

Rooftop Solar Cable Sizing Guide (DC & AC)

How to size the DC and AC cabling for a rooftop solar system.

A rooftop solar system has two very different wiring sides, and each needs the right cable. The **DC side** runs from the solar panels to the inverter and carries direct current in harsh rooftop conditions. The **AC side** runs from the inverter to your distribution board and behaves like normal house wiring.

DC side — solar (PV) cable

Use a purpose-made **solar / PV cable**, not ordinary house wire. It is double-insulated, UV- and weather-resistant, rated for high DC voltage (typically 1.5 kV DC) and works over a wide temperature range so it survives years of rooftop sun and heat.

System size	Typical string current	Common DC cable size
Up to 3 kW	up to ~10 A	1.5 sq mm
3–5 kW	~10–18 A	2.5–4 sq mm
5–10 kW	~18–30 A	4–6 sq mm

Approximate DC cable sizes; longer runs may need the next size up to limit voltage drop.

AC side — house wire

From the inverter to the AC distribution board, size the cable to the inverter’s rated output current, just like a normal circuit. As a rough guide a single-phase 3 kW inverter (~13 A) suits 2.5–4 sq mm copper; a 5 kW inverter (~22 A) typically needs 4–6 sq mm. Provide proper earthing and a dedicated MCB/RCCB for the solar circuit.

Indicative guidance for typical Indian domestic installations. Always confirm final cable sizes against the applicable IS standards, your local wiring rules and a licensed electrician for your specific installation.