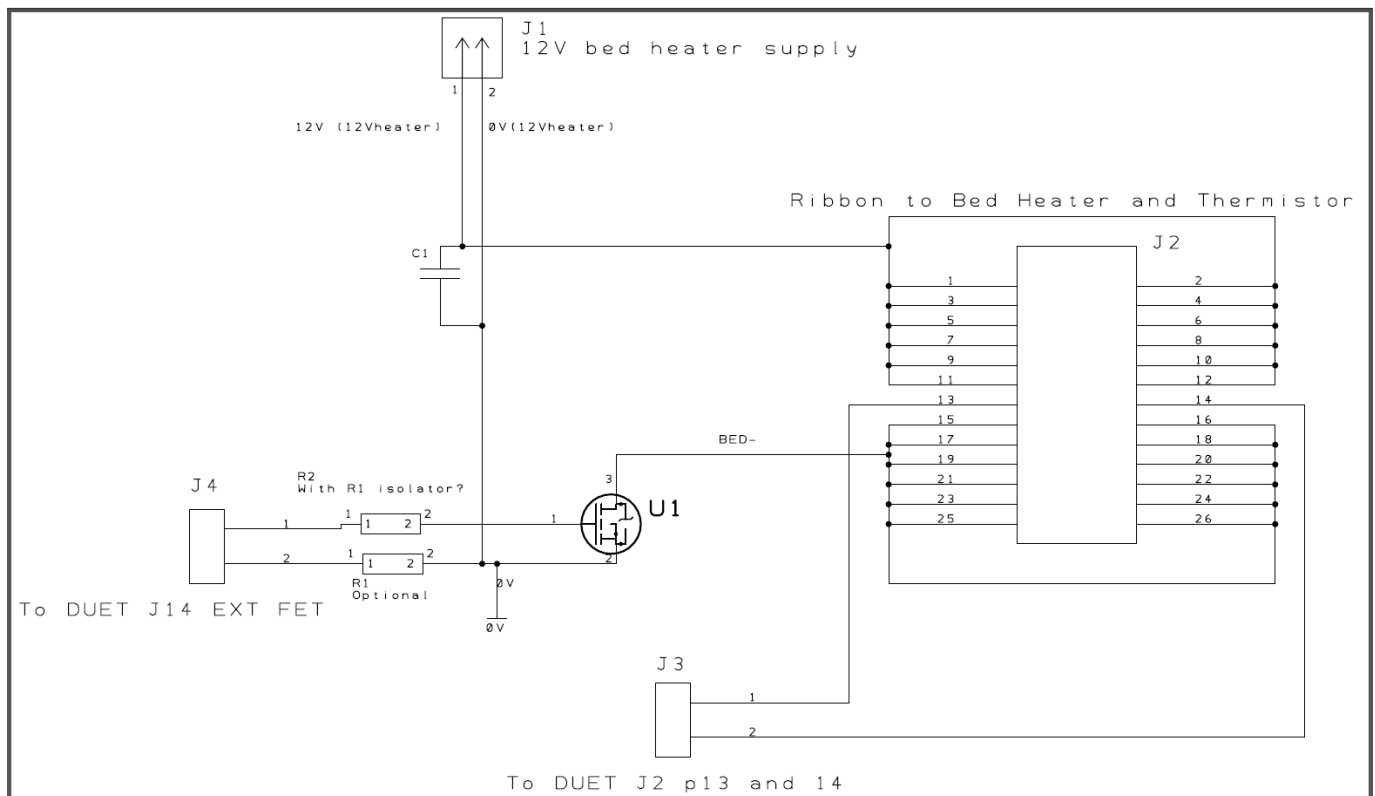


The above schematics from the DUET documentation show the drive circuit and the ribbon cable output J2. There are tracked but unpopulated positions for the connectors J5 and J4 which offer a non-ribbon cable alternative. However J14 the “EXT FET” 2 pin header is provided next to the ribbon cable connector J2.

The proposal below is to remove the high currents for the heater bed off of the DUET board.



J4 above connects to J14 on the DUET board and provides the FET drive signal.

J3 above connects to pins 13 and 14 of the DUET ribbon header J2. Note that the DUET pins could now go direct to the thermistor via a different physical route to provide better isolation from the heater switching noise.

J2 is the new connection for the ribbon cable to the bed heater. This could be physically re-routed to the opposite end of the Ormerod platform and if the new PCB above is located at that end (power PCB end) this will keep the power to the Ormerod at one end.

R2 is suggested as a low wattage resistor say 10R (possibly with a ferrite bead) to provide a degree of ground isolation but more importantly protect the wiring and DUET tracks by fusing should the 12V heater supply ground become disconnected and the bed heater current try to return to the PSU via this signal route.

The combination of R2 and R1 shows the location only, i.e. not suggested components, to place an isolator for improved ground noise isolation to the DUET.

C1 is suggested for power supply hold up and may be in parallel with other capacitors for better noise suppression.

Not shown, but the board should also have spike suppression as a diode or diode R+C circuit across the heater.

SUMMARY

J1 provides the 12V bed heater current, which could be a separate supply, but I believe could be taken from the existing PSU via the alternative free plugs. Two cables need to go back to the DUET for the FET drive signal and the bed thermistor. Additional options for isolation and noise suppression can be added as required.