REPEATER BUILDER

Connection Notes
RIM_Lite to Yeasu VXR-7000/9000 Repeater

Cable Information:

RIM_Lite (DE-9)	Signal	VXR-7000 / 9000 (DB-25M)	Notes
1	→→ Aux. TX Audio →→	4	Voice TX and/or CTCSS
2	→→ Main TX Audio →→	3	Voice TX Audio
3	←← COS in ←←	11	Active Low[1]
4	←← CTCSS in ←←	10 or Line*	Active Low[2]
5	→→ PTT →→	12	
6	←← RX Audio (Discriminator) ←←	6	Discriminator Audio
7	N/A		
8	←← Ground →→		
9	←← Ground →→	1, 14, 20	

NOTES:

1 - Pin 11 is an active low, open collector output activated on COS ONLY regardless of how the channel is programmed.

2 - OPTIONAL – Pin 10 can be wired for COS & CTCSS active low by following this mod: https://repeater-builder.com/yvs/vxr-7000-cor.html
    -OR-   The alternate CTCSS connection shown below. DO NOT do both mods!!

In AllStar set:
carrierfrom=usbinvert and ctcssfrom=no
(if using option above, ctcssfrom = usbinvert)
txmixa=voice
txmixb=tone
Make sure pre-emph and limiting is turned ON if using pin 4 for voice and OFF if using pin 3.
RX De-emph. will need to be turned ON due to discriminator RX audio.

Alternate CTCSS Connection
Using the LINE interface port

Connect pin 1 "RX SQ(+) to "CTCSS in", pin 4 on the RIM_Lite. (via the VXR pin #10)

Ground pin 2 "RX SQ(-)".

NOTE: If using this method, DO NOT modify the repeater as noted in #2 above.

LINE Interface Port

The VXR-7000 is provided with an 8-pin modular jack for line interfacing applications. A Western Electric® modular-type RJ45 plug should be used to connect to this jack. The **LINE** jack pin-out is shown below.

Note that there are both 4-line and 8-line types of modular plugs. If a 4-line modular plug is used, only the **LINE OUT** and **LINE IN** connections will be made. An 8-line plug is required to access all lines. In accordance with standard telecommunications interface, the line connections on the **LINE** interface jack are impedance balanced, and are described as follows.

Pins 1 & 2: [**RX SQ(+)**, **RX SQ(–)**]
An opto-isolator is provided to facilitate E (EAR) signaling. The opto-isolator comes on when a signal exceeding the receiver squelch appears on the receiver channel (with correct CTCSS tone or DCS code, if enabled). The RX SQ(–) pin is the emitter, and RX SQ(+) is the collector.
Maximum Voltage: 20 V, Maximum Current: 7 mA.

Pins 3 & 4: [**LINE IN** (*Tx Line Audio*)]
Analog signals between 300 and 3000 Hz supplied to this pair are fed to the transmitter when the repeater is set to the BASE mode (the **REPEATER** LED is turned off) and keyed either by the TX KEY input signal (see below), or by the EXT PTT signal on pin 12 of the rear panel's **ACC** jack. Standard deviation is obtained with a line level of –10 dBm.

Pins 5 & 6: [**LINE OUT** (*Rx Line Audio*)]
Receiver audio is available from this pair, subject to internal CTCSS or DCS decode if the received signal strength is above the squelch threshold.
As shipped from the factory, a 1-kHz receiver signal with standard deviation gives –10 dBm on the line, but this can be varied by **VR4002** and **S4001** (on the repeater's CNTL Unit).

Pins 7 & 8 [TX KEY(+), TX KEY(–)]
An opto-isolator is provided to facilitate M (MIC) signaling. That is, a voltage presented to these pins turns on the opto-isolator and keys the transmitter. The TX KEY(+) pin is the anode of the opto-isolator, and RX SQ(–) is the cathode of the opto-isolator.
Maximum Voltage: 20 V, Maximum Current: 4 mA.

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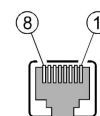
LINE Jack
Modular Jack Pin Numbering