



U.S. DEPARTMENT OF  
**ENERGY**

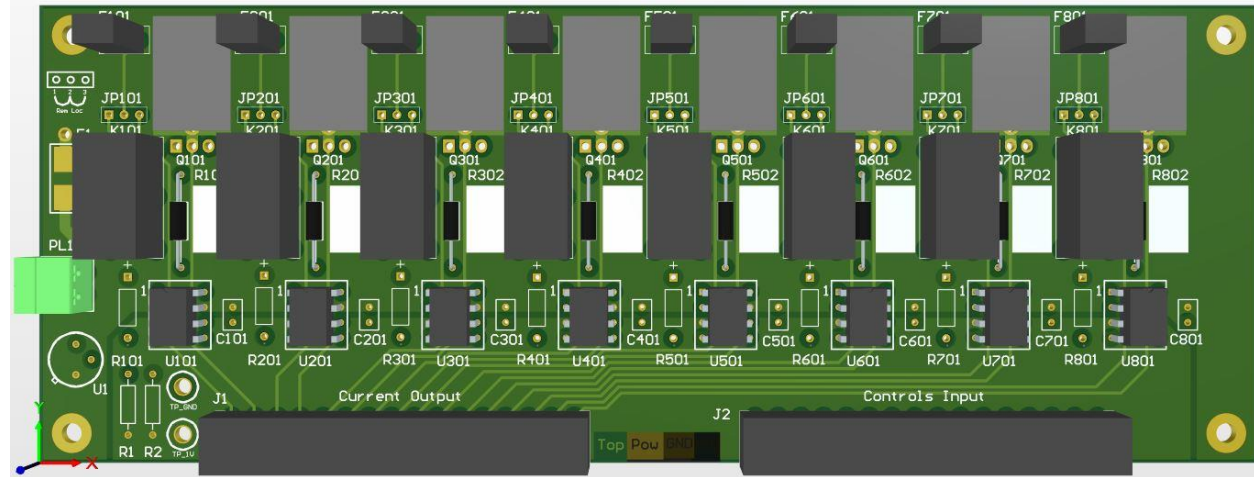


# **DSG Modification to the Constant Current Source Board for SoLID**

Marc McMullen  
Detector Support Group  
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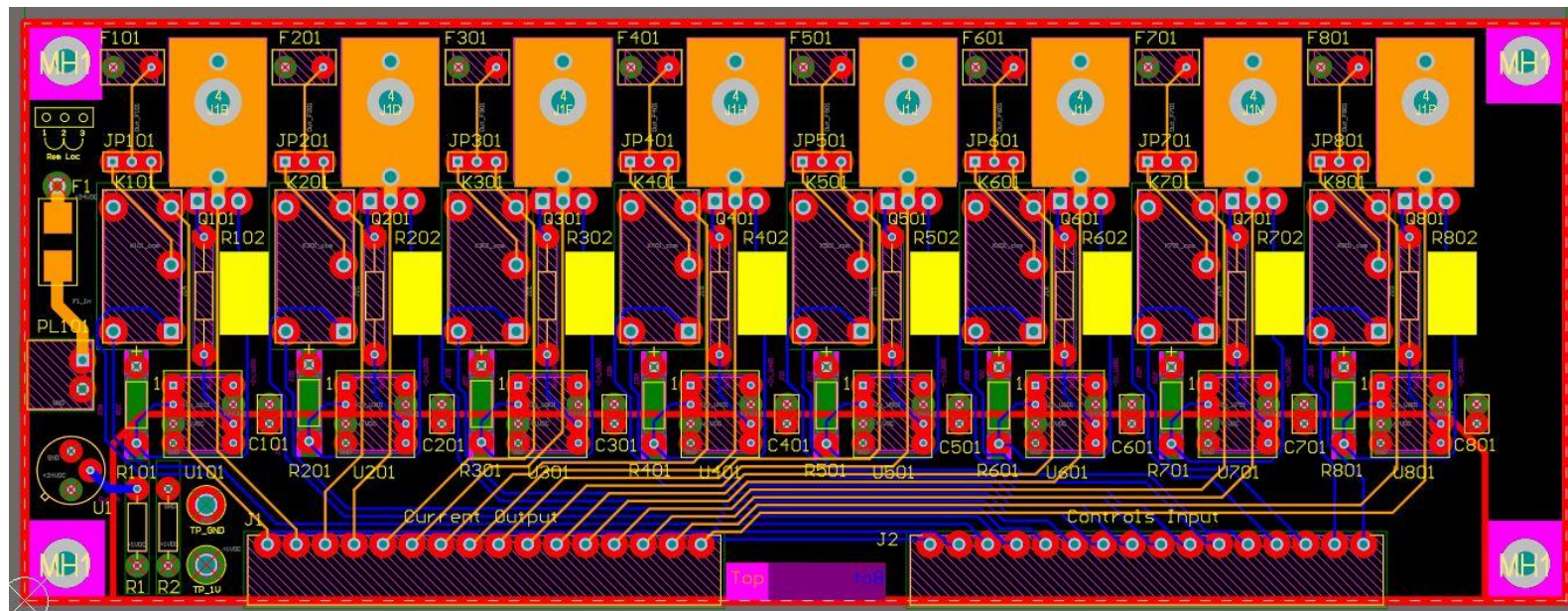
# Modifications

- Board modification to 24 V
- Remote/local selection reroute
- Input power fuse holder



# PCB Layers (All)

Ch. 1      Ch. 2      Ch. 3      Ch. 4      Ch. 5      Ch. 6      Ch. 7      Ch. 8



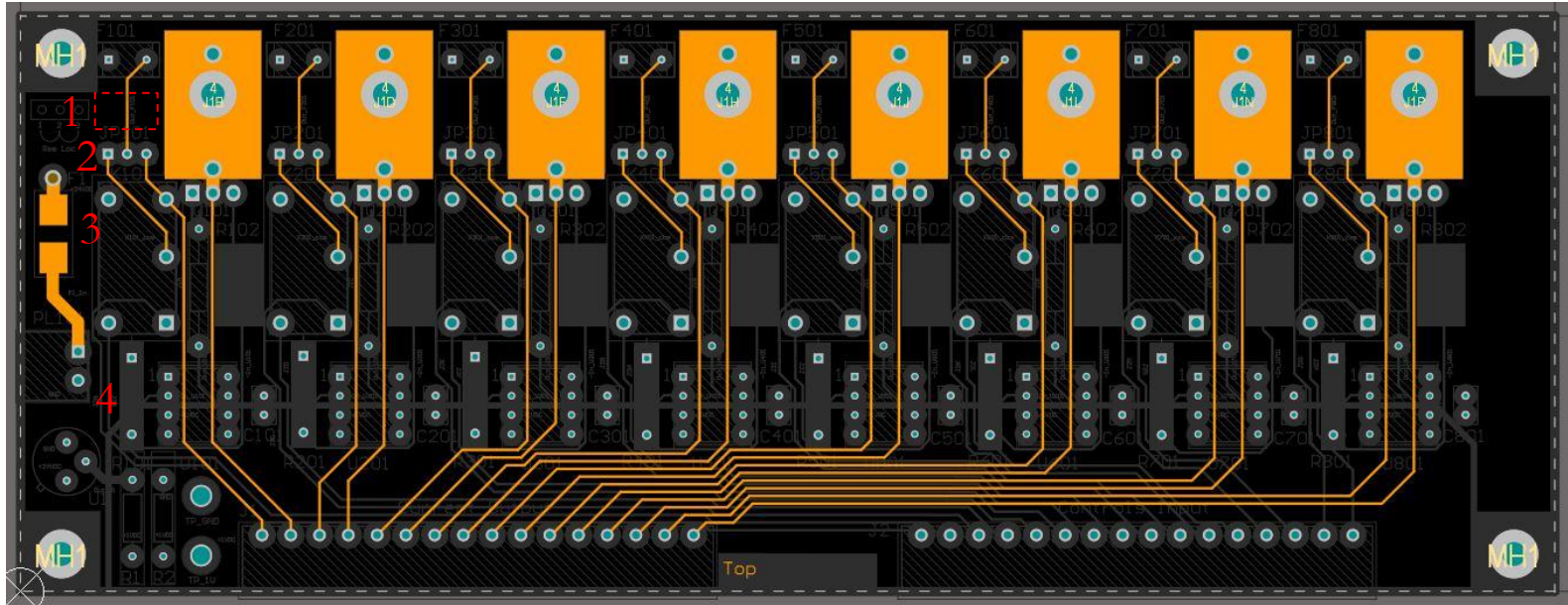
Power input

Current output

Controls input

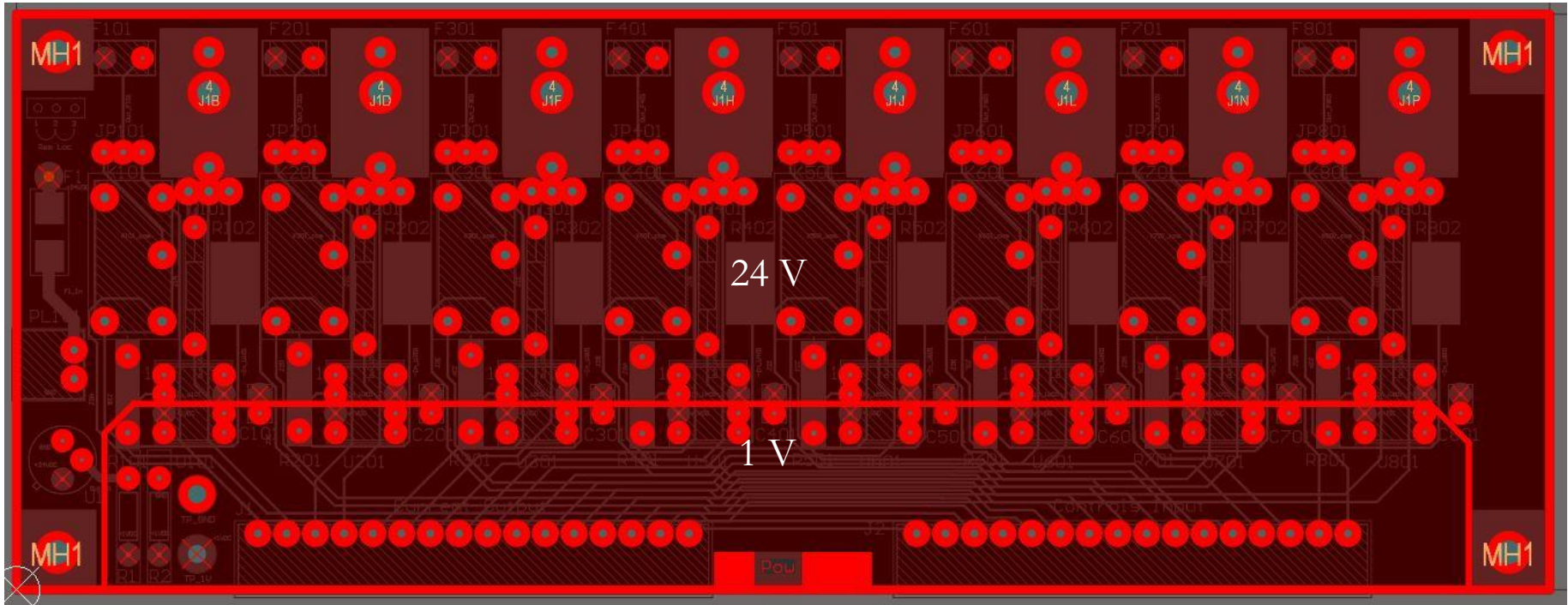
- Plane clearance: 50 mils
- Min. trace width: 20 mils
- SMT Fuse

# Component Layer (Top)



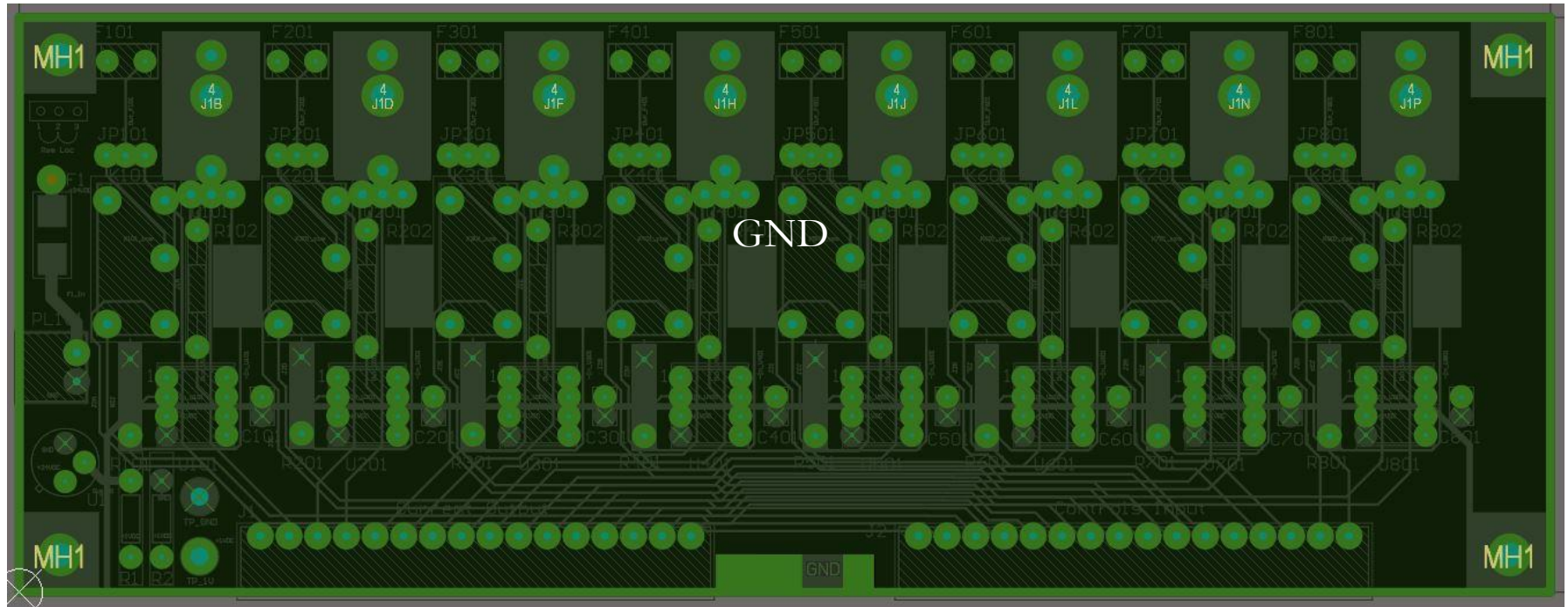
1. JPx01 header is removed
2. JPx02 header is re-routed
3. Input power fuse added
4. PL101 is replaced with 2-pin header

# Power Plane Layer



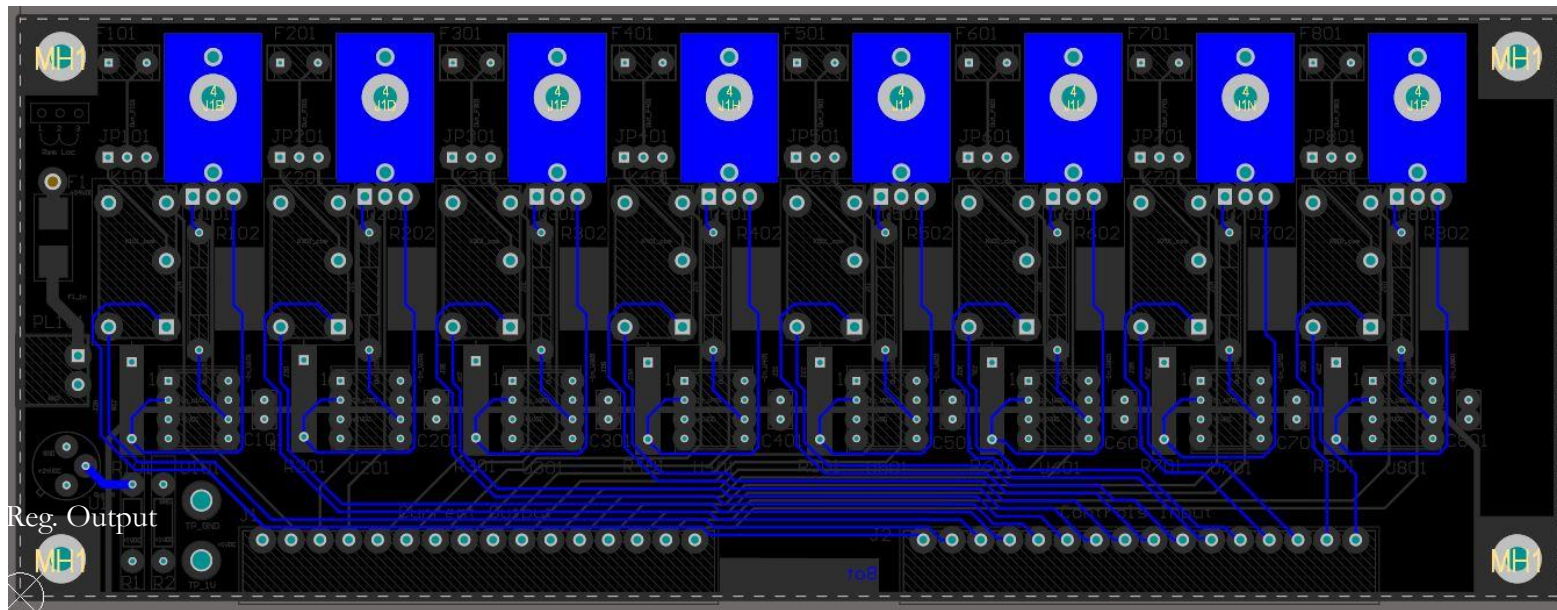
- Power plane is re-partitioned into two planes
  - 24 V for voltage reference (U1) and all op-amps
  - 1 V for supply to constant current circuit.

# Ground Plane Layer

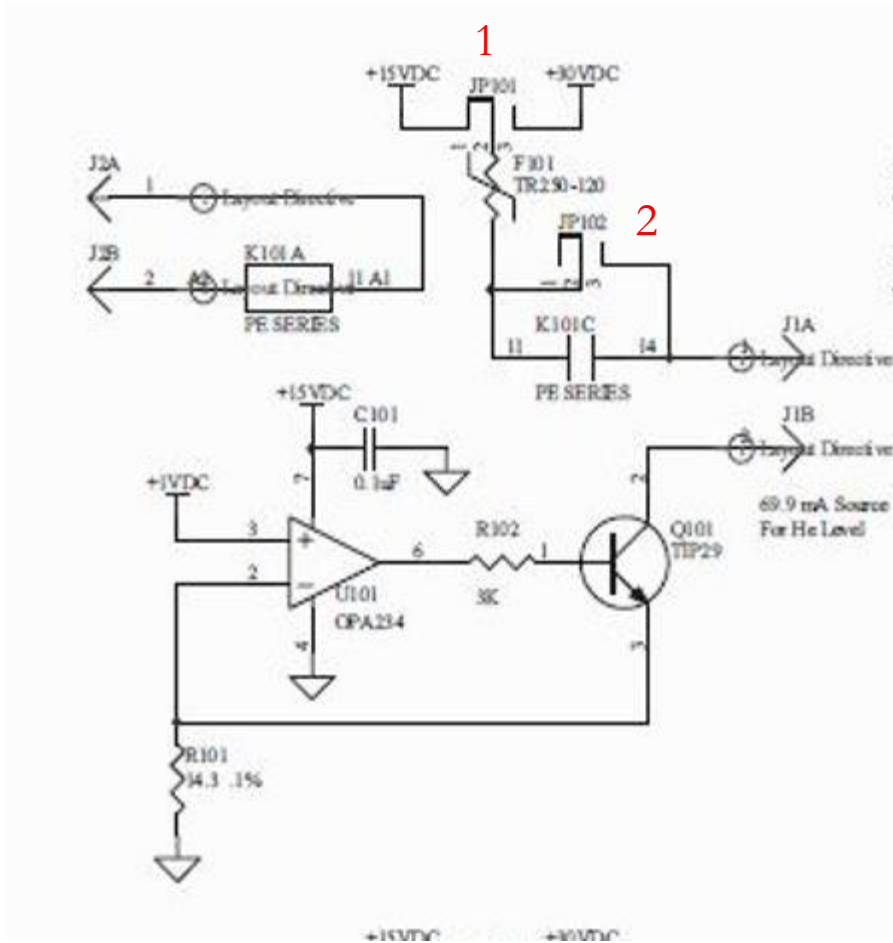


- No change to ground plane

# Bottom layer



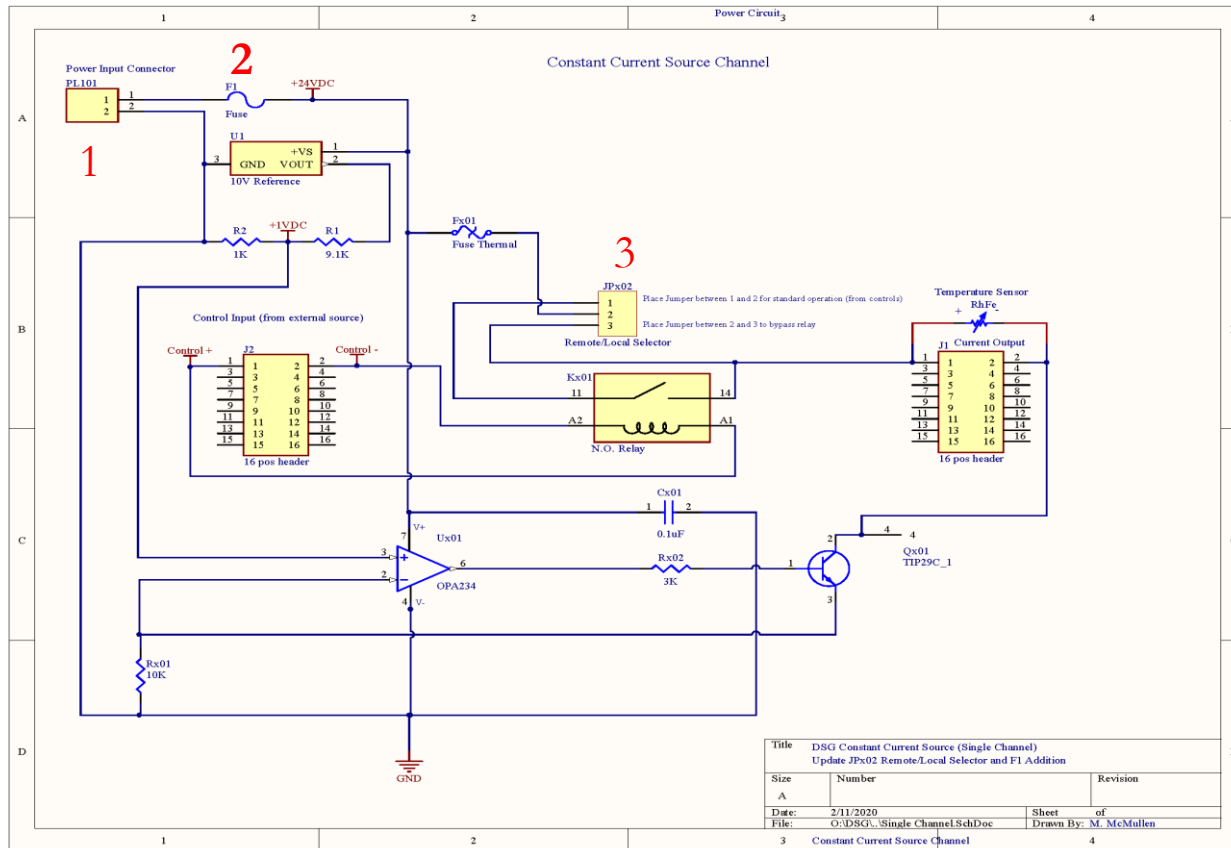
# SHMS/NSCL Schematic



1. JP101 header selects voltage source
2. JP102 pin 2 is connected to K101 common contact (if jumper is in local position, voltage will be connected from JP102\_3 and relay when it is energized)



# DSG CCS Single Circuit



1. PL101 is changed to 2 pin connector for 24 V and GND
2. F1 is added for board circuit protection
3. JPx02 is re-routed to control remotely or locally

# Routing Notes

- Modifications to design have been completed
  - What current protection is being implemented for relay coils
  - Precision for Rx01 resistors is currently 0.1%

# Conclusion

- Design modifications have been completed
- The design is under review

Thank You