

Three-Phase vs Single-Phase Home Wiring

When a home needs a three-phase connection, and how the wiring differs from single-phase.

Overview

Most Indian homes run on a **single-phase** 230 V supply. Larger homes with heavy loads — multiple ACs, a big pump, an EV charger — may need a **three-phase** 415 V connection so no single phase is overloaded.

	Single-phase (230 V)	Three-phase (415 V)
Typical use	Standard homes, loads up to ~5–7 kW	Large homes / heavy loads above ~7 kW
Conductors	1 live + neutral (+ earth)	3 live + neutral (+ earth)
Load balancing	All load on one phase	Split across three phases
Heavy appliances	Limited	Handles multiple ACs, motors, EV

If you are adding an EV charger or several ACs, ask your electrician whether a three-phase connection is worthwhile. Size each circuit with the wire-size calculator.

Guidance only. Figures follow common Indian domestic practice (IS 732 / IS 694), assume copper conductors unless stated, and depend on run length, grouping, ambient temperature and installation. Always have the final design confirmed by a licensed electrician.