Ham 91D - ASV Maker - Cables Made Simple

Dr. Marc & Rosemary © 230219 ♥

1. One of the secrets of a successful AllStar node is the construction of the crossover audio cable.
   a. Our objective is to make the construction simple for anyone with a wire stripper.
   b. Cable construction can be a frustration for even the most skilled maker.
   c. It does not have to be. It no longer is. Solder not required.
2. A little out of the box thinking and using the wide array of available products makes construction straightforward. Tools needed are simple.
   a. A wire stripper for AWG 26 or smaller wire plus an insulation cutter.
   b. A small screwdriver usually comes with the connector. That is it.
3. Parts start with DB9 (D-sub) male non-solder breakout connector. Cost ~ $7
   a. Acquire a pre-manufactured cable having one end that fits the device.
   b. From the pre-manufactured cable, cut off the unneeded end.
   c. Strip wires. Tinning (solder coating) is beneficial, but not necessary.
   d. Place under the terminals of the DB9 and tighten. You are now a maker. Congratulations.

Screwdriver *Stripper* *DB9 Breakout*

4. Conventional microphones use RJ45 male with an 8Vdc power need. But, the available power from the board is 5V.
   a. An Alinco EMS-57 style mic requires only 5V with a shielded cable and 8-pin round mic connector.
   b. A TYT 7800 is also 5V with a RJ12 modular connector. We still have issues with making its tones work.

DTMF mic *3.5mm stereo* *Powered speaker*

8pin	Alinco	mic
1	mic	white
2	PTT	red
3	down	yellow
4	up	green
5	5v	brown
6	rx	orange
7	mic E	shld
8	grnd	blue

DB9	RL 20 Function	Speaker	8pin	Alinco	k/o	T568B
1		3.5T red				
2	audio out (Tx) to speak	3.5R wht				
3	COS in from mic PTT		2	red	orang	orange
4						
5	PTT out					
6	audio in (Rx) from mic		1	white	yello	wh-orang
7	5VDC solderpad to mic		5	brown	red	wh-blue
8	Grnd. bond to gnd lug	3.5S blk	8	blue	grey	brown
9						
gn	Gnd lug, bond to #8		7	shield	shield	wh-brwn

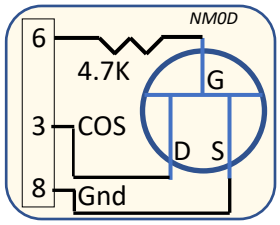
5. ***RF-less Link*** digital radio node.
   a. Use a powered speaker.
   b. Use a 5V mic with DTMF, shielded is preferred.
   c. If mic is modular style, acquire a female Ethernet extension cable with RJ45 or phone extensio0n with RJ12.
   d. Get an audio repair cable with 3.5mm (1/8") female TRS (tip-ring-sleeve) stereo socket.
   e. A DB9 solderless connector is the only other item.
   f. Cut off the opposite end of the Alinco or extension. Look at pin numbers to decipher colors.
   g. Strip wires, feed through strain relief of DB9. Screw down to pins.
   h. Alinco pin 7, mic E, connects to cable shield and gnd lug.
   i. Be sure to bond from pin 8-Ground to the gnd lug by pin 6.
   j. Find an Elmer to solder one thing, a jumper on the board from 5VDC to terminal 7 pad.
   k. Adjust mic volume. Set the pot screw. Adjust the software Rx.

Baofeng *K-head plug*

6. ***Simplex Link*** node uses a radio which has a COS (carrier-on-switch) signal available.
   a. Baofeng UV are common radios with the capability.
   b. These radios have a K-head (K-1) connector.
   c. Acquire an inexpensive Baofeng mic with the proper plugs.
   d. Obtain a 2N7000 FET and a 4.7K resistor to make a COS switch and buffer.
   e. A DB9 solderless connector is the next item.
   f. Remove the cable from the mic. Dispose of the mic.
   g. Strip wires, feed through strain relief of DB9. Screw down.
   h. Add the FET - resistor combination under the same DB9 screws with the wires.
   i. Cover bare wires with heat-shrink or tape to prevent touching.
   j. The radio duty cycle is 100%. Lower power setting by half to reduce heating.
   k. Adjust radio volume to low. Set the pot screw. Adjust the software RX.

DB9	RL 20 Function	Wire	Radio	FET
1	stereo not used			
2	audio out (Tx) to mic	red	3.5-R	
3	COS in from FET			Drain - D
4				
5	PTT out	black	3.5-S	
6	audio in (Rx) from speak	green	2.5-T	4.7K to gate
7	5VDC solder pad			
8	Ground.Bond to gnd lug	white	2.5-S	Source - S
9				

note flat side



7. Your node is a digital extension of the repeater.
8. Life is good. Enjoy!