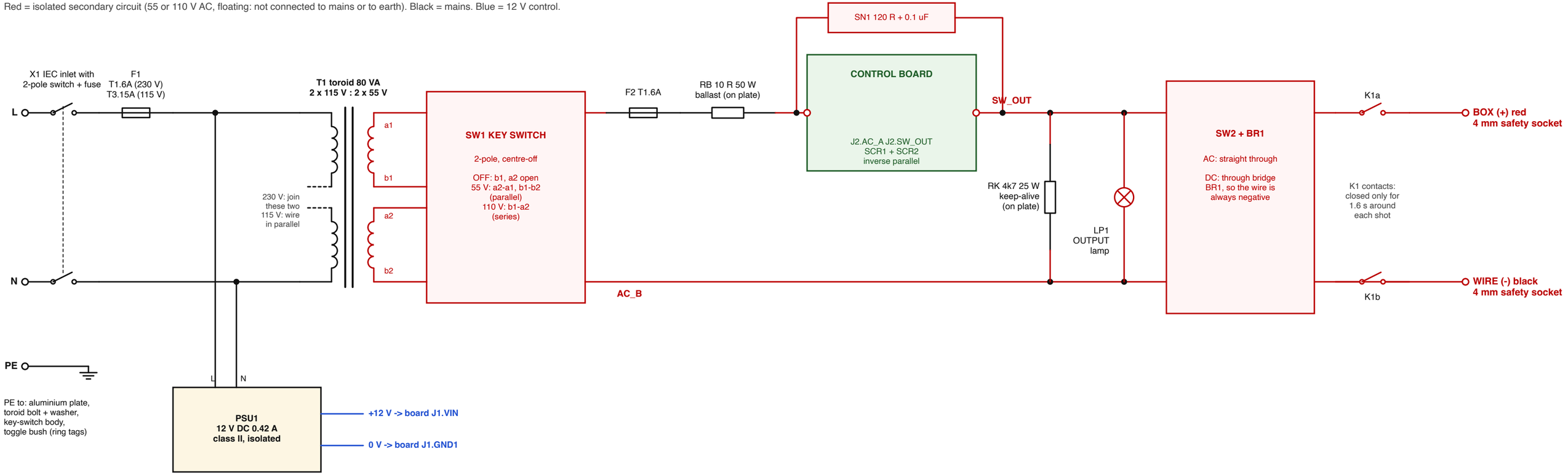
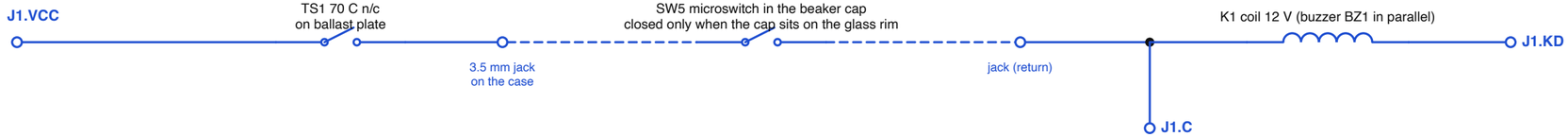
MATSUMOTO S-71 PULSE UNIT - POWER PATH AND CHASSIS WIRING

Red = isolated secondary circuit (55 or 110 V AC, floating: not connected to mains or to earth). Black = mains. Blue = 12 V control.



INTERLOCK CHAIN AND CONTROL WIRING (12 V, safety extra-low voltage)



Only when BOTH are true does the relay connect the output sockets to the pulse circuit:
1. the cap is seated on the beaker (SW5),
2. the board is inside its 1.6 s firing window.
Any break in the chain (lead unplugged, cap lifted, ballast too hot) opens the relay.

FIRE button SW3: J1.FIRE - J1.GND2

Pulse selector SW4: common J1.VCC; ways J1.SEL20, J1.SEL80, (open = 800 ms)

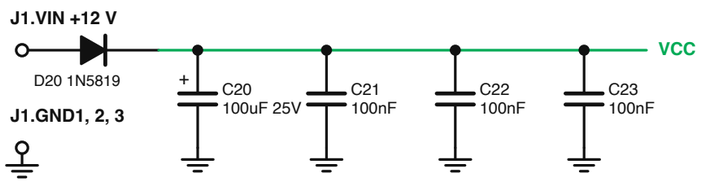
LEDs (anode at the terminal, all cathodes to J1.GND3): J1.POWER green, J1.CAP green, J1.WAIT amber, J1.PULSE red

12 V supply: PSU1 + to J1.VIN, PSU1 - to J1.GND1. J1.NC is not connected.

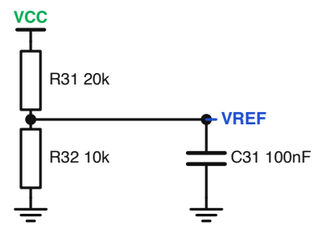
MATSUMOTO S-71 PULSE UNIT - CONTROL BOARD (12 V DC timing logic + isolated SCR switch)

Blue names are nets: the same name is the same wire. J1.xxx = screw terminal on the board's left edge. Pin numbers are shown in grey.

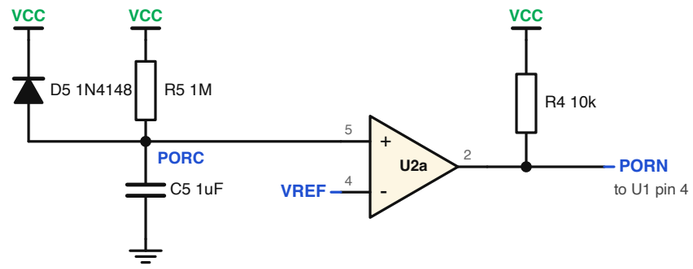
SUPPLY



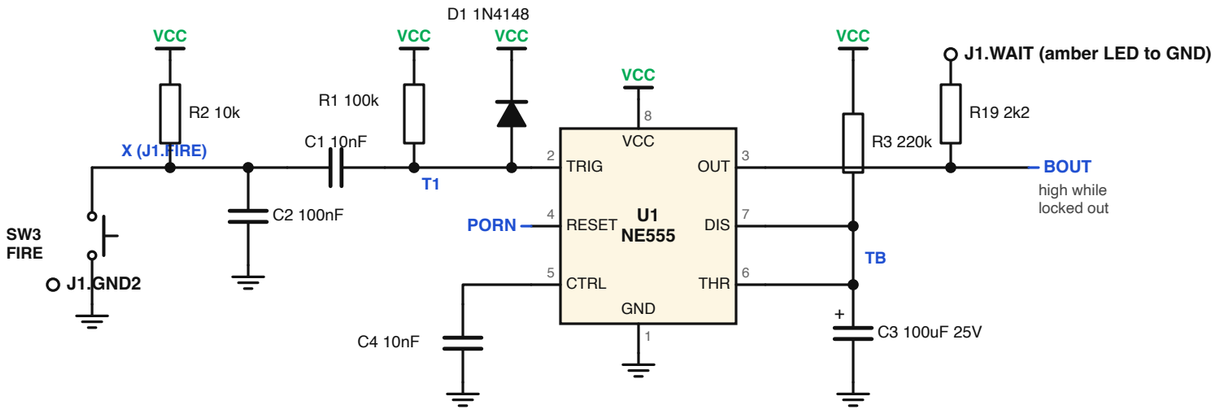
REFERENCE VREF = VCC / 3



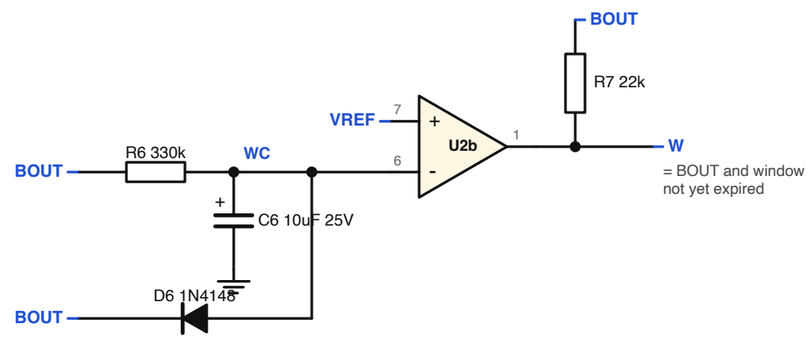
2 POWER-ON RESET (holds U1 in reset for 0.4 s so nothing can fire at switch-on)



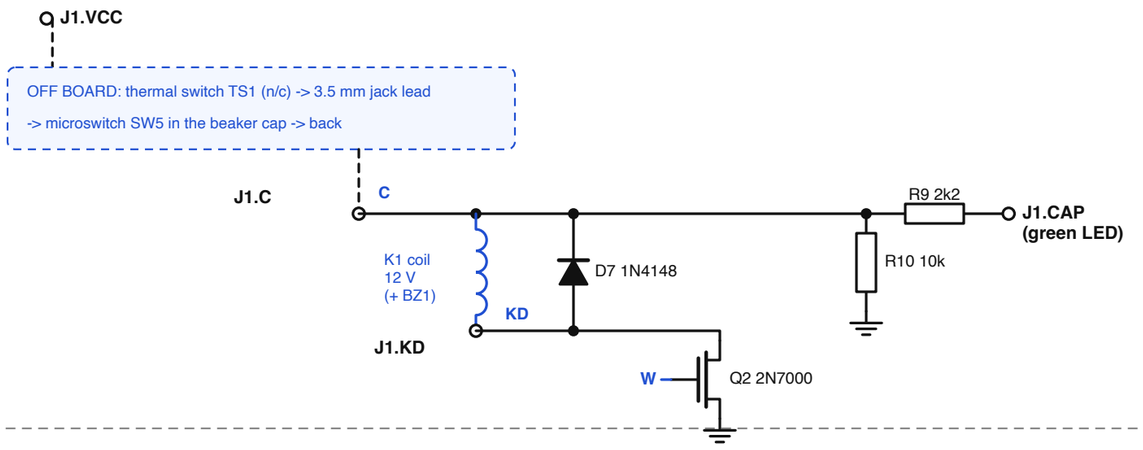
1 FIRE BUTTON AND LOCK-OUT TIMER (one shot, then about 24 s before the next)



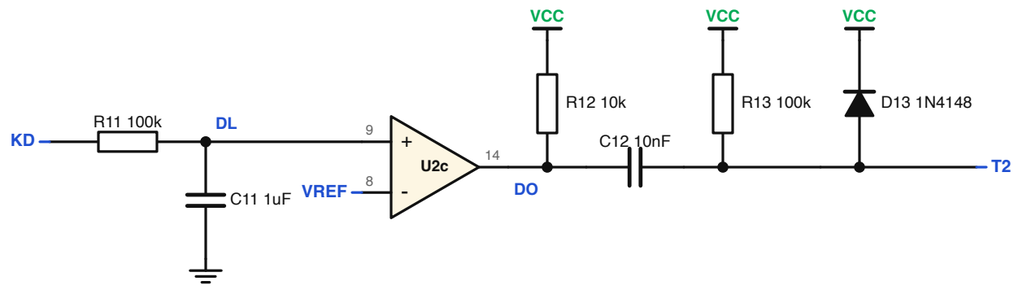
3 RELAY WINDOW (output relay is energised only for the first 1.6 s of each lock-out period)



4 RELAY DRIVER, THROUGH THE INTERLOCK CHAIN

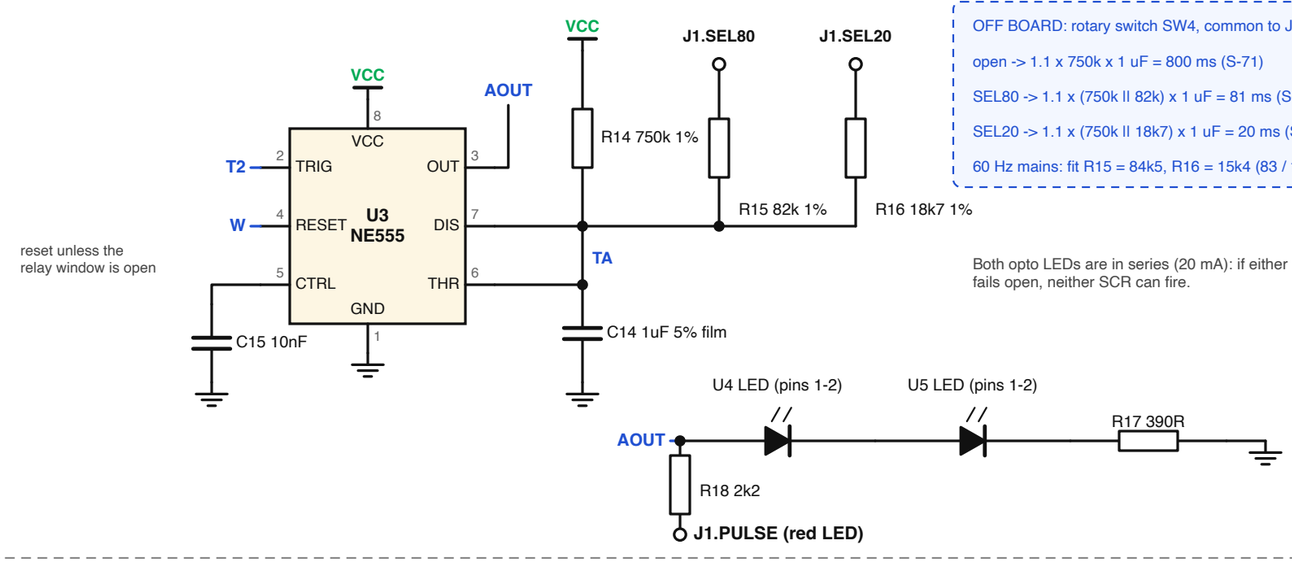


5 PRE-DELAY (waits 0.11 s for the relay contacts to settle, then triggers the pulse timer)



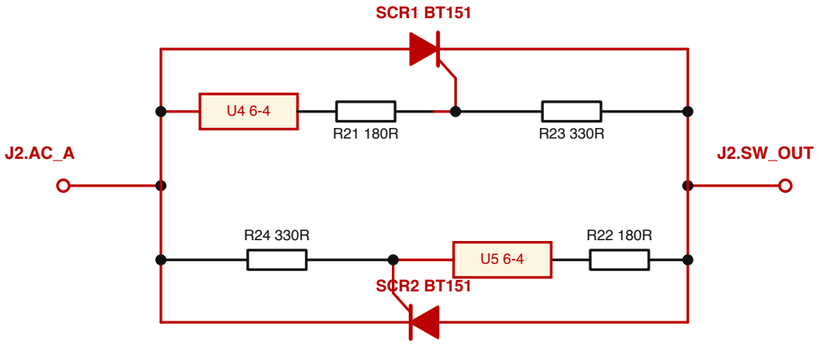
Fourth comparator (U2d, pins 10, 11, 13) is unused: pin 10 to VREF, pin 11 to GND.

6 PULSE TIMER 20 / 80 / 800 ms AND OPTO-TRIAC LEDS



7 ISOLATED SIDE 55 / 110 V AC

U4 and U5 are MOC3063 zero-crossing opto-triacs; their LEDs are in block 6.



MOC3063 only triggers within about 20 V of a zero crossing (phase angle 0),
and each SCR turns itself off at the next current zero: whole half-cycles only.
6 mm copper-free moat between this side and the 12 V logic; only U4/U5 bridge it.