## This ULU

The *ULU.57 Data sniffer* is especially designed to show the value of a 4-bit data line.

## Used parts

The following standard parts are used:

1x casing 50x25x25mm;
2x 4-bit data connector;
1x power connector;
4x 5mm rectangular LED;
4x resistor to dim the LED;
1x M3x5mm female/male standoff;
1x M3 lock nut;
1x M3x5mm hex bolt;
1x 6x8-holes prototype board.

## Construction

The standard ULU specifications are applicable as specified in the datasheet *ULU.00 – Common specifications*. The circuit diagram is straight forward. Al the positive poles of LEDs are connected to the corresponding poles of the two data-bus connectors. The ground of the LEDs is connected – through an appropriate resistor – to the negative pole of the power socket.

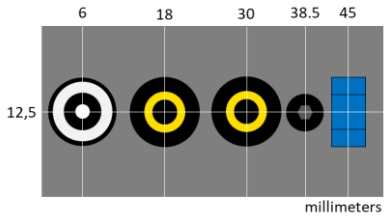


*Figure 1 – Drill guide*

*Figure 2 – Soldering of the LED resistors*

The base of the rectangular LEDs may need some filing, to make them fit properly. All the sides of those LEDs need to be colored black (use a black marker) to avoid light shining from one to another LED.

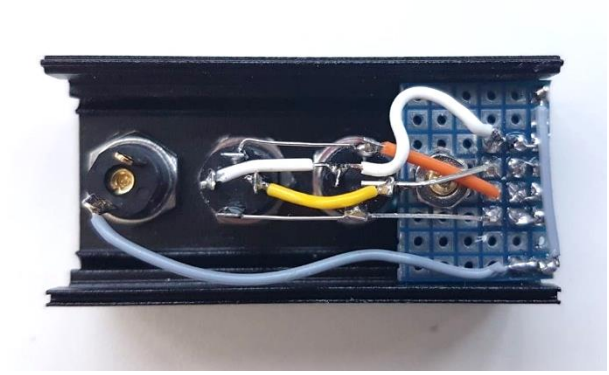

*Figure 3 – ULU inside*

*Figure 4 – Finished ULU*

## Usage

After the ULU is powered, the data sniffer can be placed between two data-base sockets to 'sniff' the data transmitted on the cable between the two other ULUs (See Figure 6). If a data to quad signal adapter is used, four signals can be monitored. More advanced display options (hexadecimal, decimal, 1-complement and 2-complement) are offered in the *ULU.07 Universal 4-bit display*.

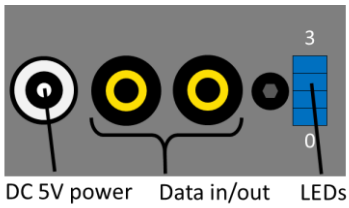


*Figure 5 – Controls and connectors*

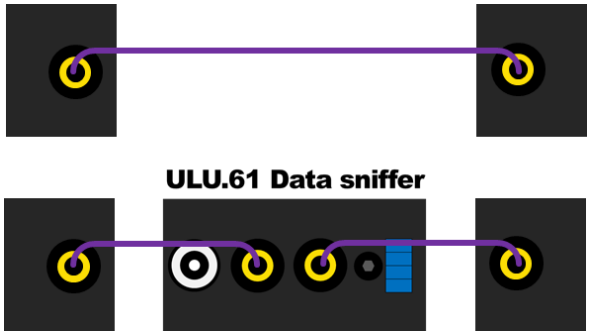


*Figure 6 – Using the ULU: show the bits on the data-line*