FOR THE CUSTOMER'S LICENSED ELECTRICIAN

Fuse X1 Printer: Electrical Hookup Guide

Everything needed to wire the printer correctly the first time. Please read before starting.

formlabs

Ref: Fuse X1 Manual, sec. 4.2.1 and 4.4.1

Mains connection must be made by a qualified, licensed electrician to local electrical code. Formlabs and partner install technicians will not connect mains power. The circuit must be wired, strain relieved and verified **before the commissioning visit**. If it is missing or done improperly, commissioning cannot proceed and will be rescheduled.

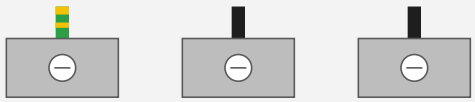
POWER REQUIREMENTS

Circuit	**Dedicated single-phase AC, 50 A at 200–240 VAC**, with reliable grounding.
Load	3.5 kW typical, 7.5 kW max at 208 VAC. Generally at or below 36 A during a print.
Dedicated	Do **not** share with the Fuse Sift X1, Mix Kit, air compressor, nitrogen generator, vacuums, fans, heaters or power tools. Surges can ruin prints and damage electronics.
Connection	Hardwired to a disconnect switch, or a portable cord with an appropriate plug. If hardwired, Incoming power **must be lockable with full Lock Out Tag Out (LOTO) capability**
Conductors	Wire gauge, cable type and plug are chosen by the electrician per local code. Not supplied by Formlabs.
Strain relief	**Required.** Install a code-approved strain relief or cable gland in the rear knockout. The knockout is a standard 1" trade size opening (1.4"/35.5mm actual measurement).
Knockout	Do not enlarge, bend or modify it. It is already deburred and powder coated.
Routing	Route the cable so it is protected from cuts, pinch points, rolling equipment and foot traffic.

TERMINATION AT THE PRINTER

1. Turn the rear main disconnect switch OFF and lock out the supply.
2. Remove the **lower-right panel** on the back of the printer to reach the terminal block.
3. Install the strain relief / cable gland in the knockout and bring the cable through it.
4. Connect conductors to the **bottom row** of three terminals. Terminal screws are **6 mm (M6)**: use crimp ring terminals sized for an M6 screw and your conductor gauge.
5. Torque terminal screws to **2–3 N·m (18–26 in-lb)**. Tighten the gland, reinstall the panel.

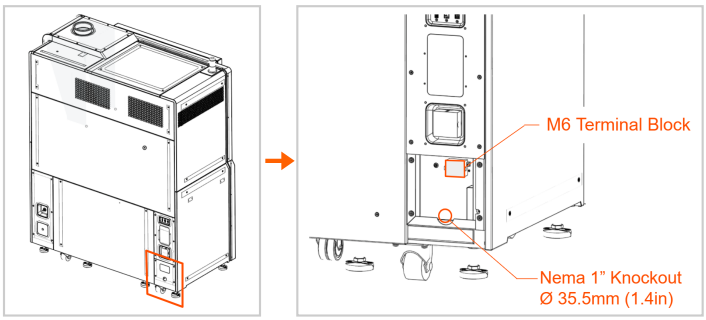
BOTTOM ROW (SITE WIRING)



GROUND Green/Yellow | **L1** Line 1 | **L2** Line 2

Matches the printer label: **Ground symbol | L1 | L2**, left to right. L1 and L2 conductor colors per local code.

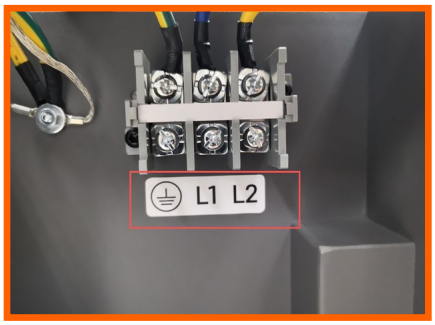
WHERE TO CONNECT ON THE PRINTER



Rear of printer. The electrical access panel is at the lower right (boxed).

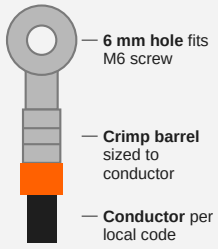
Lower-right panel removed. M6 terminal block above, 1" knockout below. Bring the cable up through the knockout.

PRINTER TERMINAL BLOCK



Reference only: as shipped, not yet wired. Connect site wires to the bottom row (Ground / L1 / L2).

M6 RING TERMINAL

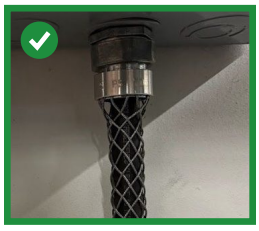


Crimp ring terminal. One per conductor. Ferrules or fork terminals are also acceptable.

DO THIS: 2 WAYS TO STRAIN RELIEF

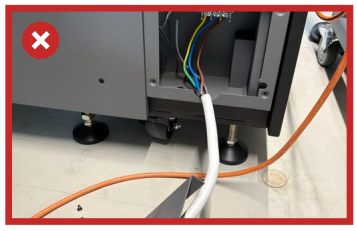


Example 1: cable gland. Threaded into the rear knockout, clamping and sealing the cable at the panel.



Example 2: mesh cord grip. Grip holds the cable, not the terminals.

NOT THIS: EXAMPLES OF IMPROPER INSTALLATION



No strain relief. Cable run straight through a bare knockout with no gland or grip.



Cable damaged at the unprotected knockout edge. Exposed conductors are a shock hazard.

ELECTRICIAN SIGN-OFF (before commissioning)

- ☐ Dedicated 50 A circuit at 200–240 VAC, not shared with any other equipment
- ☐ Supply disconnect can be locked and tagged out
- ☐ Ground / L1 / L2 on the bottom-row M6 terminals with ring terminals, ferrules, or fork terminals torqued to 2–3 N·m
- ☐ Code-approved strain relief or gland installed and tightened; knockout not modified
- ☐ Cable routed safely with no nicks, cuts or exposed conductors
- ☐ Voltage verified L1 to L2 and ground continuity confirmed; rear panel reinstalled

Name: _____ Date: _____

License #: _____

Other Fuse X1 ecosystem power (separate circuits): Fuse X1 Mix Kit 40 A at 208–240 VAC, hardwired and lockable. Fuse Sift X1 20 A at 120 VAC or 10 A at 240 VAC (IEC C19 cord; NEMA 5-20P in North America). Vacuum conveyors: 120/240 VAC outlet (C13/C14 cord) at the right side of the printer and at the Mix Kit. Air compressor and nitrogen generator must be wired, running and on their own circuits before commissioning.

Questions? Contact your Formlabs service representative or contact Formlabs at formlabs.com/support. Full details: Fuse X1 Manual, sections 4.2 and 4.4.