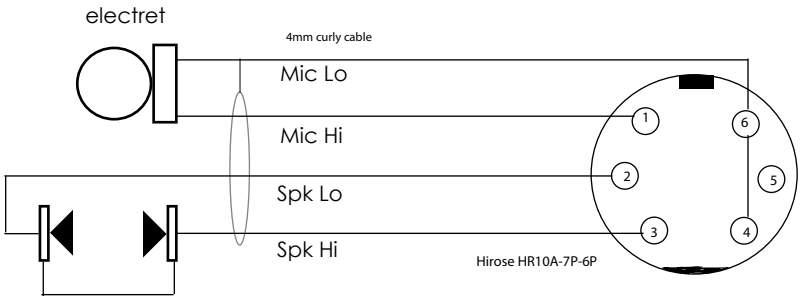


Suggested
X10DR Programming:

Set External Mic gain Std = 10
External Mic High Gain Boost = 6

X10DR Headset Cable Wiring

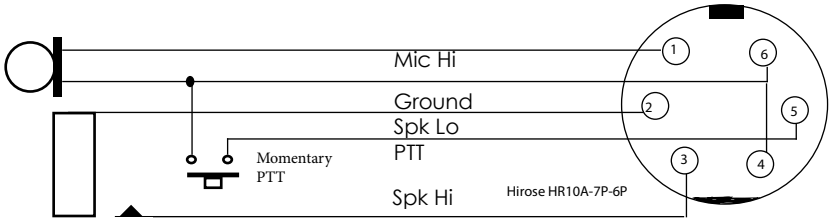
WPSHC Interface cable - Heavy Duty - Electret Directional



Suggested
X10DR Programming:

Set External Mic gain Std = 2
External Mic High Gain Boost = 6

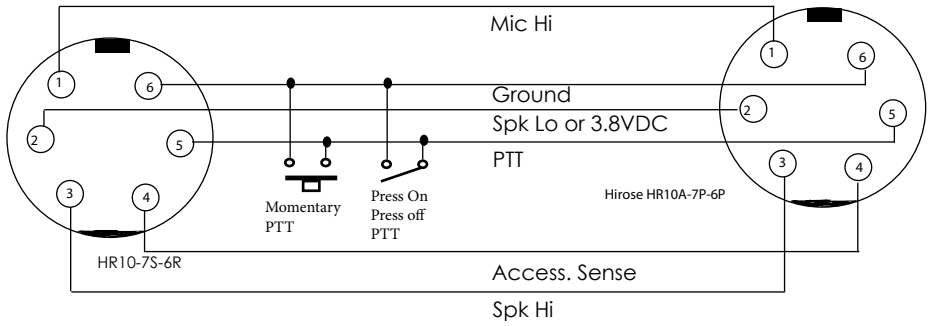
WPiTRQ-X10 - Advanced Ear Mic



Suggested
X10DR Programming:

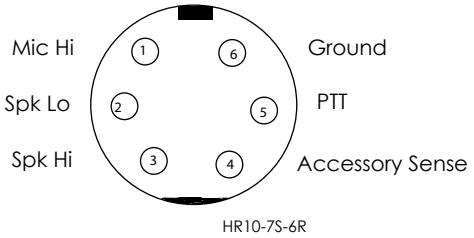
Set External Mic gain Std = 4
External Mic High Gain Boost = 6

XIPB In-line PTT - for Hirose fitted accessories.



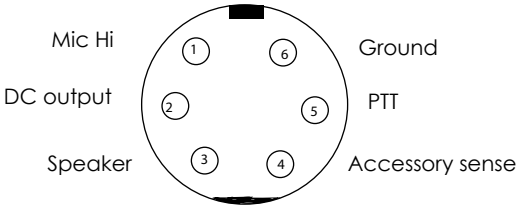
X10DR Plus Hirose Port Wiring

Default Hirose Audio Port.

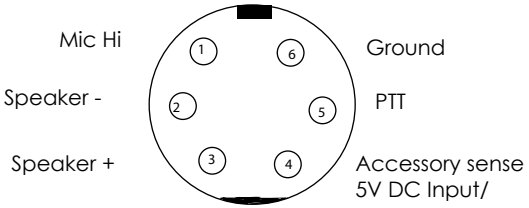


HR10-7S-6R

Elite Plus Programmable Pin 2 DC output.



External Battery charging Pin 2 DC Input.

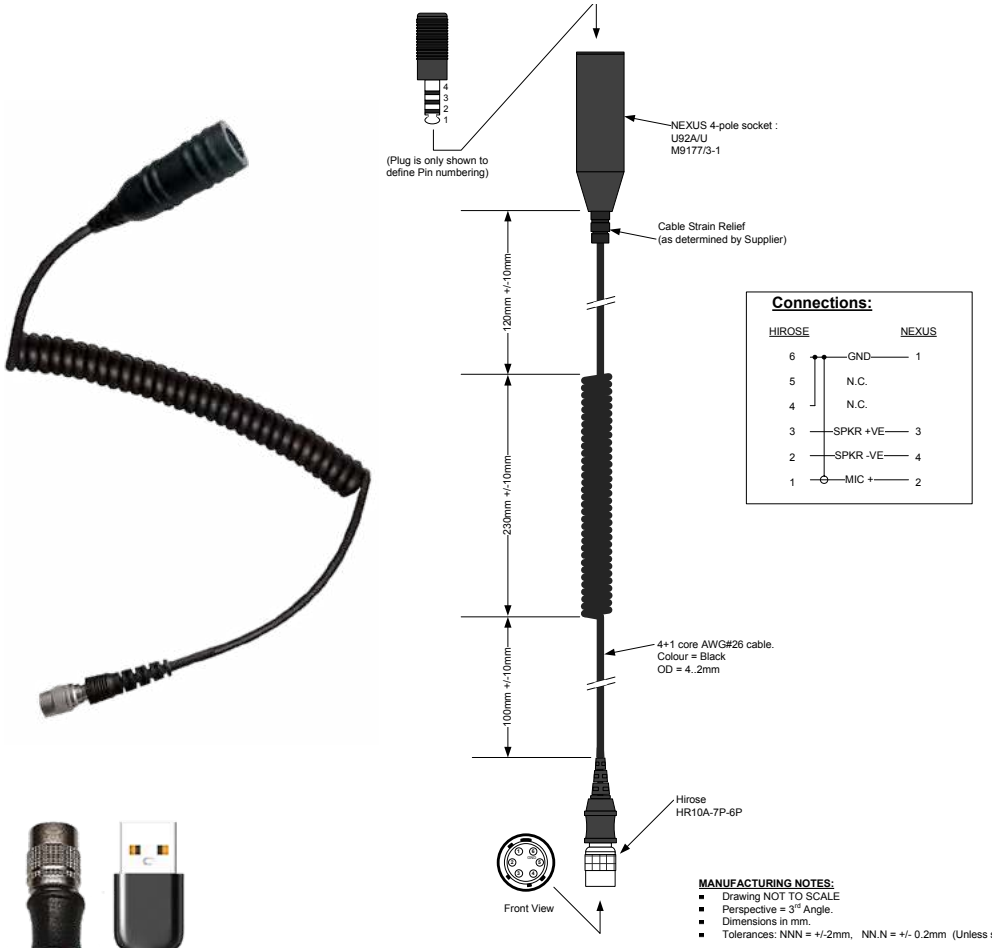


Hirose Pin Out.

Pin 1 Mic Hi Bias voltage 2.2V ~ 80mV RMS sensitivity
Pin 2 Spk Lo ~0.5W 32 ohm
or on **Elite model** use XFPK to set Hirose pin 2 to BAT+ (~3.8VDC) via an 18ohm resistor to power external audio accessories. Default is bridged output speaker audio when pin 2 is set for speaker negative.
Pin 3 Spk Hi ~0.5W 32 ohm
Pin 4 Accessory sense - active ground / & +5V DC charging input
Pin 5 PTT (Radio default or Talkaround) - active ground
Pin 6 Ground (shield)

WPNEX-X10 Nexus to Hirose Port Wiring

The WPNEX-X10 is designed to allow existing helmet headsets that use the Nexus wiring convention to connect directly to an X10DR handset device.



XEBC External Battery Cable allows you to recharge an active X10DR handset using commonly available USB power banks. (X10DR Pro Plus and Elite Plus only).

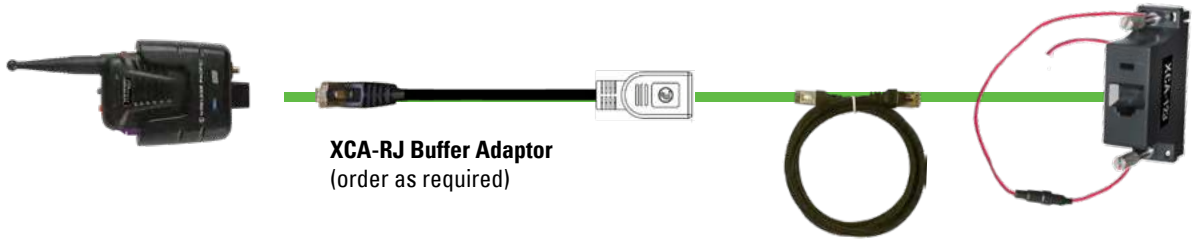
XCA-RJ Buffer Adaptors

XCA-RJ buffer adaptors are available for resolving PTT or Emergency interface compatibility issues on some particular model radios. The incompatibility symptoms they are designed to address are:
1/ No PTT on host mobile radio when X10DR Handset PTT is pressed but all other functionality correct.
2/ No Emergency trigger on host mobile radio when Handset Emergency button is pressed but all other functionality correct.

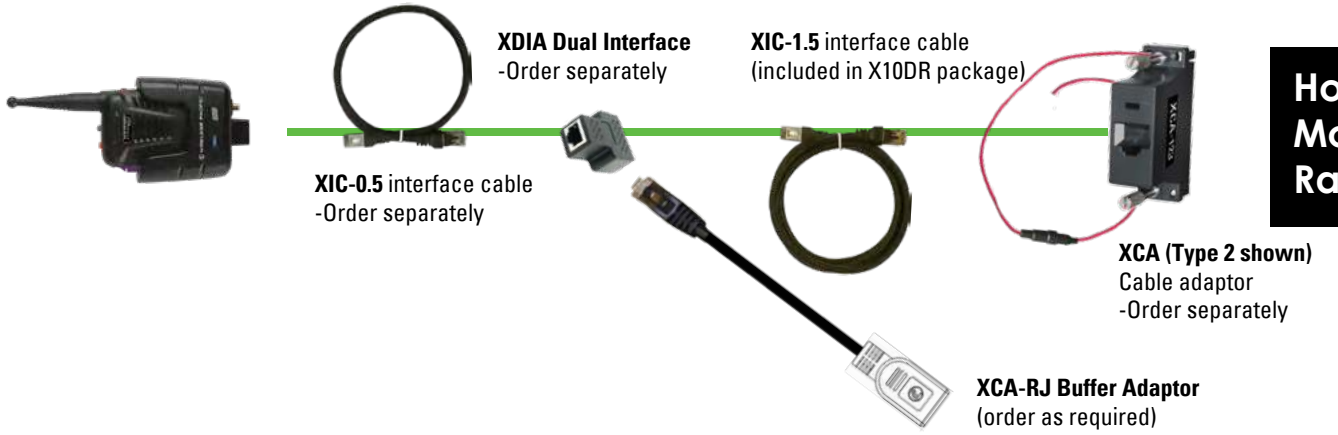
The XCA-RJ Buffered adaptor plugs into the X10DR gateway RJ45 port and then in series with the XIC interface cable and the specific radio XCA cable adaptor (either type 1 or 2). Contact your Master Distributor if you feel your radio may require.

Alternatively, the XCA-RJ can be used to provide external gateway buffered PTT and Emergency outputs. This is for situations when you wish to use those switched ground outputs to drive other third party equipment. Maximum sink current is 100mA @50V. Connection is via use of a XDIA dual interface or can be via XJB/XSJB junction boxes where more appropriate.
Buffered PTT is available between shield and Pin 7 and buffered emergency is available between shield and Pin 2.

Compatibility Configuration:
Used to resolve PTT and Emergency interface issues.



Alternate Configuration:
Used to provide external buffered PTT and Emergency outputs



Troubleshooting

Unexpected Noises:
Assuming you have a correctly configured XCA radio interface adaptor for your particular mobile, the most common cause of unexpected or erratic noises is due to poor earthing. Check the radio has a good solid earth. The X10DR expects to see a good earth coming from the rooftop antenna. Make sure the rooftop mount base, if mounted into the vehicle's roof, is not being prevented from a strong earth by pain or dampening material under the vehicle roof. (See page 18)

TDMA/DMR radios:
Connecting multiple Gateways to a DMR (MotoTrbo) or TETRA radios may cause TDMA ground noise to be heard on transmit or receive audio. Use a XJB-DCI in series with the XIC cable to provide DC isolation between gateways and the host mobile radio. The XJB-DCI has 4 DC Isolated connection ports. (See page 18)

High powered mobiles:
Another possible cause of unwanted noises can be due to the coax cables from the mobile radio and the X10DR gateway being run together. Please try to keep them separated to prevent RF breakthrough especially when using high powered mobile radios.(See page 18)

End of Battery life:
Like all lithium Ion battery powered devices eventually, the battery will need replacing. This typically after being recharged about 300-400 times depending on environmental conditions and battery drain use characteristics. If you find a handset that has been fully charged is sounding battery low alert tones every couple of minutes when being used for less than 10 hours then it probably requires replacement. The plug-in replacement process is easy for technical staff and can be completed in a couple of minutes. We do not recommend replacement generally by non-technical or inexperienced staff as waterproofing etc could be compromised if appropriate care is not taken when re-assembling the rear cover..

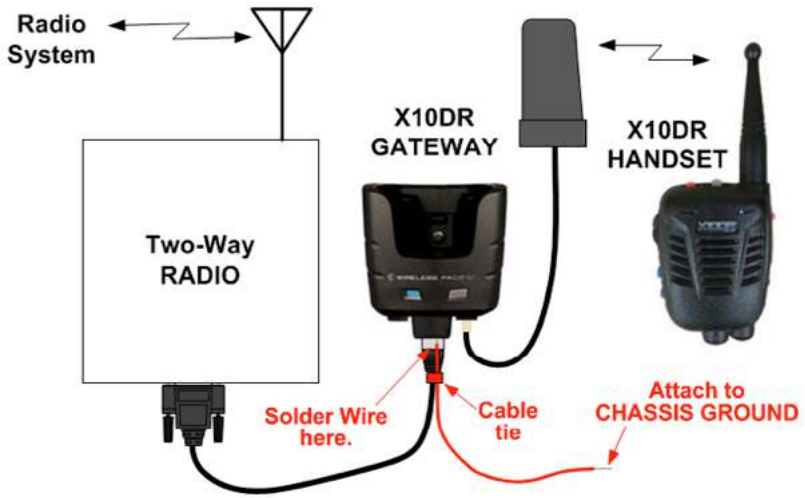
X10DR NOISE REDUCTION

Grounding strap

These noises can be more evident when:
- External mounted Antenna's base is not attached to a well grounded roof or vehicle rack.
- When the installed XIC interface cable is longer than the supplied standard 1.5m length.
- When connected to TDMA radios e.g. TETRA DMR, MotoTrbo radios etc.
- When a number of X10DRs are connected to the one host mobile radio
- when other third party products are attached.

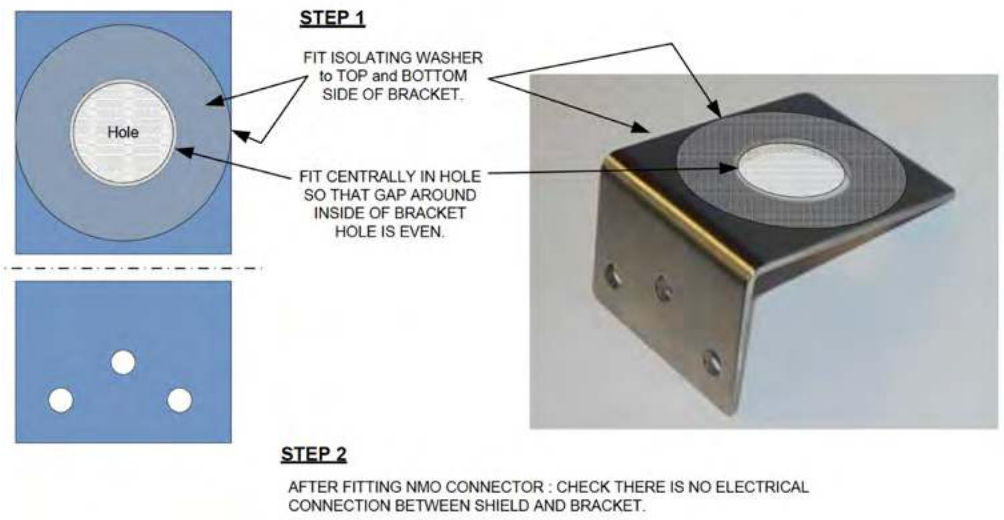
Depending on the quality of the grounding of the associated radio equipment there may be situations where extraneous noises can be heard, especially when the attached host mobile radio is transmitting. These noises can be generally be eradicated by fitting a grounding strap. The grounding strap should be as short as localized grounding allows, 60cm is ideal.

A ground connection can easily be implemented during the installation process by soldering a wire (~22AWG) to the metal housing of the RJ45 connector that plugs into the X10DR Gateway, and then attaching the wire to a suitable chassis point near the Gateway. The ground strap should be soldered and secured to the cable via a small cable-tie as shown.
Finally, always make sure the SMA connector is firmly secured ideally using a small 8mm spanner or crescent wrench. (take care and be careful NOT to over-tighten)



ANTENNA ISOLATION

In some installations just isolating the Antenna Ground from the vehicle chassis may break the critical ground noise path. Fitting Isolating spacers around the Antenna bracket can help in this situation.



INCREASING AUDIO DRIVE LEVELS If the interference is only minor, some improvement can sometimes be gained by adjusting the Gateway Audio Drive Level (and reducing the respective input gain in the radio, via its programmer). The Gateway "Transmit Audio Gain to Radio" parameter is shown below, and can be increased via the X10DR Programmer, or via the XGAT Application

ISOLATING GATEWAY POWER SUPPLY:

In some installations the Gateway can be driven from an isolated power supply to reduce power related interference. The "XJB-DCI" (X10DR Junction- Box – DC-Isolation) unit can be inserted between the radio and the Gateway(s) as shown below. The XJB-DCI unit contains an isolating power supply module that effectively breaks power and ground connections between to the radio. The DC-Aux cable may not be necessary if the radio is normally supplying power directly to the Gateway. When this unit is used care may need to be taken to not provide a separate ground path to the vehicle chassis. The ANTENNA ISOLATION solution may also be required in this case.

Revision O