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BUILT FOR POWER

CABLE SIZING SELECTION CHART

12 V DC (24 V and 48 V lengths below) · Single and twin core copper cable

Step 1. DC Amps — Find the maximum current your circuit draws (in amps) along the top of the chart.

Step 2. Circuit Type — **Critical (3% voltage drop):** battery-to-inverter and DC-DC charger feeds, chargers, fridges, pumps, electronics, navigation lights. **Non-critical (10% voltage drop):** general lighting, winches and anchor windlasses, intermittent loads.

Step 3. Cable Run — Measure the **one-way distance** from the battery to the appliance. The chart already allows for the return (negative) cable, so don't double it. Pick the row that covers your distance.

Step 4. Cable Size — Where your amps and distance meet is the minimum cable size in mm². Then use Step 5 for the part number. × means no single cable is suitable: use a higher system voltage, shorten the run or talk to our team.

2. Circuit Type		1. DC Amps															
10% Non-critical	3% Critical	5A	10A	15A	20A	25A	30A	40A	50A	60A	80A	100A	125A	150A	175A	200A	250A	300A
0–1.6 m	0–0.5 m	1	1	1	2.5	2.9	4	6	10	10	13.5	13.5	25	25	50	50	64	120
1.6–3.3 m	0.5–1 m	1	2.5	2.5	2.5	2.9	4	6	10	10	13.5	13.5	25	25	50	50	64	120
3.3–5 m	1–1.5 m	1	2.5	2.5	2.9	4	6	6	10	10	13.5	20	25	25	50	50	64	120
5–6.6 m	1.5–2 m	2.5	2.5	2.9	4	6	6	10	10	13.5	16	20	25	50	50	50	64	120
6.6–8.3 m	2–2.5 m	2.5	2.5	4	6	10	10	10	13.5	16	20	25	50	50	50	64	95	120
8.3–10 m	2.5–3 m	2.5	2.9	6	6	10	10	13.5	16	20	25	50	50	50	64	64	95	120
10–13.3 m	3–4 m	2.5	4	6	10	10	13.5	16	20	25	50	50	64	64	95	95	120	120
13.3–16.6 m	4–5 m	2.5	6	10	10	13.5	16	20	25	50	50	64	95	95	95	120	×	×
16.6–20 m	5–6 m	2.9	6	10	13.5	16	20	25	50	50	64	64	95	95	120	120	×	×
20–23.3 m	6–7 m	4	10	13.5	16	20	25	32	50	50	64	95	95	120	×	×	×	×
23.3–26.6 m	7–8 m	4	10	13.5	16	20	25	50	50	64	95	95	120	120	×	×	×	×
26.6–33.3 m	8–10 m	6	10	16	20	25	50	50	64	64	95	120	×	×	×	×	×	×

3. One-way cable run in metres (12 V). 24 V: double the distances. **48 V:** multiply the distances by 4. Cable sizes are the minimum that meets both the voltage drop and the cable's current rating at 30°C. Higher ambient temperatures, engine bays and bundled cables reduce the current rating (see page 2).

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STEP 5. CABLE CONVERSION TABLE

Match the size from the chart to the cable below. Single-core cables come in red and black so you can run positive and negative in matching sizes. Twin-core cables carry both in one sheath.

	Size	Nearest B&S	Part no. single core (red / black)	Part no. twin core	Current rating	Resistance (Ω/km)
1	**1 mm²**	17 B&S	**C1B / C1R**	–	17 A	20.00
2.5	**2.5 mm²**	13 B&S	**C25B / C25R**	–	23 A @ 30°C	7.16
2.9	**2.9 mm²**	13 B&S	–	**C29**	29 A @ 30°C	5.93
4	**4 mm²**	12 B&S	**C4B / C4R**	**C4**	Single 30 A, twin 37 A @ 30°C	4.47
6	**6 mm²**	10 B&S	**C6B / C6R**	**C6**	Single 45 A, twin 46 A @ 30°C	2.98
10	**10 mm²**	7 B&S	–	**C10**	64 A @ 40°C	1.79
13.5	**13.5 mm²**	6 B&S	**C135B / C135R**	–	103 A @ 30°C	1.40
16	**16 mm²**	5 B&S	–	**C16**	85 A @ 40°C	1.12
20	**20 mm²**	4 B&S	–	**C20**	100 A @ 40°C	0.90
25	**25 mm²**	3 B&S	**C256B / C256R**	–	168 A @ 30°C	0.70
32	**32 mm²**	2 B&S	**C32B / C32R**	**C32**	Single 188 A, twin 150 A @ 30°C	0.61
50	**50 mm²**	0 B&S	**C50B / C50R**	–	246 A @ 30°C	0.40
64	**64 mm²**	00 B&S	**C70B / C70R**	–	292 A @ 30°C	0.30
95	**95 mm²**	000 B&S	**C95 (orange)**	–	295 A @ 40°C	0.19
120	**120 mm²**	0000 B&S	**C120 (orange)**	–	341 A	0.15

Current ratings are from the manufacturer's specifications for each cable. Where a size comes as single and twin core, the chart uses the lower rating. Resistance figures for 2.5, 2.9, 4, 6, 10, 16, 95 and 120 mm² are calculated for copper at 20°C.

DERATING FACTORS

Ambient temperature	30°C	40°C	50°C	60°C	70°C
Multiply rating by	1.00	0.90	0.76	0.60	0.45

Cables bundled	1	2	3	4	5	6–7	8–10
Multiply by	1.00	0.80	0.70	0.60	0.55	0.50	0.45

Example: a 25 mm² cable (168 A) run in a 50°C engine bay is good for 168 × 0.76 = 128 A. If the derated rating is below your circuit current, go up a size.

INSTALL TIPS

- **Fuse every positive cable** as close to the battery as possible, and size the fuse to protect the cable, not the appliance.
- **Size up when in doubt.** A bigger cable runs cooler, wastes less power and leaves room to add to your system later.
- **Lithium systems** and inverters draw high currents for long periods, so always size those runs as critical (3%).
- **Inverter current:** amps ≈ watts ÷ battery voltage ÷ 0.9. A 2000 W inverter on 12 V draws about 185 A at full load.
- Use correctly sized lugs and a proper crimping tool, and protect cable from sharp edges and heat.

> **Important:** This chart is a guide only and assumes copper cable in free air. Always check the appliance manufacturer's installation manual, which takes priority, and have high-current or fixed installations checked by a licensed electrician. Need help sizing a system? Contact our team.