Bridging Cardo DMC Mesh Intercom with Sena Mesh Intercom

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Introduction

Sena and Cardo mesh intercom users have wanted to achieve interoperability ever since the two brands came out with competing mesh systems around 2018. They have always been able to connect using the "universal intercom" feature, but it works by spoofing a phone on one side (using the second phone channel of the communicator), with the other side treating the signal like a phone call. The Phone 2 Bluetooth channel is intended for very short range communication so the two units need to be very close together to work. This function disables GPS, music and regular phone calls on both units so it's intercom-only. Very few users find this to be acceptable.

In July, 2023, Cardo introduced new firmware for their second generation Packtalk models to pair for Bluetooth intercom connection with most Sena models, including all Sena Mesh units. Using the bridge feature, Sena and Cardo Mesh and Bluetooth groups can inter-operate without anyone having to give up their music or GPS connections. Great!

Getting Started- Hardware

Cardo side- There are several hardware options (all work equally well with the bridge feature):

1. Cardo Packtalk Edge- top of the line, about $350- latest technology with all the premium features. The helmet mount includes gold contacts that connect the Edge to the helmet speakers and microphone. The only regular connector on the device is a USB-C, which is used for charging and firmware updates. This permits the unit to be charged while riding.
2. Cardo Packtalk Neo- about $315, is virtually identical to the Edge except that the mount has no electrical connections and the wiring for helmet speakers and microphone connects to the Neo using the USB-C connector. The disadvantage is that the unit cannot be charged while in use, but battery life is not a problem anyway.
3. Cardo Packtalk Pro- about $450.

Sena side- There are several hardware options of differing capability:

1. Cardo mesh to a traditional Sena Bluetooth only communicator- Just about any existing Sena model will work directly.
2. Cardo mesh to Sena mesh simple and direct- Bluetooth pair the Cardo with a Sena +MESH Bluetooth-to-mesh intercom adapter about $125
3. Cardo mesh to Sena mesh on 30, 50 or 60 series- Bluetooth pair the Cardo to a Sena 30K (about $280-330), 50S or R (about $340), 60S or R (about $450) mesh unit.

All communicators can be purchased at a discount if you are alert and patient. Dual packs are another way to get a better price.

Initial Setup

Both Cardo and Sena Devices- MAKE SURE THEY HAVE THE LATEST FIRMWARE INSTALLED

Carlo-Sena device pairing for Bluetooth intercom

1. Cardo device must be in Bluetooth mode. (slow flashing blue indicator) If indicator is flashing green, press & hold both Intercom (Top) and Mobile (Bottom) buttons on Cardo for 5 seconds to switch to Bluetooth mode, then release buttons
2. Press & hold Intercom (Top) button till rapid flash- Bluetooth pairing mode
3. Engage Bluetooth pairing mode on the chosen Sena side device (Press and hold jog dial until you see rapid flashing of the device LED). Once both units are flashing, tap the Jog dial on the Sena once and wait for them to pair.
4. Cardo-Sena pairing only needs to be done once.

Cardo users DMC mesh grouping (only required if not done previously)

1. Press & hold both Intercom and Mobile buttons for 5 seconds to switch to DMC mode if needed, then release buttons.
2. To set up a Cardo DMC mesh group, press and hold Intercom button 5 seconds till it enters Grouping mode
3. Do the same with other Cardos for the group
4. Once all are in grouping mode, press and release the top button of one of the units, making it the group "originator." Wait for voice prompt response “grouping success.” Tip: If you are having trouble with grouping, Let one of the Cardo users initiate grouping using the Cardo phone app.

Turn on the Bridge to Connect

Once the above steps are complete and the Cardo DMC mesh group members are connected, bridging the two groups is easy.

1. Power up the Sena unit and give it time to initialize.
2. Power up the Cardo unit that is paired to the Sena device and give it time to initialize.
3. The Cardo light must be slow flashing green. If it is flashing blue, press & hold both Intercom (Top) and Mobile (Bottom) buttons on Cardo for 5 seconds to switch to DMC mesh mode. (Slow flashing green indicates the Cardo is in DMC mesh intercom mode)
4. On the Cardo, tap the top Intercom button three times. The Cardo will connect to the paired Sena device using the Cardo Bridge via Bluetooth intercom.
5. Mesh intercom on the Sena side devices may then be turned on at any time.

Managing Battery Life

1. Battery Life, Normal use with Mesh intercom, GPS, Phone:
    a. Sena 30K: Typically 4.3 hours with abrupt shutdown. Add a Bluetooth intercom connection for the bridge- about 3.5 hours
    b. Sena 50S older units: Typiclly get a low battery message about 4.3 hours, shuts down about 6.7 hours. Add a Bluetooth intercom connection for the bridge - about 5 hours
    c. Sena 50S P/N 50S-10D (purchased April 2023): Still had about 50% battery after 6 hours. Add a Bluetooth intercom connection for the bridge - estimate at least 8 hours
    d. +MESH, Bluetooth to mesh intercom adapter: Don't have direct experience but reports say about 7 hours
    e. Cardo Packtalk Cardo Neo: Have used it up to 7 hours with Bluetooth intercom bridge connection added. (Battery was not run down so don't know maximum time.)
2. Factors that shorten battery life
    a. Frequent or constant wind noise from user mics in the group transmits more communication data packets (see more info below)
    b. Larger riding groups generate more packets to be transmitted between devices
    c. Urban environments and major highways have lots of Bluetooth data traffic which forces packets to be re-transmitted
    d. The more conversation, the more packets will be transmitted
3. How to improve battery life
    a. If you're doing long riding days, take advantage of lunch time and other breaks to charge communicators. The new generation Cardo and Sena units discussed here have fast charging capability- An hour's worth of charging will often fully recharge them
    b. On the Sena side, use a 60S or 50S model 50S-10, 50S-10D Model : SP113 (This new generation 50S replaced 1st generation 50S hardware around June 2023 and has much better battery life.)
    c. Stay away from major highways and urban areas (not always possible)
    d. Determine which group members are generating wind noise and either get them to fix their mic positioning or turn their mic off when not talking. One problem is that those who make wind noise don't know it because they don't hear themselves. The leader can get all but one other group member to turn off their mesh intercom and see if there is wind noise at highway speed. If it's quiet, he tries another, going through the whole group and adjusting mics until all are clean or at least you know who needs to turn off their mic when not talking.

Other Limitations

1. The new Cardo bridge feature only works with their latest generation hardware- the Pro, Edge, and Neo. Over 80% of Cardo mesh users are on old generation hardware. As a Sena user I often find that no one in the Cardo group you want to ride with knows about/has the needed hardware and software for the bridge.
2. Since the bridge between the two systems is Bluetooth, there can be traditional popping and cracking in the audio. You can minimize the problem in three ways. First have one rider carry both Sena and Cardo units so there's only a foot or so between them. Second, Bluetooth works better out in rural areas where there is less interference. Combine the two and it works quite well.
3. The Sena 50S seems to have a cleaner bridge connection than the 30K.

How to Make Bridging Quick and Easy

I ride with lots of different people at the MSTA rallies each season. I enjoy great conversations, get to know friends and especially get new people acquainted with the club. Being a long time Sena guy, I found nearly every Cardo user I ride with was on first generation hardware and not able to to use the bridge function, so I went ahead and bought a Cardo Neo- they were on sale and I got a single unit for $270- not a bad deal.

The plan was to pair the Neo with my Sena 50S so it's always ready- all I have to do with my Cardo friends is join their mesh group and we're ready to go. I would then turn on the Sena mesh and my Sena friends would be would be connected too. When the Neo arrived, I was delighted to find I could configure what I needed and get it connected with the 50S without having to install the Cardo phone app or listen for voice prompts- I could just power it on, hold the intercom button to join a group and clip it on my helmet without connecting its microphone and speakers.

Joining a Cardo DMC mesh group is essential, unlike Sena's open mesh mode where you just tap the mesh button once to turn it on and it connects to everyone else running open mesh that's in range, Cardo requires going into grouping mode. Once everyone who wants to participate is in grouping mode, one person taps their intercom button to lock in and form the group. That person becomes the originator, and they are the only group member that can add others in the future. Tip: If this does not work, let one of the other Cardo users form the group using their phone app.

In addition to the open mesh mode practically every Sena participant uses, there is a grouping mode available but once the group is formed, any participant can invite and add others. This makes more sense to me, but Sena's 6 channel open mesh option is an easier way to get some privacy. Much like a CB radio, Sena open mesh users can easily switch channels, as we occasionally do at larger gatherings. It's also handy if you want to have a sidebar conversation with just one or a few members of a larger group.

After riding with Bluetooth communicators for over 15 years I see that simpler is better for most users. Just about everyone with a Sena mesh unit can find the mesh button and tap it once. In a few seconds everyone in the group is connected and away we go.

My first experience with the Cardo Neo was with three friends, all with older Cardo units. Two of the three did not know how to do grouping. I had studied up and practiced, so I pressed and held their buttons to get them into grouping mode with me. The originator tapped his button to set the group, but one of them failed to connect.

Once connected, I heard occasional popping and cracking in the Bluetooth connection, but once we got out of town it cleared up and I was very pleased. The link between my 50S and the Cardo world worked fine all day.

Others have confirmed that the Sena +Mesh adapter works current generation Cardo units. The adapter costs about $125 and is a nice simple choice for someone who has a new generation Cardo and wants to include Sena mesh users in their conversation. the +Mesh adapter is limited to open mesh channel 1 but most will not find that to be a problem.

Cardo Neo feature pros and cons

1. Pro- It's compact
2. Pro- The speakers connect to the wiring harness with a standard 3.5mm plug so the speakers can be easily unplugged and earphones plugged in.
3. Pro- there's no cradle with gold pins like on the Sena
4. Pro- Having mic and speakers connect to the unit with a USB-C connector makes it easy to disconnect them when I'm using the Sena 50S
5. Pro- Cardos are waterproof
6. Con- The mount is simple but not secure. My Neo came unsnapped and was lost during a ride so I had to buy another one. I now use it in my tank bag or secure it with a piece of Velcro if I am using it standalone on my helmet.
7. Con- Mandatory grouping is an extra complication and older generation units can be slow or unreliable in the grouping function.

Mounting Both the Sena 50s and Cardo Neo On My Helmet

1. Had the Sena 50S mounted for a long time in the standard setup- left it alone.
2. Installed the Neo mount using the adhesive backed pad on the LH side of the chin bar forward from the Sena 50S
3. Replaced the old generation Sena speakers with Cardo JBLs and brought the 3.5mm plug outside the helmet below the Sena 50S cradle.
4. Cut the old Sena speaker wiring off where they plug into the Sena cradle
5. Placed the female speaker jack from the Cardo Neo wiring harness just below the Sena 50S cradle.
6. I can now plug the speakers into either the Neo or the Sena if I want.
7. Likewise I can plug my earphones into either unit.

8. Left the Sena microphone in its regular location in the helmet chin bar
9. Added the button mic for the Neo just above the Sena mic.
10. Most of the time I don't want to use the mic or speakers with the Neo, so I simply unplug the Neo USB-C connector. I created a slot in the rear side of the Neo mount that the USB-C plug presses into so it's protected from weather and doesn't flap in the wind.

With this configuration, I can use either the Sena 50S or Cardo Neo, both together with the Cardo Bridge or even run both units independently using earphones for one and speakers for the other (without the Cardo Bridge between them) That way I can hear and talk to both mesh groups. (But the two groups will not hear each other) After several years of riding with this setup, I find their range, clarity and sound quality to be roughly equal. Biggest difference for me is the convenience of open mesh on the Sena. (Cardo promised open mesh, but as of March 2026, has not delivered it.)



