

SAFE ELECTRIFICATION CHECK LIST

DC: MINIMUM CABLE SECTIONS

ANNEX – CABLE SIZING

To avoid losses and risks of overheating, it is crucial to choose the right cables diameter for the electrical installation. For photovoltaic panels (PV) and energy storage systems (ESS), the cables cross section is determined according to the intensity of the current (A) and the distance to be covered. The Minimum cable section for 12V to 48V voltages which must be respected, considering 5% voltage drops, between the solar PV generator and the batteries or the inverter, or between the power generator (PV panels, ...) and the ESS are detailed below:

Minimum cable section for 12V installations

Peak power (Wp)	50	80	160	240	320	400	480	560	640	720	800	960
Intensity (A)	3	5	10	15	20	25	30	35	40	45	50	60
Length (m)	Cable section (mm ²)											
4	4	4	4	4	4	6	10	10	10	16	16	16
5	4	4	4	4	6	10	10	10	16	16	16	25
6	4	4	4	6	10	10	16	16	16	16	25	25
7	4	4	4	6	10	10	16	16	16	25	25	25
8	4	4	6	10	10	16	16	16	25	25	25	35
9	4	4	6	10	16	16	16	16	25	25	35	35
10	4	4	6	10	16	16	25	25	25	35	35	35
15	4	6	10	16	25	25	25	25	35	35	50	50
20	4	6	16	25	25	25	35	35	50	50	50	50

Minimum cable section for 24V installations

Peak power (Wp)	100	160	320	450	640	800	960	1120	1250	1440	1600	1920
Intensity (A)	3	5	10	15	20	25	30	35	40	45	50	60
Length (m)	Cable section (mm ²)											
4	4	4	4	4	4	4	4	4	6	6	6	10
5	4	4	4	4	4	4	6	6	6	10	10	10
6	4	4	4	4	4	6	6	6	10	10	10	16
7	4	4	4	4	4	6	6	10	10	10	10	16
8	4	4	4	4	6	6	10	10	10	16	16	16
9	4	4	4	4	6	10	10	10	16	16	16	16
10	4	4	4	6	6	10	10	10	16	16	16	25
15	4	4	6	6	10	16	16	16	25	25	25	35
20	4	4	6	10	10	16	25	25	25	35	35	35

Minimum cable section for 48V installations

Peak power (Wp)	200	320	640	800	960	1120	1250	1600	1920	2240	2560	3840
Intensity (A)	3	5	10	15	20	25	30	35	40	45	50	60
Length (m)	Cable section (mm ²)											
4	4	4	4	4	4	4	4	4	4	4	4	4
5	4	4	4	4	4	4	4	4	4	4	4	6
6	4	4	4	4	4	4	4	4	4	4	6	6
7	4	4	4	4	4	4	4	4	4	6	6	6
8	4	4	4	4	4	4	4	4	6	6	6	10
9	4	4	4	4	4	4	4	6	6	6	10	10
10	4	4	4	4	4	4	6	6	6	6	10	10
15	4	4	4	4	6	6	10	10	10	10	16	16
20	4	4	4	6	6	6	10	10	16	16	16	25