Using the XLX525 Multiprotocol Transcoding Reflector

This document assumes your hotspot and radio are correctly configured for the protocols served or that you can successfully connect using your local digital voice repeater.

XLX525 supports three Digital Voice modes: D-Star, DMR and Yaesu System Fusion (YSF). It not only reflects transmissions in each of these modes, it also transcodes all of these modes so each connected user may receive any transmission in his/her connected mode. There are five available modules, of which modules A – D are usable for general QSOing. Each module functions as a separate talk room (or channel), so transmissions made in one module do not reflect into the others. Transcoding is available between D-Star, DMR and Fusion modes on modules A-D.

XLX525A is bridged to TGIF talkgroup 315.

XLX525B is bridged to Brandmeister talkgroup 313068, the AA4RV C repeater in Louisburg, NC, and the YSF reflector talkroom 52500.

XLX525 module E is peered to a local echo test server which plays back your voice transmissions and is useful for verifying your connection, microphone gain and voice quality settings. This function is available on all three DV modes. Module E is only for testing and is not suitable for normal QSOs.

The XLX reflector doesn't use the D-Star trust server network, so even an unregistered D-Star user may connect to it. However, to use a D-Star repeater, your callsign must be registered. This can be done online via any gateway or at https://regist.dstargateway.org/instructions/ . It's generally a good idea to register since G2/G3 gateway systems, ircDDB gateways and other reflectors require it.

XLX525 may be reached using any of the reflector protocols - REF, DCS, XRF and XLX. This appears as the prefix in the reflector name you will use. Some older repeaters will only work with the REF prefix. The module letter comes directly after the reflector number. In our case, XLX525A is the reflector's module A, XLX525B corresponds to module B and so on. In D-Star, you will link by setting the "To" line or your radio's "Link to Reflector" menu using any of the aforementioned prefixes, followed by the number 525, followed by the module letter and ending with the letter "L" in the eighth position. The L commands your gateway to link to the reflector. For example, XLX525CL will link your gateway to the reflector's module C. At this point, simply press the PTT for 1-2 seconds and release. If the link is successful, you will hear a voice report that you are linked. Switch the "To" line to indicate "Use Reflector" and your QSO may commence. Once you are ready to disconnect, you can unlink by either setting the letter "U" in the eighth position after seven blanks in the "YourCall" line, or choosing "Unlink" if your menu

supports it, then pressing the PTT for 1-2 seconds. A voice should notify you that you are no longer linked. Similarly, setting the letter "I" in the eighth position of the YourCall line will return the link status. An "E" in the eighth position will return an echo test from your local gateway.

There are two ways to connect to XLX525 via DMR – an easy way and a not-so-easy way. The not-so-easy way gives you greater flexibility as to which modules you can connect, so I'll discuss that one first.

A direct connection to XLX525 via your hotspot seems complicated, but is actually easy to get used to once you've got it set up. It's done by configuring the DMR Gateway in your hotspot. Set up your hotspots DMR configuration by enabling DMR Gateway, then setting up the individual networks (Brandmeister, TGIF, etc) within that. Then enable XLX and select XLX525 from the dropdown box. Using DMR Gateway may require some changes to your codeplug. Brandmeister talkgroup numbers don't change, but TGIF and other networks now require a talkgroup prefix so that the gateway will recognize the destination networks. Pi-Star's DMR Gateway uses a seven digit talkgroup number starting with 4 (WPSD uses 5), with the right most digits equal to the TGIF talkgroup number. For example, TGIF talkgroup number 315 now becomes 4000315 in your codeplug using your Pi-Star hotspot.

Direct XLX connections require a 5 digit talkgroup number starting with 6.You will need to set up the following talkgroups in your codeplug to use XLX525 via DMR Gateway:

64001	Private Call	XLX Module A	64004	Private Call	XLX Module D
64002	Private Call	XLX Module B	64005	Private Call	XLX Module E
64003	Private Call	XLX Module C	6	Public Call	Communicating

65000 Private Call Connection Status

Once these are set up simply choose, for example, talkgroup 64001 and kerchunk. You should get a voice message back reporting that you are connected to XLX525A. **Once connected, switch over to talkgroup 6 to make a call or join a QSO**. When your QSO is finished, you can choose to disconnect from the reflector by selecting talkgroup 64000 and kerchunking the PTT. 64002-64005 translates to modules B-E, respectively, and 6500 will report back your connection status.

The easiest way is to use a VOIP network such as Brandmeister or TGIF is to connect to the reflector through a bridged talkgroup (see XLX525B and XLX525C bridged references above). With XLX525's transcoding you could easily be talking to someone who is actually using D-Star or Fusion through the reflector. Don't forget to program your codeplug with the required prefix if you use the DMR Gateway configuration in your hotspot.

To connect to XLX525 using C4FM (Fusion), you can invoke Wires-X from your C4FM radio. Connect to the Wires-X YSF room 52500. By default you will be placed into module B. If you wish to change modules, invoke Wires-X again, then select the module number. Module numbers are selectable from 00001 corresponding to module A to 00005 corresponding to module E. By this method, your first use of Wires-X tells your hotspot or gateway to connect to the reflector. Your second invocation of Wires-X sends a command to the reflector to move your connection to the module you specify.

Every C4FM radio has differences in how it invokes and presents Wires-X. Unfortunately, some can store YSF rooms in their memories. Just remember that YSF52500 resides on the XLX525 reflector and is the same destination. A good source of instruction on using the Wires-X function on your particular radio can be found on YouTube and other online sources as well as in your radio's user manual.

An alternative to using Wires-X to connect is to set YSF52500 as your preferred reflector in your hotspot's Fusion configuration. It will connect you to module B but you may not be able to change modules since the radio's Wires-X command didn't start the connection process.

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The XLX525 reflector was created for the Franklin County Amateur Radio Club of North Carolina to provide a digital voice gathering place for members and guests, but it is open to all radio amateurs. Enjoy!