

## Testing of the RasNik DB25 cables

### Cable types:

For experimental use and test set ups we used Belden cable 8112, 12 pairs +1 wire. A flexible wire runs along with the shield.

In Atlas the LSFROH (low smoke, fire retardant, zero halogen) type is used: SCEM 04.21.48.324.9, type MCA24P, 12 pairs. Conductors are 24 AWG. A solid wire runs along with the shield.

### Pin assignment:

Wire-pairs are connected to pins 2 and 14, 3 and 15 etc. up to 13 and 25. The cable shield is connected to the connector shell. In the experimental cables the cable shield is also connected to pin 1. This connection to pin 1 is just there to ensure there is some ground connection in experimental set-ups, where people are a bit sloppy sometimes.

### CableEye tester:

The CableEye tester checks connections and shorts. It does not check proper pairing of wires. Normal use of the tester requires both ends to be connected to the tester. For the DB25 cables connector protectors are installed. When these wear out, they can be replaced instead of replacing the complete connector board. The tester is driven by software, running on a PC. It is attached via the serial port. The tester has variable thresholds for a proper connection and sufficient isolation. So besides installing the tester software, one needs to copy the proper calibration file into the directory where the software is installed.

### Tester set-up:

Set-up for proper thresholds goes via *Preferences* -> *Resistance*. Choose *dual threshold* and *general applications*. This sets the lower threshold for a proper connection to 10  $\Omega$  and the isolation to minimal 1 M $\Omega$ . For very long cables, more than 80 m, increase the lower value to 20  $\Omega$ . The wires have a resistance of app. 8  $\Omega$ /100 m.

Long cables also require more time for the testing signals to stabilize. Under *Preferences* -> *Serial port* one can adjust the *dwel time*. Usually this is 1000  $\mu$ s.

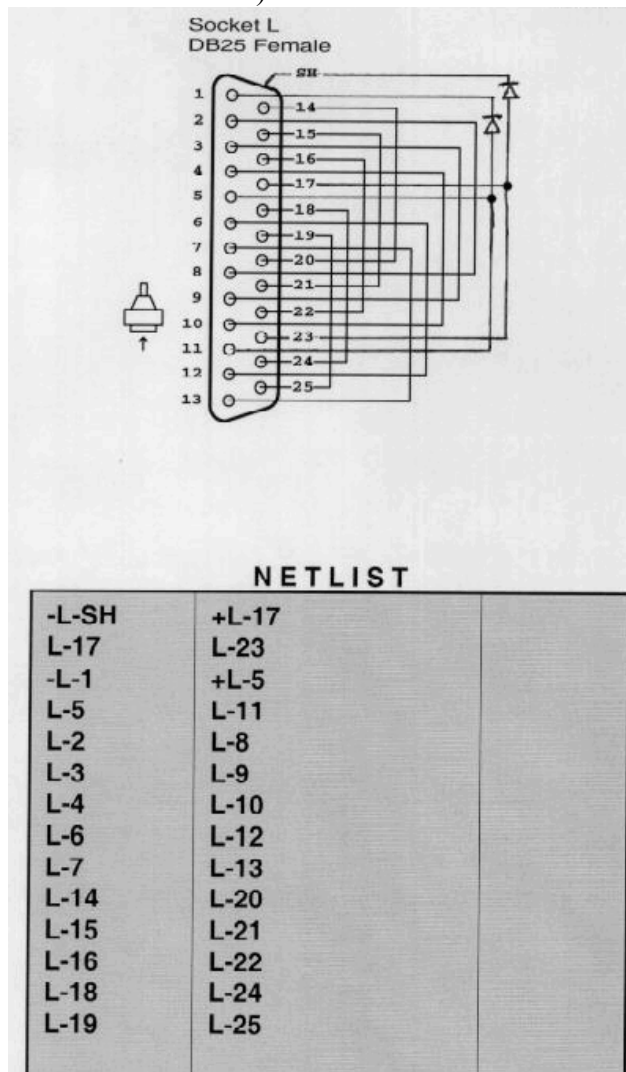
### Testing a cable:

Attach both ends to the tester. In the box *Match data* press *load cable* or *learn cable*. Load cable will open the database where reference data can be stored/ loaded. Learn cable will show the lay-out of the cable currently attached. Either as a diagram or as a table (use the buttons on the right of *match data*). This pattern is the reference for the next cable. It can be stored in the database by pressing *save*. The next cable is compared by pressing *test cable* in the box *Test data*. The layout of this cable is also shown, again as a table or diagram. Either a red stop-sign or a green OK sign is showed in *Test data*. Pass/fail is also visible on the tester itself. There is also a button to start the comparison instead of using the mouse. In table format the differences are shown by + or - signs. By pressing  $\Delta$  in *Match data*, only the differences are shown.

For more information see the documentation or go to <http://www.camiresearch.com>

### Testing from one end:

If not both ends of the cable can be connected to the tester do one of the following: Use an extra cable, already tested, to complete the loop. Or use the loop back connector (with known connections) on the far end.



The tester cannot show this connection in the diagram correctly. It shows all the lines, where the diodes are connected to, dashed. The table however is correct.

Note that pin 1 is tested also, which is not used in the final cables.

Test one cable with the loop back connector and check the table. Store this test in the database. Other cables can be checked against this reference.