

BBQL-Shell Version 1.1

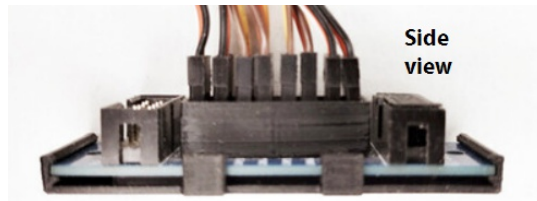
A protective enclosure for the RR-CirKits Breakout Quik-Link Board

These instructions cover the use (and 3D printing) of an enclosure designed to protect the electrical connections on the RR-CirKits Breakout Quik-Link Board from accidental shorts.

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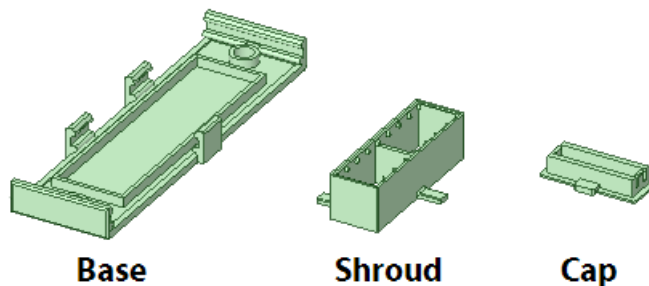
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These instructions and the files for 3D printing the enclosure are available free at www.intuiswitch.com/qr/bbql_shell.html.



Overview

The BBQL-Shell consists of three 3D-printable pieces:



Component Function

Base	The Base protects contacts protruding on the bottom side of the Breakout Quik-Link from external shorts. Holes in the base line up with mounting holes in the Breakout Quik-Link, so screws can still be used to mount the board to benchwork. The base has a smooth bottom surface, allowing double sided foam mounting tape to be used in place of mounting screws for attaching the board to track benchwork. The side clips on the Base also serve to anchor the Shroud to the Breakout Quik-Link.
Shroud	The Shroud protects the 3×8 array of pins on the top side of the board from external shorts. It also helps insure that 3-pin connectors on cables are properly centered on a 3-pin row on the Breakout Quik-Link.
Cap	The Cap can be inserted into unused 5×2 connectors on the Breakout Quik-Link or similar boards to protect the pins from shorts to external wires.

Assembly

Start by slipping the shroud over the 3×8 array of pins on the top side of the Breakout Quik-Link so the three mounting tabs of the shroud are flat against the breakout board.

Orient the base so the three side clips of the base match up with the three tabs of the shroud. While holding the shroud firmly against the board, insert the edge of the board with two shroud tabs under the two adjacent side clips of the base. Then snap the board down into the end clips of the base, and make sure the single side clip of the base clips over the single side tab of the shroud. Note: the side clips on the base have limited strength – they may break off if subjected to repeated assembly/disassembly. But will be fine in normal use.

The Breakout Quik-Link has two 5×2 connectors, wired in parallel on the breakout board. In some instances only one of the two connectors is used. In that case, the cap can be inserted into the unused connector to protect the connector pins from external shorts. Insert the box portion of the cap into the connector, with the tab on the cap lined up with the notch in the side of the 5×2 connector. Friction holds the cap in the connector. The cap can later be removed by prying under the tab with a fingernail or small screwdriver.

3D Printing

The zip file containing these instructions, and also includes an .STL file for each of the three parts (base, shroud, and cap) of the BBQL-Shell. They parts have been printed successfully using ABS filament on an inexpensive FDM-style printer. Other materials should work, but ABS is less brittle than PLA, making it a good choice for items like this with snap-together assembly. They were printed with 0.4mm nozzle and 0.2mm layer height and adaptive layer height enabled in the Cura slicer. Infill was set to 20%, though these are thin enough that higher infill could be used with little affect on print time or material used. It takes about 3 grams of filament to print the set of three parts. Contact brad@bradlevy.com if you are interested in getting the files in .step or .rsdocx format, which are more suitable for further editing of the designs.

Background

The Breakout Quik-Link which the BBQL-Shell was designed to protect is a product of RR-CirKits Inc., Waxhaw, NC. <http://www.rr-cirkits.com/>.

The BBQL-Shell was designed by Brad Levy, not affiliated with RR-CirKits. These instructions and the files for 3D printing the BBQL-Shell are available free on the www.IntuiSwitch.com website. IntuiSwitch makes IntuiSwitch-HQ controls designed to work with the RR-CirKits products using the Breakout Quik-Link.

These instructions and design files are for version 1.1 of the BBQL-Shell, released 12/2023. These files provide a more secure fit than the earlier V1.0 files.