

SPEAKER TESTER INSTRUCTIONS

- Use the short cat 5 whip and supplied coupler as the primary connection to the cable being tested. This allows for replacement of the coupler if the rj45 connector wears out.
- The tester is designed to test a complete speaker channel run, including speakers and interconnecting cables.
- You will need a good quality Multimeter to work with the tester, for measuring resistance.
- The tester will measure the following:
 - o Combined Monitor resistance. Each speaker has a 100k Ohm resistor for monitoring purposes.
 - o Combined Speaker DC resistance, of all speakers in parallel
 - o Any mutual resistance between the speaker pairs and the monitor pair
 - o Any resistance between the monitor pair, or speaker pair ,and building ground

PROCESS

1. Remove the speaker channel cable from the OP.
2. Insert the cable into the coupler on the end of the short cat 5 patch cable coming out of the tester.
3. Plug the two banana plugs into the digital Multimeter.
4. Set the meter to read resistance and set range to auto or at least 100k range
5. Attach the alligator clip of the ground test wire to a clean building ground connection. Avoid painted surfaces.
6. Press the Monitor button and hold until you get a stable reading on your meter. Compare the reading, in K ohms, to the table on the back of the tester, under Monitor Resistor. This is the combined parallel resistance of the monitor pair and will tell you how many speakers are connected. Or at least how many monitor resistors are connected in parallel. Keep this speaker count in mind when doing the next test.
7. After releasing the Monitor button, now press the Speaker button. Using the speaker count from above, find the corresponding Speaker Resistance on the chart. This resistance is the minimum resistance that you should read. The actual will likely be slightly higher due to wiring resistance.
8. After releasing the Speaker button, press the first Mutual button. Verify that there is no resistance seen. It should be an open circuit. (O.L)
9. After releasing the Mutual button, press the second Mutual button. Verify that there is no resistance seen. It should be an open circuit. (O.L)
10. After releasing the Mutual button, press the first Ground button. Verify that there is no resistance seen. It should be an open circuit. (O.L)
11. After releasing the Ground button, press the second Ground button. Verify that there is no resistance seen. It should be an open circuit. (O.L)

EXAMPLE

Here is an example of how to use the device.

1. Pressing the Monitor button, shows 25K ohms.
2. Looking at the table under Monitor Resistor we see that 25K ohms equals 4 speakers. So we would expect that at least 4 speakers are connected.
3. Pressing the Speaker button shows a reading of 7.5 ohms.
4. We know from step 2 that we likely have 4 speakers connected. Looking at the table under Speaker resistance, and 4 speakers, we should expect a minimum resistance of 6.5 ohms. The difference between the observed speaker resistance of 7.5 ohms and the 6.5 ohms minimum is the actual cable resistance to the first speaker. A few ohms is typical.
5. After seeing that both Mutual resistance buttons and Ground buttons show open circuit, we have a complete speaker channel that passes the test.

SPEAKER TESTER INSTRUCTIONS (cont'd)

ISSUES AND LIKELY CAUSES

Incorrect Monitor resistance- In most cases the resistance seen will match up perfectly with the numbers in the table. If there is a difference 1k ohm or more, there could be a partial short in the monitor pair.

Low speaker resistance- If the speaker resistance comes out lower than expected, it could mean one of two things. It could mean that one of the speakers has a partial short. It could also mean that one or more speakers have a bad monitor pair connection, and your expected count was not correct to begin with. Refer to the as built drawings to see how many speakers are supposed to be on this channel.

Mutual resistance found- If you see any resistance whatsoever when pressing the Mutual buttons this indicates that there is a partial, or full, short between the monitor pair and speaker pair. This is likely due to a bad crimp on one of the rj45 heads or a possible chafe in the cable.

Ground resistance-- If you see any resistance whatsoever when pressing the Ground buttons, this indicates that there is a partial or full short between the monitor pair or speaker pair, and building ground. Typical cause is a cable that is chafed on the metal building structure.