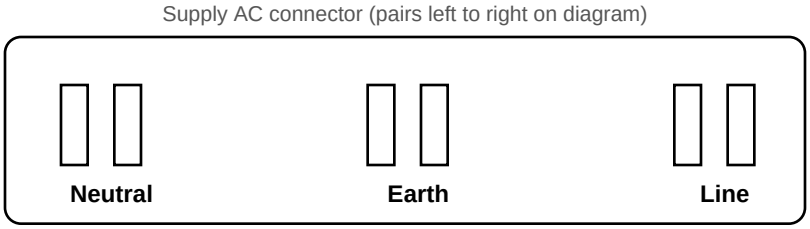
HP ESP120 (48 V / 57 A) to 1 kW 2m LDMOS Amp - Wiring

N2LQH | Verified working 2026-11-13 | 240 VAC input, amp front switch controls PSKI (PSON jumpered)

1. AC INPUT (FCI 51871 mating connector)



Line blades
Hot leg #1 (black)

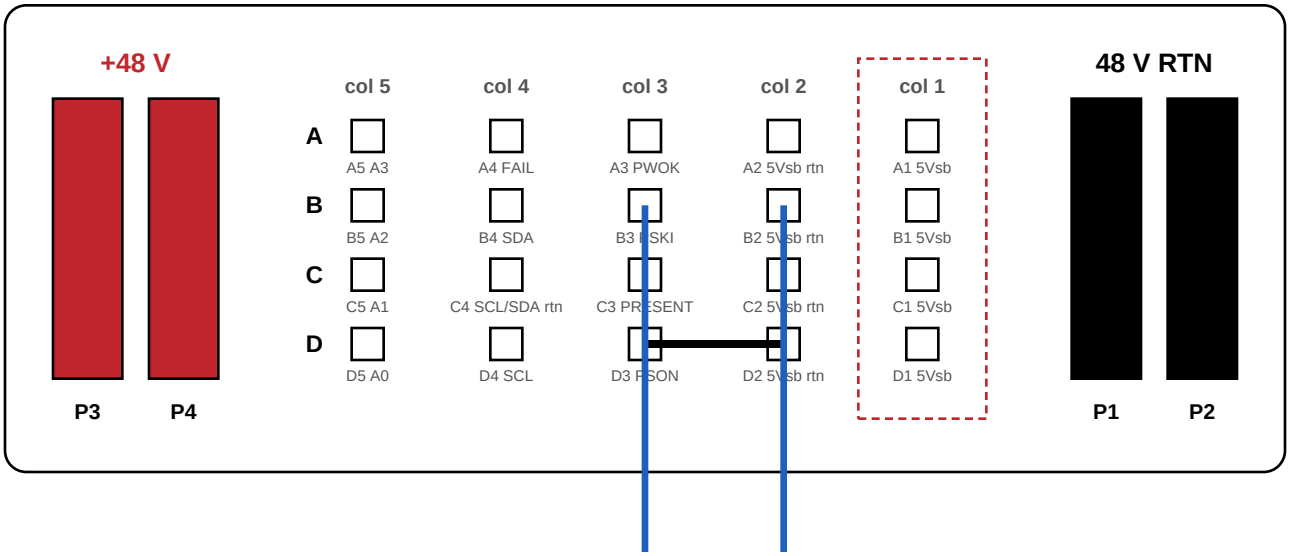
Neutral blades
Hot leg #2 (red/white) - US 240 V has no true neutral

Earth blades (middle)
Green / bare SAFETY GROUND only

! Earth is NOT neutral. Hot on Earth makes the supply case live. Verify case-to-ground reads 0 VAC.

2. DC OUTPUT + SIGNAL (FCI 51875 mating connector) - AS VIEWED ON THE BENCH

Connector reads mirrored AND flipped vs. the HP pinout sheet (rotated 180 deg). Positions below are what you actually see.



BLUE wires from amp (front-panel switch S1) -> B3 PSKI & B2 5Vsb rtn (2nd row from top)

3. CONNECTION TABLE

From	To (bench position)	Signal	Notes
Amp RED	Left blades P3+P4	+48 VDC	Through 35 A in-line fuse
Amp BLACK	Right blades P1+P2	48 V return	Use both blades
Amp BLUE #1	2nd row from top, 3rd col from right	B3 PSKI	Switch closed = 48 V on
Amp BLUE #2	2nd row from top, 2nd col from right	B2 5Vsb rtn	No polarity
Jumper	Bottom row: 3rd col -> 2nd col (from right)	D3 PSON -> D2	Permanent
(none)	Rightmost column	Col 1 5Vsb	NEVER short to ground

4. CHECKS / POWER-UP

- AC applied, amp switch OFF: fans run (standby), 5 V between col 1 and col 2, 0 V on the blades.
- Amp switch ON: ~48 V. Meter red on LEFT blade, black on RIGHT blade must read +48 V (not -48) before connecting the amp.
- Blue-wire path through the amp reads ~15 ohms (inrush resistor) until relay K2 pulls in at power-up - normal.
- Measure signal pins against col 2, not the 48 V blades - standby ground floats relative to P1/P2 when the output is off.
- Supply needs BOTH PSON and PSKI grounded for 48 V - one jumpered, one switched by the amp.
- If the supply ever refuses to start: unplug AC 30 s to clear a latch-off, then retry.
- Full output on 240 V is ~7 A from the wall; 1 kW out = ~29 A @ 48-50 V DC.