



Cable Selection Guide

Learn how to choose the right cable solutions for residential, commercial, and industrial applications.

THE RIGHT CABLE STARTS WITH THE RIGHT QUESTIONS

Before selecting a cable, identify the electrical load, installation environment, required length, protection method, and applicable standards.

Quick purpose: This guide gives a practical framework for shortlisting a suitable cable. Final cable selection should always be checked against the applicable electrical code, installation conditions, manufacturer specifications, and a qualified electrical professional.

6 Steps to Choose the Right Cable

Use the following sequence to move from the application requirement to a practical cable specification.

01 Define the application

Identify whether the cable is for residential, commercial, industrial, control, power, lighting, machinery, or another specific use.

02 Determine the electrical load

Know the expected current and voltage. Cable size must be suitable for the current it is expected to carry without excessive heating.

03 Check cable length & voltage drop

Longer cable runs can increase voltage drop. Consider the route length and the permissible voltage-drop limit for the installation.

04 Consider the installation environment

Check temperature, moisture, chemicals, sunlight, mechanical stress, bending, indoor/outdoor exposure, and whether the cable is fixed or flexible.

05 Select construction & insulation

Choose the appropriate conductor material, conductor class, insulation, sheath, number of cores, and flexibility for the application.

06 Verify standards & protection

Confirm applicable standards, ratings, fire/smoke requirements where relevant, and compatibility with the installation's protective devices.

Application Guide

The application changes what matters most when selecting a cable. Use this as a quick comparison, not as a substitute for the relevant standard.

Application	Key priorities	Typical considerations
Residential	Safety, current capacity, voltage drop, ease of installation	Lighting, sockets, appliances, fixed wiring, indoor/outdoor routes
Commercial	Load diversity, routing, fire performance, reliability	Offices, retail, buildings, HVAC, lighting and distribution
Industrial	High loads, temperature, mechanical stress, chemicals, flexibility	Machinery, panels, motors, production lines and demanding environments
Control / Signal	Signal integrity, shielding, flexibility, interference protection	Automation, instrumentation, control panels and communication systems

Cable Construction: What to Check

- **Conductor:** Copper or aluminium, depending on the required electrical and installation characteristics.
- **Core arrangement:** Single-core, twin-core, multicore or other construction based on the circuit/application.
- **Insulation:** Select insulation suitable for the operating temperature, voltage and environment.
- **Sheath:** Where required, choose protection suitable for moisture, abrasion, chemicals, UV exposure or other hazards.
- **Flexibility:** Flexible constructions are useful where repeated movement, bending or easier routing is required.

Quick Selection Checklist

Before approving a cable choice, make sure the following questions have been answered.

- What is the application and where will the cable be installed?
- What are the system voltage and expected operating current?
- What is the cable route length and allowable voltage drop?
- Will the cable be exposed to heat, moisture, chemicals, UV or mechanical stress?
- Does the installation require a particular conductor, insulation, sheath or flexibility class?
- How many cores are required?
- What installation method will be used?
- Which electrical standards and local requirements apply?
- Are the protective devices and cable ratings properly coordinated?
- Has the final selection been verified by a qualified professional where required?

Important: Cable sizing is not based on current alone. Installation method, ambient temperature, grouping/derating, voltage drop, short-circuit requirements, protection and applicable standards can all affect the final selection. Always verify the complete design before installation.



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