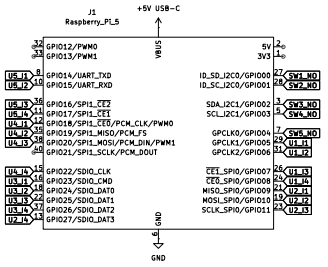
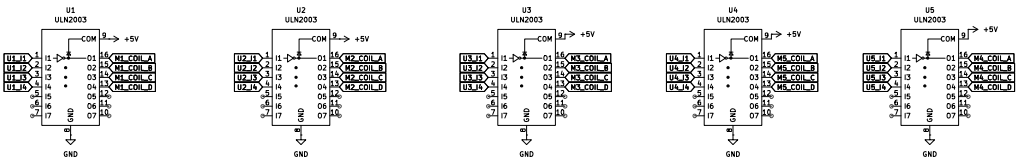
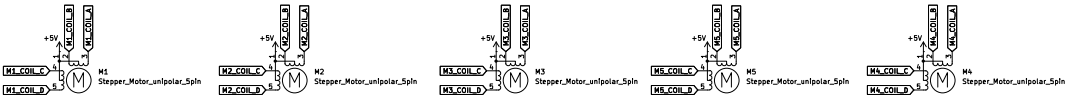
RPi 5



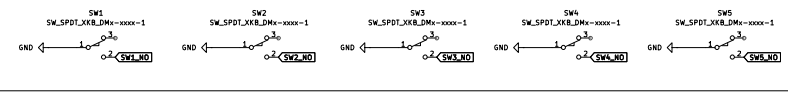
MOTOR DRIVERS



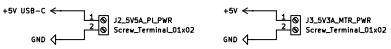
STEPPER MOTORS



LIMIT SWITCHES



POWER



CALCULATIONS

COMPONENTS:
- Raspberry PI Power: 5V @ 5A (USB-C)
- Motor Power Supply: 5V @ 3A
- Total Motors: 5
- Motor Driver: 1 per motor
- Limit Switches: 5

Per-coil current I_phase = 0.20 A
Two coils energized simultaneously
I_motor = 2 × I_phase
I_motor = 2 × 0.20 A = 0.40 A per motor

Total motor current:
I_total_motors = 5 × 0.40 A = 2.00 A

MOTOR POWER:
P_motors = 5.0 V × 2.00 A = 10.0 W

RASPBERRY PI CURRENT (estimate):
I_pi = 1.50 A (Pi + camera + peripherals)
P_pi = 5.0 V × 1.50 A = 7.50 W

TOTAL SYSTEM POWER (approx.):
P_total = P_motors + P_pi
P_total = 10.0 W + 7.5 W = 17.5 W

NOTES:
- +5V_Pi and +5V_Motor are separate rails.
- Common GND is shared between PI and Motor Supply.
- Values are worst-case continuous estimates.