Custom CANbus Distribution Panel

Version 1.0

Prepared By:

Note from the Author

If you have any questions or comments, big or small, please feel free to email me, lee@nsxjr.com.

The most recent version of this document can be downloaded from the web at www.nsxjr.com.

Warning - Disclaimer

- **The installer shall indemnify the author and editors for any claims or liability arising from the vehicle modifications described in this document.**
- **To follow this guide requires alterations to the electrical system of the vehicle.**
- **Read and understand the entire document before beginning work.**
- **Disconnect the negative battery terminal before altering vehicle electronics.**

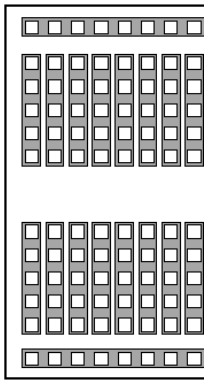
This document describes the installation of a distribution panel to enable quick and easy connection to the CANbus (*Controller Area Network*) in Audi vehicles. The vehicle has many CANbus systems, from engine management, to transmission control, to the one of interest here called "infotainment". These are all separate networks, and the "infotainment" communication network is the one that helps all the radio, telephone, navigation, telematics, etc in a vehicle communicate with one another in an efficient manner. All of these different items are connected to the CANbus like a computer network and they all communicate via two wires, CAN H and CAN L. The CANbus network is available in the vehicle if the clock in the tachometer dial is digital. If the vehicle has an analog clock then stop here, the wiring in this document will not apply to that vehicle.

These instructions will not describe how to install an actual device, but instead the CANbus distribution panel can be used for any other device installation that requires connection to the CANbus for proper operation. The materials needed are a mini-breadboard from Radio Shack and some CAT-5 ethernet cable. This type of cable is ideal for connections to the CANbus network in the vehicle and contains 4 twisted pairs of wire in different colors, each pair with a solid and striped wire.

Radio Shack Mini Breadboard

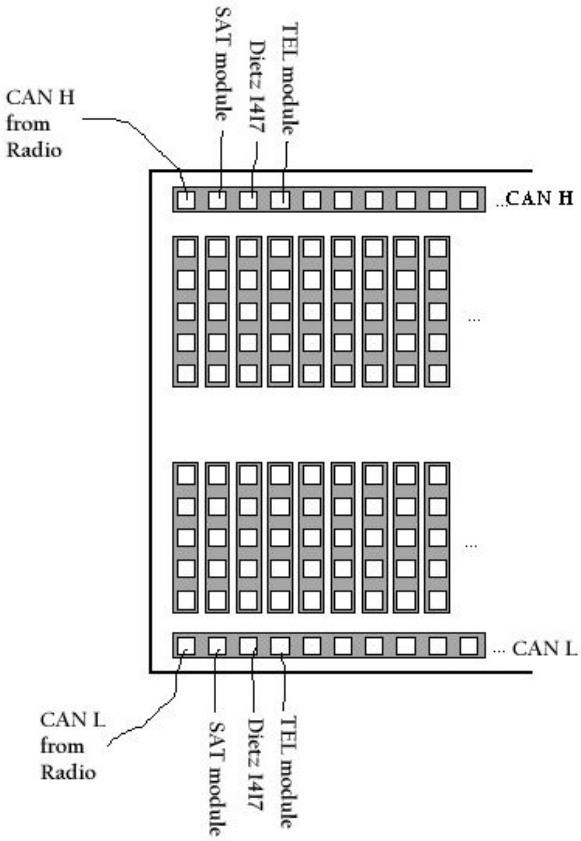
Decide on a location to install the breadboard. A location should be chosen that is easily accessible and will not interfere with other items under the dash. A good location is to the right side of the glove box. See the picture on the next page for a visual of this location. Next, remove the headunit and run a CAT-5 cable from this area to the breadboard mounting location. Behind the headunit, choose one twisted pair of wires from the CAT-5 and splice into the CAN H and CAN L wires in the radio wiring harness. The harness pins will be labeled on a sticker on the headunit for reference. Tuck away and tape off the three extra pairs of wires, these will not be needed but could be used in the future if another CANbus connection is needed behind the headunit for another device. Remember which wire was used for CAN H and which for CAN L (solid or striped). Reinstall the headunit.

At the breadboard location, install the other end of the CAT-5 pair (that was just spliced into CAN) into the breadboard. The breadboard layout is shown at the right. Choose one lane to be CAN H and a different lane to be CAN L. The lanes at the edge of the top and bottom are connected across the entire board. The lanes in the middle are connected up and down and have only 5 connections each. There are no connections across the middle of the board. In the picture on the next page, CAN H is shown in the first lane on the top and CAN L is using the first lane on the bottom (Option 2). It is recommended to keep the CAN H on the top and CAN L on the bottom to make the connections easy to remember. Be sure to zip-tie the cables to something solid near the panel to keep them secure. Once the CAN wires from behind the radio are connected to the panel, the installation is complete.



Now, to connect other devices to CANbus, simply plug in the correct wires from the device into the proper lanes on the distribution panel. It will accept wire sizes from 30-20 AWG (0.05 – 0.50 mm). For example, if the installer needs to mount a Dietz 1417 module for use with the RNS-E navigation system, the CANbus wires from the Dietz harness would simply plug into their respective lanes on the panel instead of having to be spliced into the CANbus wires elsewhere. Another installation frequently required would be the SAT radio tuner. For this installation, a new CAT-5 cable should be extended from the distribution panel into the trunk area where the SAT tuner module is installed. With this installation method, there will be 3 spare pairs of wires in the CAT-5 cable that are not used. These can be reserved for future use if another module is installed in the trunk that should need a connection to CANbus. Two options are shown on the following page. There are many more options than shown here, but these give ideas of how to use the different sections of the panel.

Option 1



Option 2