

rugged. radios

Intercom Kit Installation Instructions

Before You Begin...

- These instructions include installation information for additional equipment including mobile radios and accessories. Whether you have a mobile radio or some of the additional accessories mentioned depends upon the equipment purchased.
- Connect to a 12V negative ground system only.

INSTALLATION

Location

- Find a good location to mount the intercom and mobile radio. If possible, mount the mobile radio no more than 3' from the intercom. Standard mobile radio to intercom cables are 3' long.

Mounting

- Mount the intercom and radio away from ignition boxes to avoid RF interference. Mount the intercom with supplied 'L' brackets with the intercom.
- Mount the mobile radio with the bracket supplied by the radio manufacturer.
- With UTV mounts, the above brackets may not be required.

Headset Cables

- Route headset cables from the intercom to each seat. Run cables away from excessive heat/exhaust to prevent damage.
- Always route the cables away from ignition boxes or coils as RF interference may occur.
- Be sure the driver cable is plugged into the driver position on the intercom. If the co-driver and driver are reversed, the co-drivers mic will turn on when the driver pushes their Push-to-Talk (PTT) for mobile radio transmitting.

Mobile Radio Cable

- If you're installing a mobile radio, plug the serial style connector (1) into the back of the mobile radio. Plug in the 5 pin connector (2) into the pigtail cable coming out of the back of the intercom. **Be sure to plug the 3.5mm gold plug (3) into the back of the radio into the external speaker port.** Note: The cable may vary per radio brand and model.

Mounting Options

Have a roll bar? Using optional Roll Bar hangers may provide additional mounting options for most Rugged Intercoms or other accessories. Visit the Mounting Solutions link on our website.



About Headset Cables

There's two types of cables: Headset Direct Cables

These cables connect directly from the back of the intercom directly into the headset.



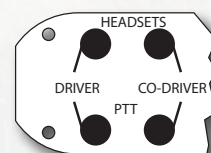
Offroad Cable

These are 'quick connect' style cables that allow 'pig tails'. Pig Tails are short cable connections from the headset to the main intercom cable which is typically attached to a seat belt. These are preferred when you want the ability to quickly disconnect from your main cable to exit the vehicle while wearing the headset.



Push-to-Talk (PTT) Button

- If you're using **HEADSET DIRECT** cables as shown bottom left, the push to talk on the headset will be active for Car-to-Car transmitting.
- If you're using **OFFROAD** headset cables as shown bottom left, additional remote PTT's will need to be installed.
- **Hole Mount PTT:** Drill a 3/4" hole and mount the push to talk.
- **Velcro Mount PTT:** Mount on the steering wheel, grab bar, or shifter. If mounting on the steering wheel, be sure to coil the cable around the steering wheel column. Secure cable with zip ties. Turn steering wheel lock to lock and make sure the cable does not bind. Damage can occur if the cable binds while turning.
- With all PTT installations, be sure to plug in the Driver PTT into the PTT jack just below the driver headset jack. Refer to illustration for back of intercom and PTT placement. Plug in the Co-Driver PTT right below the Co-Driver headset jack.
- Be sure to locate the PTT's and their cables away from pinching or binding areas.
- The Driver PTT will turn on the Driver mic only and the Co-Driver PTT will only turn on the Co-Driver's PTT, so be sure to plug PTTs into the right intercom port.

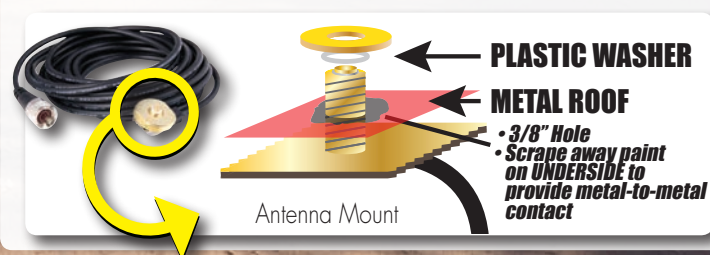


Antenna/Coax Cable

- For best performance, mount the antenna on a metal or aluminium roof in the center. The 1/2 wave NGP (No Ground Plane) antennas do not require a ground plane (meaning, metal surface) but it is always best to have enough metal surface area over 2'x 2' area.
- Mount NMO connector to a 3/8" hole in roof or roll bar top. Be sure to scrape away any paint on the underside so the NMO mount gets a good metal contact.
- Route the coax cable away from ignition boxes, coils, HID ballasts, amps, headset cables, and other components that carry power or emit RF interference.
- **IMPORTANT! If there is any excess coax cable after installation DO NOT COIL THE CABLE! Coiling coax cable will cause transmit problems and limit radio range. Ideally, the coax should be cut to exact length and re-crimped with connectors. However, if that option is not available, route the cable further around the car.** We have a video online that offers detailed information about cutting coax, proper antenna installation and tuning.

Antenna Mount Options

Have a roll bar? Use an optional Antenna Bar Mount for additional mounting options for your primary or backup antenna.



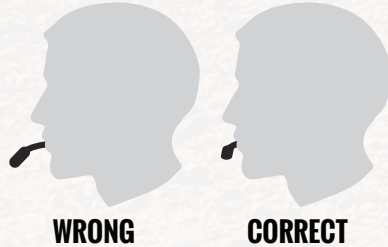
OPERATION

Connect Power

- Intercoms will run on 9 to 12V DC only! Your intercom is very efficient and will run on very little power.
- RADIO and INTERCOM: Route the radio power cable **directly to the battery**. Do not connect inline with other components or to the fuse box.
- DO NOT remove any fuses that are in line with factory cables. This will void the factory warranty.
- Route all power cables directly to the battery. If power is tied to ignition, light or other power sources, a ground loop problem may occur.

Intercom Operation

- For all intercoms, turn on intercom by rotating volume control clockwise. Put headset on and move microphone as close to your mouth as possible. Speak into the mic and you should hear your own voice in the headset. The ability to hear your own voice is called "sidetone" and helps users monitor the quality and loudness of your own speech.
- Adjust the volume control to desired level.
- For VOX equipped intercoms, rotate the VOX dial control counter clockwise slowly until the mics turn off. Speak into the mic and the VOX should turn mic on. Set this level higher to cut out wind and engine noise. Running the mics as close to your mouth as possible will allow a higher squelch setting to be used. This will block out more background noise while mics are turned off.



WRONG **CORRECT**

With headsets and helmet kits, be sure to position the mic as close to your lips as possible for best audio performance.

- When the intercom is on, there will be a steady glowing BLUE LED light on the front of the intercom.

When you press a PTT button to transmit car-to-car, the LED will change color to RED.

Car-to-Car Operation

- Turn on the mobile radio and select the channel you wish to transmit on. **The incoming volume of other cars is controlled by the radio.**
- To transmit to another vehicle, push the remote push to talk on the steering wheel or headset (when **HEADSET DIRECT** cables are used.)
- Refer to the owners manual for complete radio operation and functions.

Car-to-Car Transmit Level

The intercom is preset for the proper transmit level but fine tuning may be needed. If your transmit volume is too low or you're transmitting too much background noise simply adjust the RADIO GAIN control on the back of the intercom. Remove the small round plastic cover. Insert a small flat head screwdriver into the hole. Rotate the control one click at a time. Turning counter clockwise will decrease the transmit level and clockwise will increase the transmit level Please note:

- PTT buttons will only activate one mic at a time.
- Driver and co-driver ONLY will have PTT capability. Any passengers will have in-car communications only.

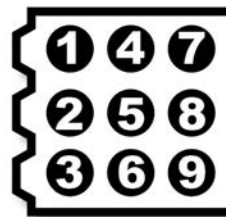
Music Input

- For intercoms with a 3.5mm music port, simply plug in a 3.5mm stereo cable into the intercom and the music device. Turn on the music device and set the volume level. Most current model Rugged Radios intercoms feature VOX operation, so the music will automatically mute when talking over the intercom or during radio transmit. If the music is always muted, adjust the VOX (Squelch) control on the intercom until the mics turn off.
- The volume for the music is only controlled by the music device.

Check Installation

- Make sure all cables are tied up and away from heat sources or where damage, crimping, or cutting may occur.
- Check all bolts and mounting hardware to make sure everything is tight.
- **IMPORTANT:** Make sure power leads for the intercom and/or radio connect directly to the battery. Do not connect inline with other components or to the fuse box.
- **IMPORTANT:** Make sure you haven't coiled up any excess antenna cable. Doing so will dramatically decrease radio range and performance.

Optional Molex Connector for intercoms with AUX port



#	Connection	Color
1	Music in right	red
2	Music in left	white
3	Ground	large black
4	Audio Out - left	green
5	Audio Out - right	small black
6	Ground	large black
7	Cell mic	yellow
8	Cell speaker	blue
9	Ground	large black

ADDING ACCESSORIES WITH MOLEX CONNECTOR

Intercoms with an AUX port have the ability to connect cell phones, in car cameras, and stereo systems with the optional rear 9 pin detachable Molex plug. When not installing these devices this cable will not be used. But if you are using these devices simply plug in the accessory cable into the AUX port on the back of the intercom. Follow the diagram for proper hook up of these devices. When looking at the Molex connector, the aligning notches are on the left.

CELL PHONE CONNECTION

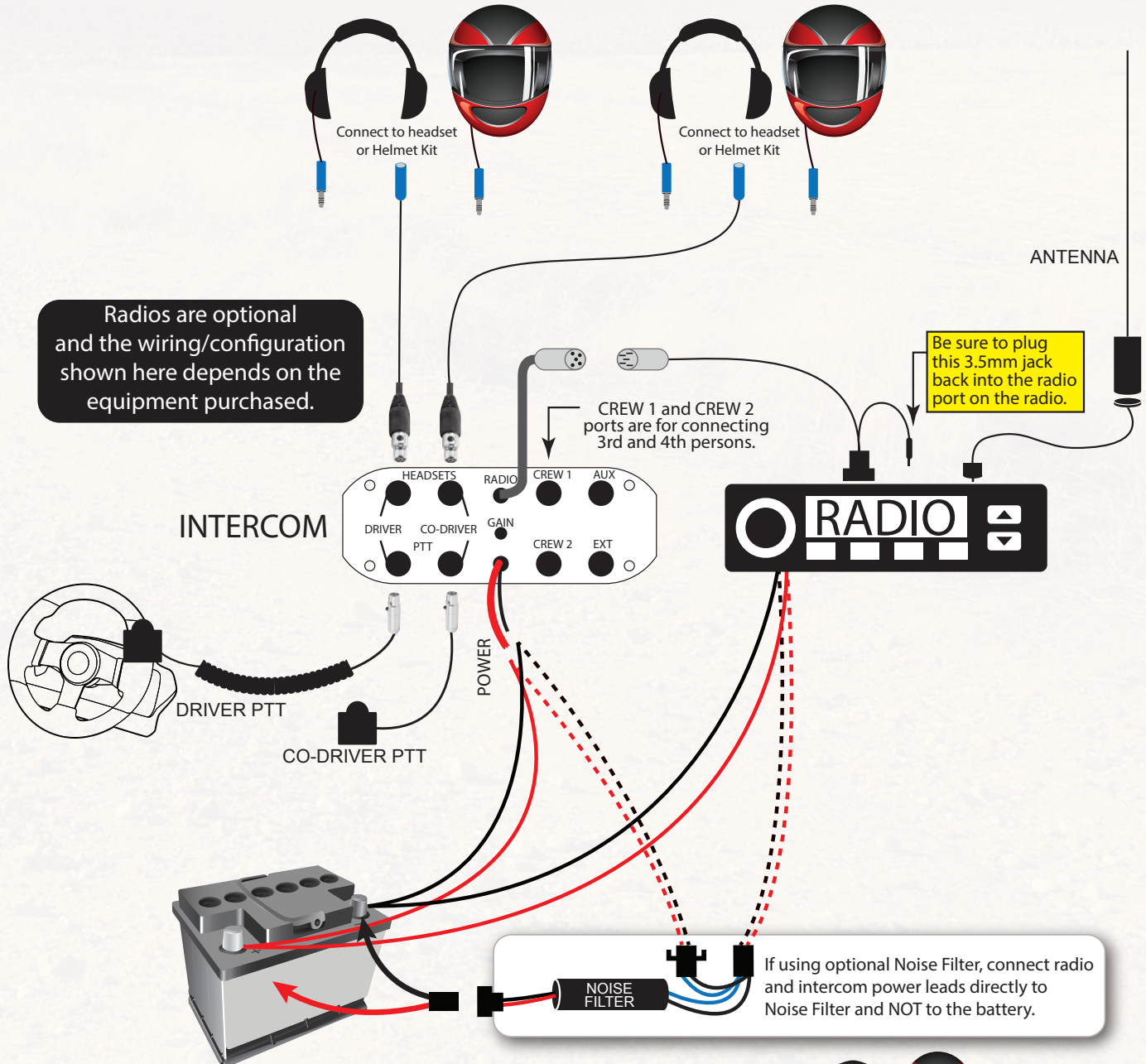
Follow the wiring diagram for proper connection of speaker and microphone. There is a cell microphone audio control located behind the back panel of the intercom. This will control the microphone transmit level of the cell phone. Simply remove the 4 screws on the back panel of the intercom. Located on the bottom of the circuit board is a blue housing volume pot. While talking over the cell phone rotate the volume pot until the desired transmit level is reached. Replace the back panel and tighten the 4 screws.



Cables and Connections

Your particular setup may or may not use the **OFFROAD** cables (shown page 1) for headset/helmet connections shown here. If you're not using these style cables, simply plug your **HEADSET DIRECT** cables (shown page 1) straight from the intercom into the headset.

COMMON CONFIGURATION



- Connect intercoms to 9V~12V system only.
- If connecting additional passenger headsets, those headsets/helmet kits connect to the CREW 1 and CREW 2 position on the back of the intercom. Passengers cannot transmit on the radio. This feature is for Driver and Co-Driver only.
- Intercoms equipped with an AUX port allow connectivity to cell phones, video and music record cables so you can capture your in-car communications on your GoPro, etc..
- Intercoms equipped with an Extension port allow for an intercom expansion module (2 or 4 place) allowing your intercom to connect more people.



TROUBLESHOOTING

Q: Why is audio coming out of the radio speaker and not into my headset/helmet kit?

A: Make sure the 3.5mm cable that is attached to the radio cable is plugged back into the external speaker port on the radio. See diagram on page 3. This routes audio into the headset/helmet kit.

Q: I'm pressing the push-to-talk button, but nobody can hear me.

A: Most likely you have the PTTs plugged into the wrong port on the intercom. Make sure the Driver PTT is plugged in the Driver's side and the Co-Driver PTT is plugged into the Co-Driver's port. Refer to the intercom diagram on page 1.

Q: Everyone says my volume level sounds low when I speak.

A:

- Properly position the mic close to your lips to pick up audio.
- Make sure the mic isn't facing backwards inside your helmet.
- Check the RADIO GAIN setting on the back of the intercom. Refer to the 'Car-to-Car' Transmit level as shown on page 2.

Q: How do I adjust the VOX (Voice Activation)?

A: VOX is featured on select model intercoms. Position the mics as close to your lips as possible. This will increase the performance to the VOX circuit. Start with the VOX dial at the 2:00 position. The louder the noise level, the more you may need to adjust the VOX control counter clockwise. This will make the mics harder to open ('turn on') as the noise level increases. If the mics do not open when speaking simply rotate the VOX control until mics easily open. Any iPod/MP3 music or radio receive traffic will automatically mute when speaking.

Q: I don't understand the different volume levels.

A:

- The volume on the radio controls the radio volume.
- The volume on the intercom controls in-car headset/helmet kit communication volume.
- Your iPod/MP3 volume is always controlled on the device itself.
- Headset volume knob is for adjusting your own speaker volume.

Q: Why do I have to press a button to talk car-to-car? Isn't VOX supposed to allow that?

A: No. VOX is strictly for 'in car' voice activated communication. FCC law prohibits operating on a constant 'open mic'. Instead, the industry standard (and to comply with FCC laws) requires that you press a PTT button to transmit over the 2-way radio for car-to-car transmission.

Q: I can't get the volume that I need in my headset. Why?

A: The output volume for the intercom and radio are controlled directly on those devices. The headset volume knob is used to turn down the volume on incoming audio. Turn up the volume on your radio and intercom and use the volume knob on your headset to turn it down.

Q: There's a lot of engine noise in my audio.

A: Make sure all devices (intercom and mobile radio) are connected directly to the battery. Failure to do so can result in interference and performance problems. Make sure the ground on your antenna is correct. If you're confident these areas are fine, you might want to consider a Noise Filter which is designed to improve audio performance.

Q: HELP! I need someone to talk to!

A: No problem! We're here and ready! Call toll free (888)541-7223.

Also, be sure to watch our **EVENT** page on our website to see if we'll be in your area to provide assistance!



NOISE FILTER

Electrical interference from electrical components or accessories contribute to noise and disruption. If you're unable to resolve your noise issues, the simple and affordable Noise Filter may be the best solution. It connects to radios and/or intercoms and dramatically reduces noise generated through the charging system/power supply. MSRP \$30.00

OPTIONAL ACCESSORIES

Rugged Radios offers a wide selection of accessories, mounting solutions and replacement parts



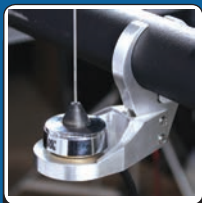
Gel Ear Seals



Cloth Ear Covers



High Wind Mic Muff



Antenna Roll Bar Mount



Headset Bag



Headset Hangers



Jack Mounts



Improve speech audio in high-noise environments

Digital Speech Processor



Record intercom audio to GoPro or other device

CS-MUSIC-REC



Reduce noise from electrical interference like alternator whine

Noise Filter



Face Plates



Cell Phone Cables



Jack Mounts



Bar Mounts