Solar Inverter DC/AC Ratio (Inverter Loading)

DC to AC ratio of a solar PV plant from the array kWp and the inverter rating and number, with the DC power per inverter and the oversizing.

Method: Definition: array STC power / inverter AC rating

Input parameters

Unit system: SI

Parameter	Value	Unit
Array rating	600.00	kW
Rating of one inverter	100.00	kW
Number of inverters	5.0000	

Calculated results

Parameter	Value	Unit
DC/AC ratio	1.2000	
DC power per inverter	120.00	kW
Oversizing of the array over the inverters	20.000	%
Total inverter rating	500.00	kW

Notes for this case

- A ratio above 1 clips the output on the clearest days but raises the energy from each inverter; the limit is the inverter maker's permitted DC power and current.

Formula and method

$$R = \frac{P_{dc}}{n\,P_{ac}}$$

Variables

P_{dc}	Array rating	W
P_{ac}	Rating of one inverter	W
n	Number of inverters	-
R	DC/AC ratio	-
$P_{dc,1}$	DC power per inverter	W
O	Oversizing of the array over the inverters	-
$P_{ac,t}$	Total inverter rating	W

Method and standards

Ratio of ratings.

Assumptions and limits

- Ratings only; no energy simulation.

References

- Definition: array STC power / inverter AC rating

Report details

Report reference	FCC-JG8A-7SPX (the same inputs always give the same reference)
Generated	17 November 2026, 19:46 UTC
Calculator	Solar Inverter DC/AC Ratio (Inverter Loading)
Method last reviewed	12 November 2026
Software release	FireCAD Calc, release of 17 November 2026
Release checks	3 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/electrical/solar-pv/inverter-dc-ac-ratio

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.