Wiring Diagram for the Laser Interlock Control Unit

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This note presents the wiring diagram of the laser interlock control unit designed and fabricated for the laser lab, built for the acceptance testing of the quartz bars of the electron-ion collider's (EIC) detection of internally reflected Cerenkov light (DIRC) detector.

For the EIC DIRC's laser lab, a laser interlock control unit is being implemented, [1, 2]. To aid the wiring and debugging of the unit, a wiring diagram has been generated.

The line colors of the control unit's wiring diagram, Fig. 1, match the colors of the actual wiring, Table I.

Color	Function
black and red	power
yellow	5 V+
gray	5 V ground
blue	signals
purple	connections within keys

TABLE I. Key to wire colors.

In Fig. 1, the terminal blocks are shown on the left (orange, yellow, and red) and the green rectangle is the laser interlock PCB, which determines if the laser output should be disabled; these are attached to the bottom of the unit. Connectors C1, C2 and BNCs are on the unit's side; key 1, reset button, and LEDs are on the unit top. Figure 2 shows a photo of the completed laser interlock control unit.

To conclude, a wiring diagram was made of the laser interlock control unit to aid in future debugging.

[1] T. Lemon, et al., *Design and Features of the EIC DIRC Laser Lab's Laser Interlock System*, Note 2023-01, 2023.
[2] T. Lemon, et al., *Evaluating Altium for Circuit Simulation Using the EIC DIRC Laser Interlock Circuit*, Note 2023-10, 2023.

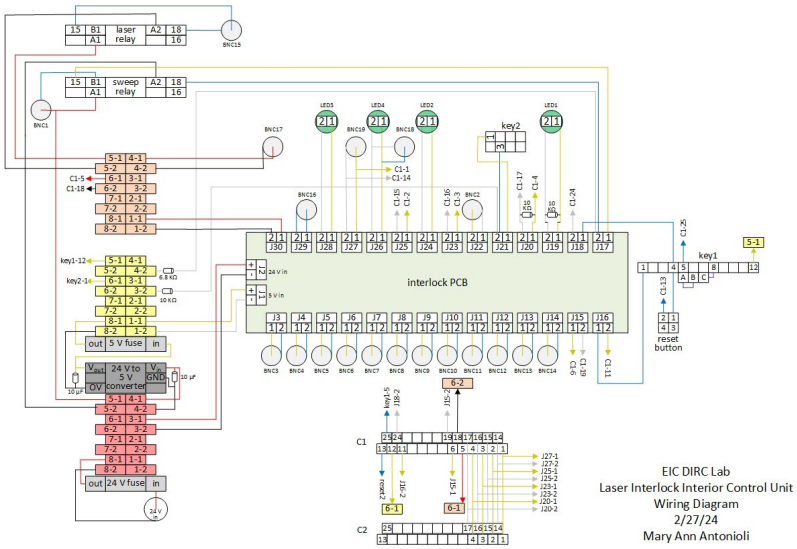

FIG. 1. Wiring diagram for the laser interlock control unit.

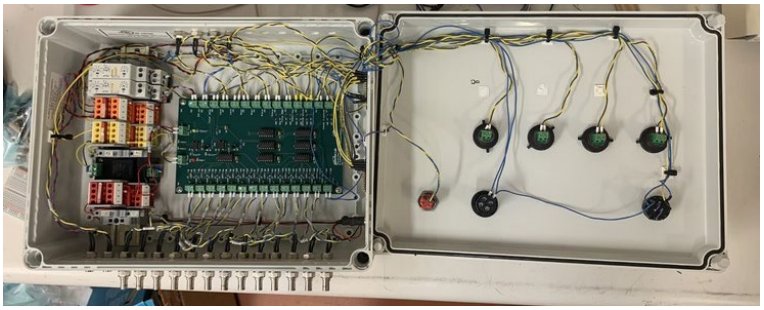

FIG. 2. Photo of the fabricated laser interlock control unit.