Purpose:

This document outlines the design and function of the Coilgun Fire Button Enclosure.

Summary:

The Coilgun Fire Button Enclosure has a Power Rocker and LED as well as a combo Fire Button LED/Push Button. This Enclosure receives an Ethernet signal and outputs a Fiber pulse. The Ethernet will always scan for the OCS in order to connect and echoes its current “ARM” status as a heartbeat to the OCS.

This enclosure receives an Ethernet signal from the OCS indicating “ARM”. Once this “ARM” signal is received, the enclosure is now activated and illuminates the Fire Button’s LED. From here, pressing the Fire Button will cause the enclosure to issue the “5-pulse trigger” signal on its fiber port which will cause the Coilgun system to fire. Additionally, reissuing the “ARM” signal, once the enclosure is activated, will deactivate the Coilgun Fire Button Enclosure causing the Fire Button LED to go dark.

Method of Operation:

1. ARMING/DISARMING
   1. The OCS will send an ARM signal to the Enclosure in order to ENABLE/DISABLE the Fire Button on the Enclosure.
2. Connecting the Enclosure to the OCS
   1. Once the Enclosure is powered on, it will continually attempt to connect to the OCS.
3. Powering On the Enclosure
   1. The Enclosure is designed to be powered by a 5 VDC Supply at .5A through a panel mounted jack. Once connected, throw the rocker switch on its back to on and the Green LED on top of the Enclosure will illuminate. Note, this LED will still power even if the TEENSY inside is not.
4. Ethernet
   1. The Enclosure if configured to 10.20.0.3 as a client and expects the OCS at 10.20.0.1 as a server.
5. Heartbeat
   1. The Enclosure will send a Heartbeat back to the OCS Server in the form of its current ARM status for the Fire Button as either “ENABLED” or “DISABLED”.
6. 5 Pulse Fire
   1. In the event of a Fire Button press while the system ARM is ENABLED, the Enclosure will output a 5 pulse square wave with a period of 10µs.