This ULU

The *ULU.09 4x4 (de)multiplexer* can be used to dispatch the data bus in four different destinations or select one of four different sources. It is the more extended version of the *ULU.03 Dual 4-bit switch*, that can do the same for two sources/destinations.

Used parts

Only standard parts are used:

1x casing 50 x 25 x 25mm;
2x 2mm signal connector;
2x black O-ring 9 x 5 x 2mm;
5x 4-bit data connector;
5x colored O-ring 8 x 5 x 1.5mm;
1x power connector;
3x 3mm round LED ;
3x resistor to dim the LED;
3x LED holder;
8x micro (G6K-2F-Y-5VDC) relay;
8x fly back diode (1N4148).

Construction

The standard ULU specifications are applicable as specified in the datasheet *ULU.00 – Common specifications*. The build starts by taping the 8 relays together to form a solid block. The tape is only applied to the bottom and long sides. It may be necessary to sand both long sides along the pins, to make the relay squarer instead of trapezoid.

First the ground of the relays is connected (Figure 2), using bare wire and diodes. Then the four inputs and power lines are connected. After that is done, 16 output wires are soldered. Finally the inter relay wires are put in place.

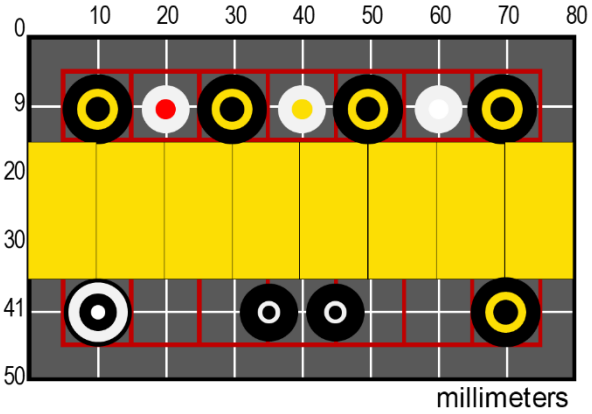

Figure 1 – Drill guide

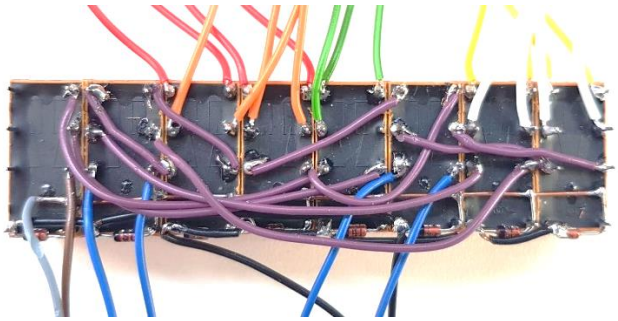

Figure 2 – Soldered relays

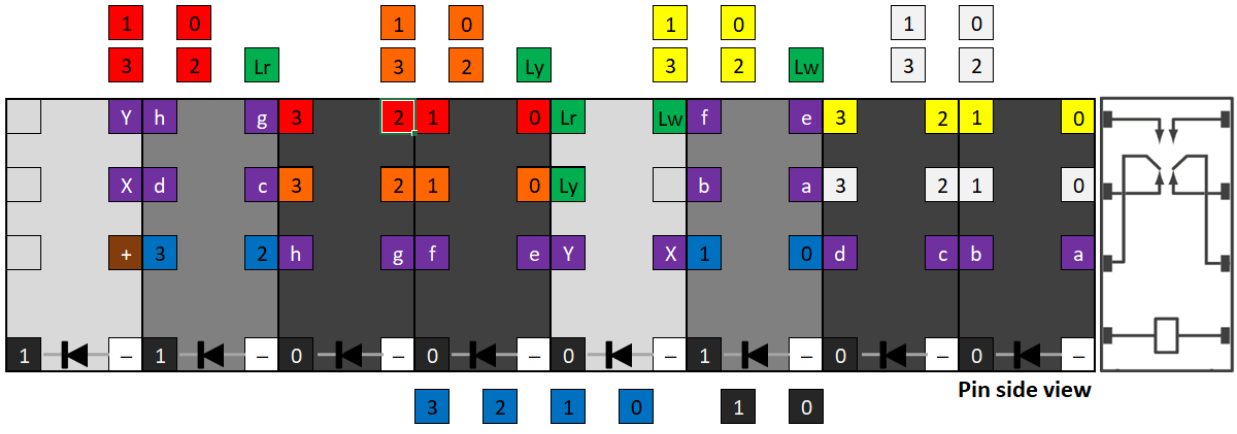

Figure 3 – Solder guide: connect the corresponding numbers

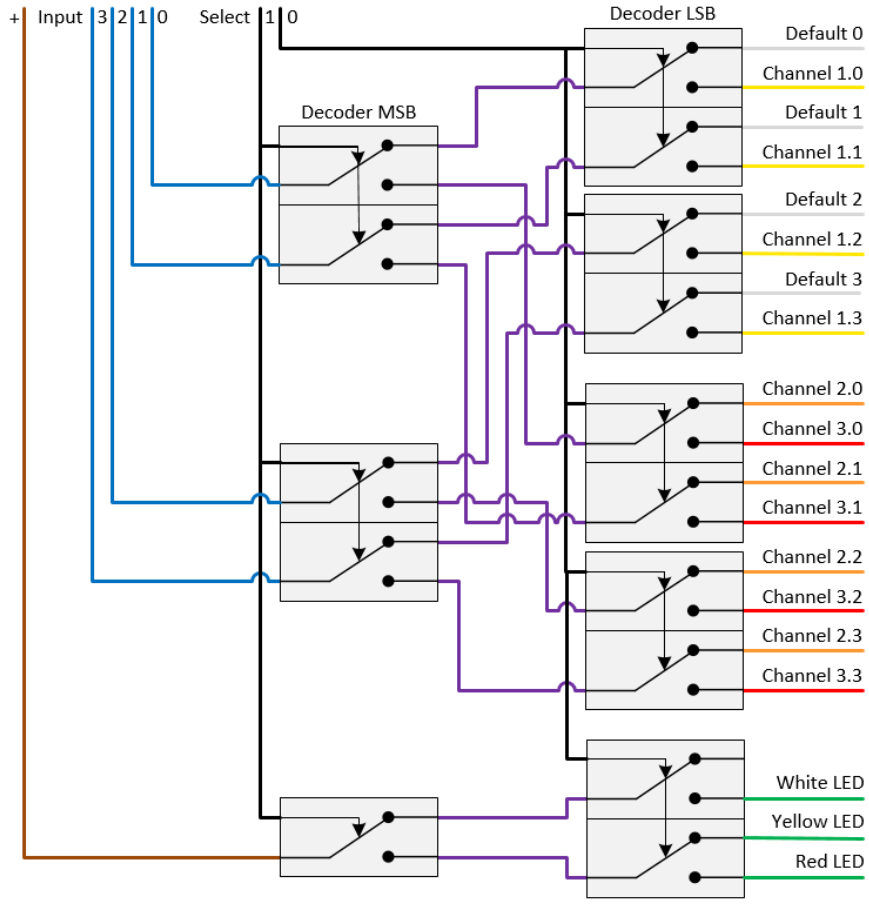

Figure 4 – Multiplexer schematic

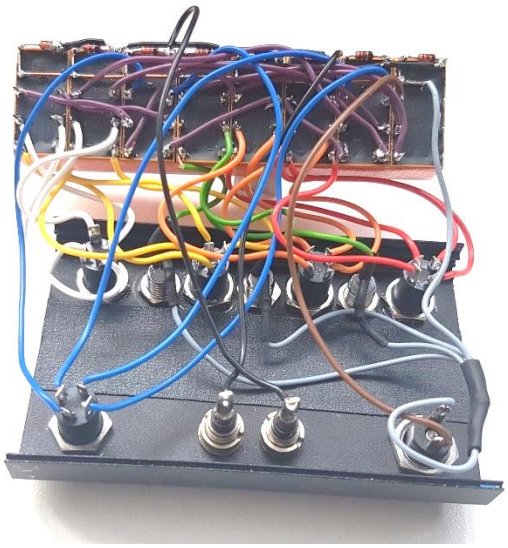

Figure 5 – ULU inside

Figure 6 – Finished ULU

The four ground wires are soldered to one ground wire that is connected to the power connector. A piece of shrink tube fixes this soldering. A piece of tape is put on the inner side of the upper enclosure part, to avoid on of the relay pins make a false connection.

Usage

This ULU can be used to multiplex a data-channel into four directions or to demultiplex four data-channels into one common channel.

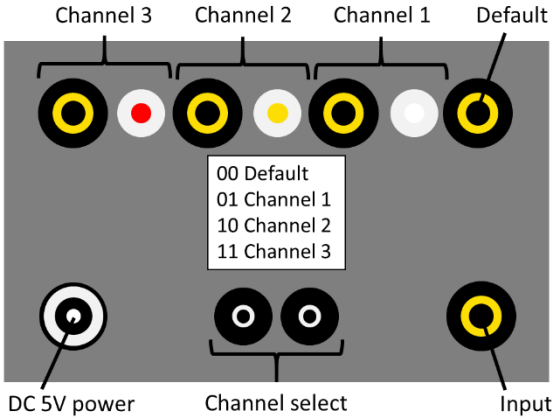

Figure 7 – Controls and connectors