

Electro-Resales

Key Adapter - Switch Thing

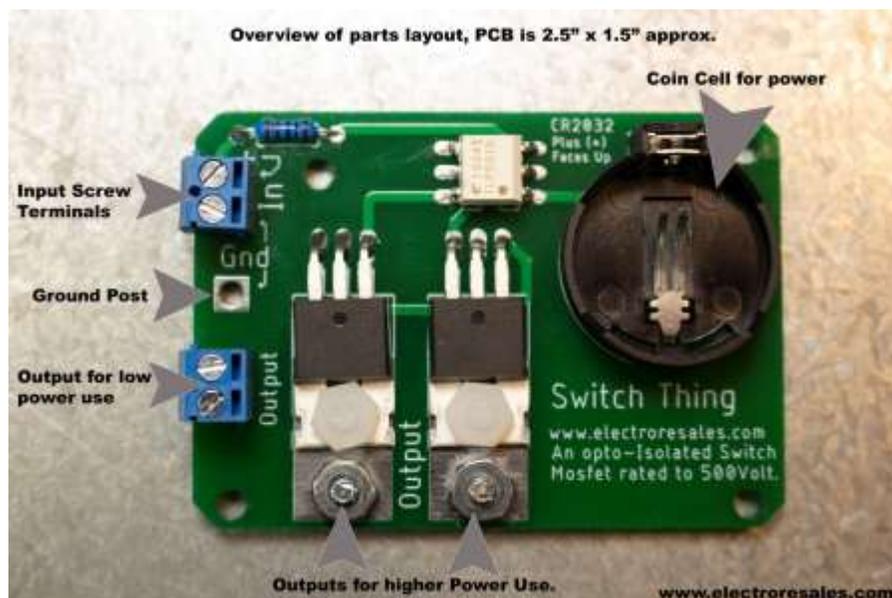
A Little Background

In a time when tubes (valves) held sway in electronics of all types, and high voltage (B+) was typically in the 300 VDC range, interfacing or connecting tube units was simple and reasonably straightforward as the voltages were all the same, or at least close. Today, all electronic devices produced since the late 70's are based on semiconductors, these low voltage devices don't play well with the tube gear and their higher voltages.

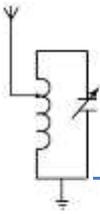
An interface is generally required to isolate the more delicate semiconductor gear from the tube gear and its higher voltage needs. In the past relays and specifically reed relays were commonly used, they were silent, fast and small in size, unfortunately they also need driver electronics and this made for a more complex solution. Today, the best solution to interfacing tube circuits to semiconductor circuits center on using Mosfet semiconductors, they require little load current on the gate terminal to switch much higher loads through the Mosfet at high speed. The design presented here uses a pair of Mosfet to perform the switching; the gate terminal is isolated from the driving source by an opto-isolator. The configuration allows for the fast switching of high voltage loads driven through an isolator from very low drive signals.

Operation and Usage

While reading through this document, use this photo to assist in identifying the main components of the calibrator, it illustrates the key features of the device.



Switch and Keying Adapter



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To use the key adapter or switch it is first necessary to install a coin cell in the holder provided, this can be a CR2032 or CR2035 type coin cell, ensure the cell is inserted with the + side up or facing you. Please also note that the PCB contacts on this unit are exposed on the bottom of the PCB so the PCB is best mounted on an insulating material or if a conductive surface is used, employ stand-offs. The mounting holes are all sized for 4/40 bolts.

A low level control signal from a keyer or other device is connected to the screw terminals marked 'In'; observe the polarity of this input. Two sets of output terminals are available, a screw terminal set marked 'output' or the larger pads connected to the Mosfet tabs with the screw terminals provided.

Typically most applications will utilize the Mosfet screw terminals, as this provides the higher power loading and more secure connection. The mounting holes are 4/40 size and a #14 or #12 spade terminal fits these bolts snug and with good contact area. The low power output terminals are more for applications that require an isolated switch but are not switching a power load. Typical connections for driving a transceiver are shown in appendix C.

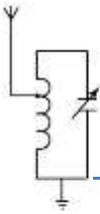
Input isolation is provided by the opto-isolator connected between the input and the Mosfet gates; this device has an internal isolation breakdown of 2.5KV.

Troubleshooting

We have designed and manufactured the switch to be a robust unit that should give a long service life, however problems can occur and the following quick notes are designed to assist with simple troubleshooting. Please also refer to the schematic in the appendix. If these fail to produce a positive result please reach out to us at the email below.

1. No switching – check you installed a new coin cell is it + side facing up?
2. No switching – Check input connections, is the polarity correct, trying swapping the connections.
3. No switching – Is the input signal active, check with a meter, that you have an active signal to feed the switcher.
4. A schematic layout is shown in Appendix A along with a typical usage diagram.

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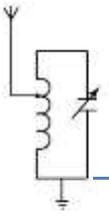
The small Print

DISCLAIMER

Any person who constructs or works on electronic equipment may be exposed to hazards, including physical injury, the risk of electric shock or electrocution.. These hazards can result in health problems, injury, or death. Only qualified persons who understand and are willing to bear these risks themselves should attempt the construction of electronic equipment. By purchasing this item, the buyer acknowledges these risks.

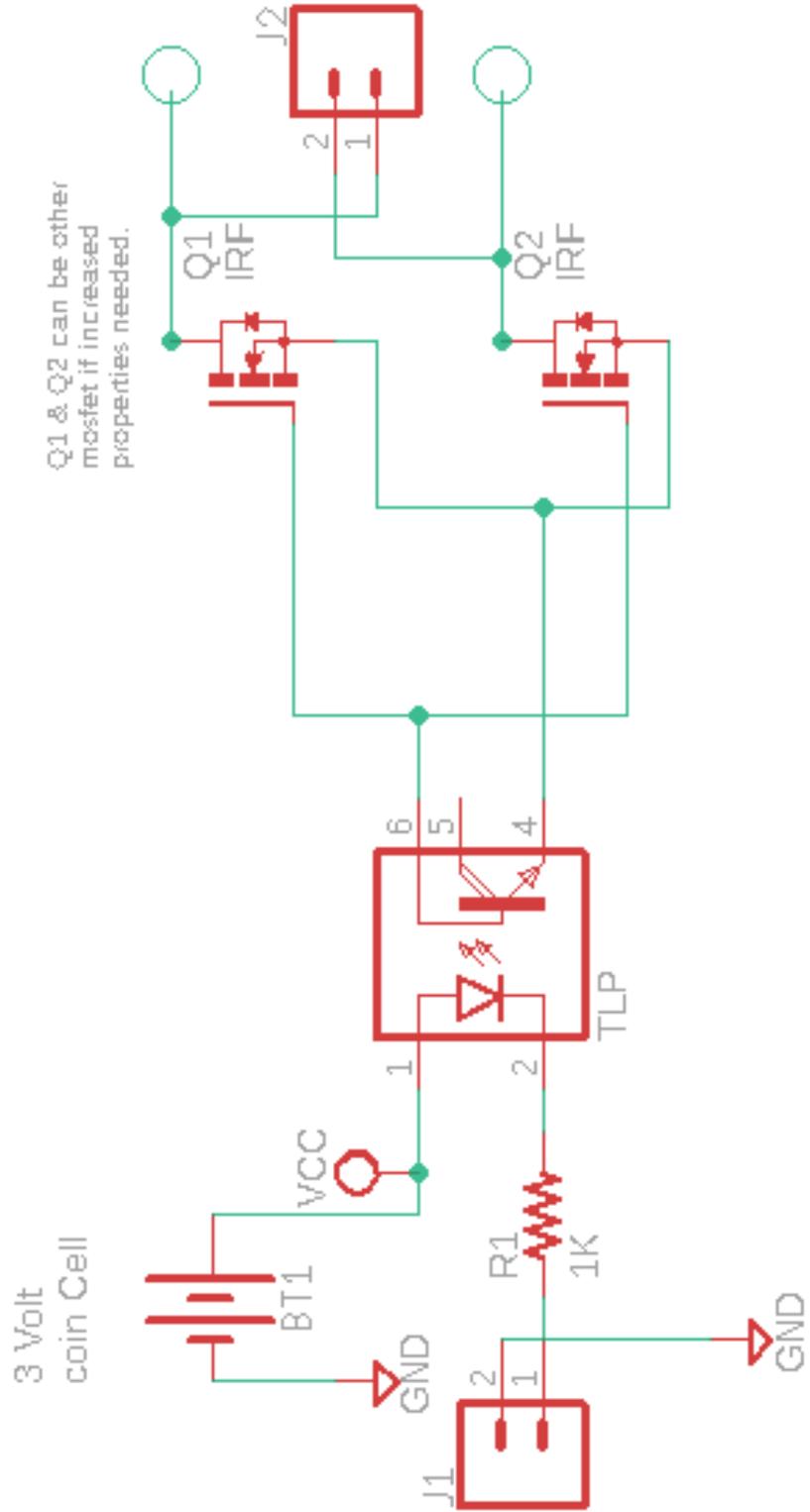
There is a risk of electric shock, electrocution, burns, or fires that is inherent in the construction and use of electronic equipment. By purchasing this item, the buyer acknowledges these risks.

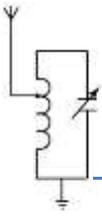
IN NO EVENT SHALL THE SELLER BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE including, but not limited to, property damage, personal injury, death or legal expenses. Buyer's recovery from Seller for any claim shall not exceed the purchase price paid by Buyer for the goods, irrespective of the nature of the claim, whether in warrant, contract or otherwise. By purchasing this item, BUYER AGREES TO INDEMNIFY, DEFEND AND HOLD SELLER HARMLESS FROM ANY CLAIMS BROUGHT BY ANY PARTY REGARDING ITEMS SUPPLIED BY SELLER AND INCORPORATED INTO THE BUYER'S PRODUCT.



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Appendix A





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Simplified typical layout for using switch thing to key a Tube radio with a modern keyer

