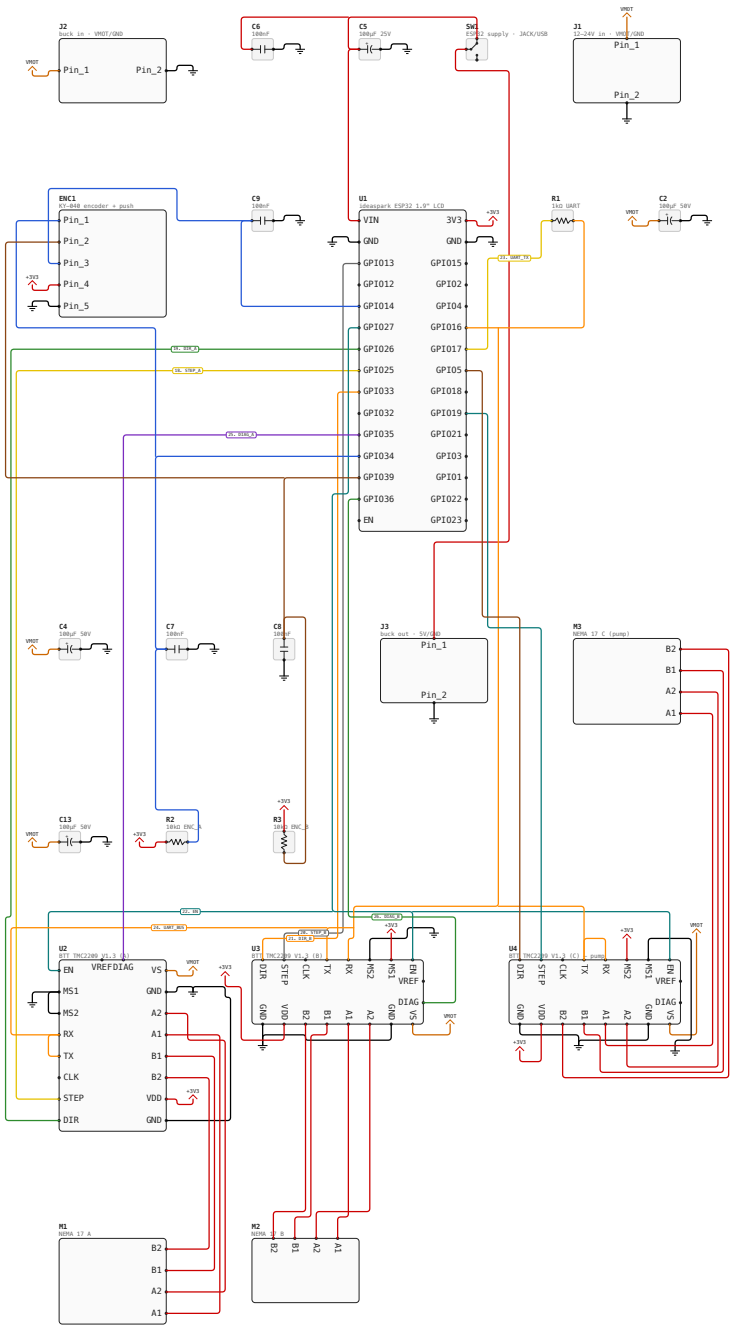
Top View



Components (23)
U1: ideaspark ESP32 1.9" LCD
esp32_3Apin:ESP32_3APin
U2: BTT TMC2209 V1.3 (A)
tmc2209:TMC2208_BTT_V13
U3: BTT TMC2209 V1.3 (B)
tmc2209:TMC2208_BTT_V13
J1: 12–24V in · VMOT/GND
Connector_Generic:Conn_01x02
R1: 1kΩ UART
C2: 100µF 50V
C4: 100µF 50V
C5: 100µF 25V
C6: 100nF
C7: 100nF
C8: 100nF
C9: 100nF
M1: NEMA 17 A
motor_conn:Stepper_Motor_1x04
M2: NEMA 17 B
motor_conn:Stepper_Motor_1x04
J2: buck in · VMOT/GND
Connector_Generic:Conn_01x02
J3: buck out · 5V/GND
Connector_Generic:Conn_01x02
U4: BTT TMC2209 V1.3 (C) — pump
tmc2209:TMC2208_BTT_V13
M3: NEMA 17 C (pump)
motor_conn:Stepper_Motor_1x04
C13: 100µF 50V
ENC1: KY-040 encoder + push
Connector_Generic:Conn_01x05
R2: 10kΩ ENC_A
R3: 10kΩ ENC_B
SW1: ESP32 supply · JACK/USB

Nets (31)		
1. VMOT	24. UART_BUS	27. STEP_C
17. GND	25. DIAG_A	28. DIR_C
2. 5V	26. DIAG_B	13. MC_A1
3. VIN	5. MA_A1	14. MC_A2
4. 3V3	6. MA_A2	15. MC_B1
18. STEP_A	7. MA_B1	16. MC_B2
19. DIR_A	8. MA_B2	29. ENC_A
20. STEP_B	9. MB_A1	30. ENC_B
21. DIR_B	10. MB_A2	31. ENC_SW
22. EN	11. MB_B1	
23. UART_TX	12. MB_B2	

Power Rails (3)					
VMOT	VMOT	GND	GND	+3V3	3V3

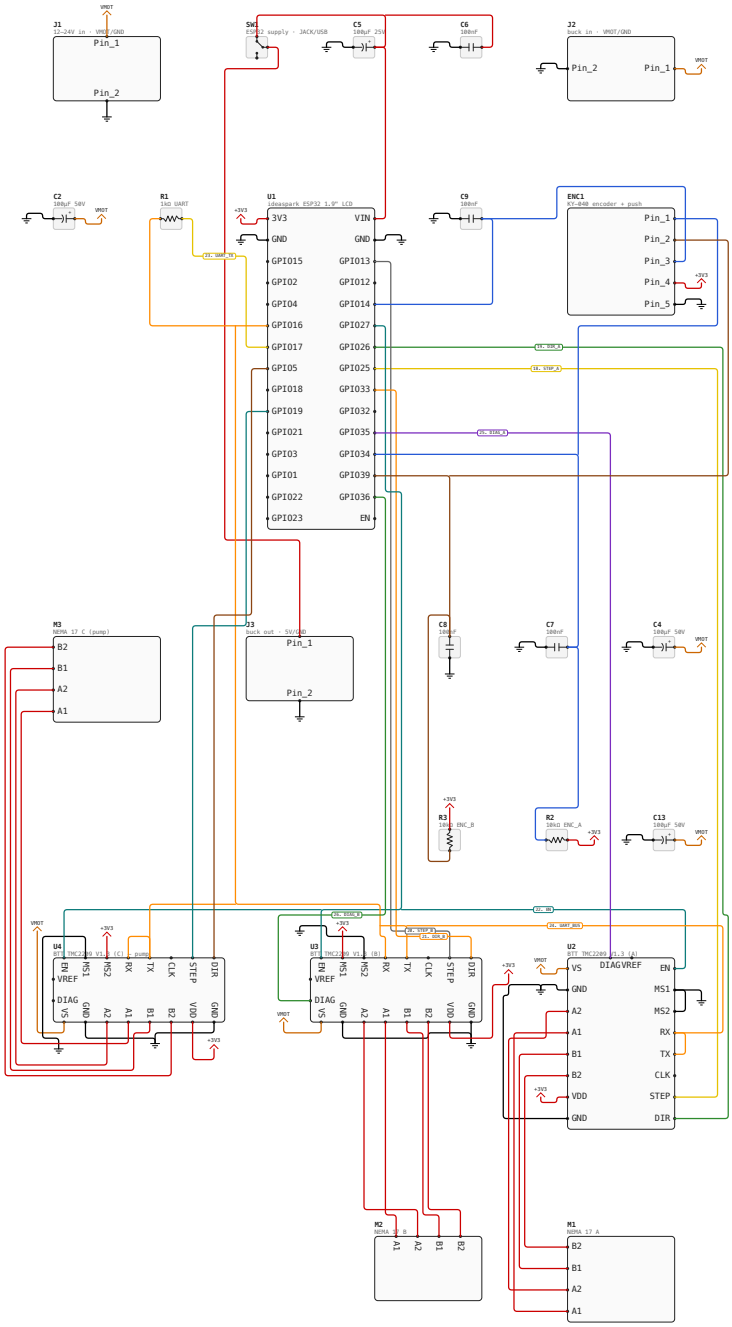
AutoSharpener — ideaspark ESP32 1.9" LCD + 3× TMC2209 + rotary encoder (4-layer)

CoreXY knife sharpener controller. One motor per CoreXY axis plus a drip-pump axis, sensorless homing over UART…

Version	Date
rev-d	2026-10-13

Created with SchemaChef v0.2.191

Bottom View



Components (23)
U1: ideaspark ESP32 1.9" LCD esp32_3Apin:ESP32_3APin
U2: BTT TMC2209 V1.3 (A) tmc2209:TMC2208_BTT_V13
U3: BTT TMC2209 V1.3 (B) tmc2209:TMC2208_BTT_V13
J1: 12–24V in · VMOT/GND Connector_Generic:Conn_01x02
R1: 1kΩ UART
C2: 100µF 50V
C4: 100µF 50V
C5: 100µF 25V
C6: 100nF
C7: 100nF
C8: 100nF
C9: 100nF
M1: NEMA 17 A motor_conn:Stepper_Motor_1x04
M2: NEMA 17 B motor_conn:Stepper_Motor_1x04
J2: buck in · VMOT/GND Connector_Generic:Conn_01x02
J3: buck out · 5V/GND Connector_Generic:Conn_01x02
U4: BTT TMC2209 V1.3 (C) – pump tmc2209:TMC2208_BTT_V13
M3: NEMA 17 C (pump) motor_conn:Stepper_Motor_1x04
C13: 100µF 50V
ENC1: KY-040 encoder + push Connector_Generic:Conn_01x05
R2: 10kΩ ENC_A
R3: 10kΩ ENC_B
SW1: ESP32 supply · JACK/USB

Nets (31)		
1. VMOT	24. UART_BUS	27. STEP_C
17. GND	25. DIAG_A	28. DIR_C
2. 5V	26. DIAG_B	13. MC_A1
3. VIN	5. MA_A1	14. MC_A2
4. 3V3	6. MA_A2	15. MC_B1
18. STEP_A	7. MA_B1	16. MC_B2
19. DIR_A	8. MA_B2	29. ENC_A
20. STEP_B	9. MB_A1	30. ENC_B
21. DIR_B	10. MB_A2	31. ENC_SW
22. EN	11. MB_B1	
23. UART_TX	12. MB_B2	

Power Rails (3)
VMOT VMOT · GND GND · +3V3 3V3

AutoSharpener — ideaspark ESP32 1.9" LCD + 3× TMC2209 + rotary encoder (4-layer)

CoreXY knife sharpener controller. One motor per CoreXY axis plus a drip-pump axis, sensorless homing over UART…

Version	Date
rev-d	2026-10-13

Created with SchemaChef v0.2.191