Technical Note

SolarEdge Products Temperature Derating

Version 1.8

June 2025

MAN-01-01250-1.0

Table Of Contents

About

This Technical Note summarizes the derating properties of SolarEdge Inverters and Power Optimizers.

Revision history

Version	Date	Description
1.8	June 2025	Added S650A
1.7	March 2025	Added graph for Three Phase Inverters for VDE4110 certification
1.6	January 2025	Added SE250KUS, SE285KUS, SE285K
1.5	June 2024	Added R500 and R600 Power Optimizers

Overview

SolarEdge Inverters and Power Optimizers operate at full power and full current up to a specified maximum ambient temperature. When the ambient temperature exceeds the specified maximum, they continue to operate at reduced ratings to prevent damage to the devices.

Background

Inverters and Power Optimizers can reach high internal temperatures due to high ambient temperatures. This might happen because of prolonged exposure to direct sunlight or insufficient clearance between the device and other items, i.e. insufficient airflow around the device. When either of these units reaches high internal temperatures, it gradually reduces its power output by reducing its output current. This power reduction process is called “derating”. Derating protects sensitive components within the unit and prolongs its lifetime. When the ambient temperature falls below the specified maximum, normal power output resumes.

Power Optimizers

The following Power Optimizer models operate at full power and full current up to the ambient temperatures listed in the table:

Ambient temperatures for Power Optimizers

Power Optimizer Model	Ambient Temperature
OP250-LV, OP300-MV, OP400-MV, OP400-EV, OP600-96V, S1200, S1201	150°F (65°C)
P960	131°F (55°C)
H1300, S1200, S1201, S1400	149°F (65°C)
P404, P485, P505, P600, P601, P605, P650, P700, P701, P730, P800s, P800p, P801, P850, P950, P860, M1600, S650A	158°F (70°C)
P400, P500, P1100, S500B, S650B, R600	167°F (75°C)
M2640, OP480	176°F (80°C)
S440, S500, P300, P350, P320, P340, P370, P375/P395/P401, P405, R500	185°F (85°C)

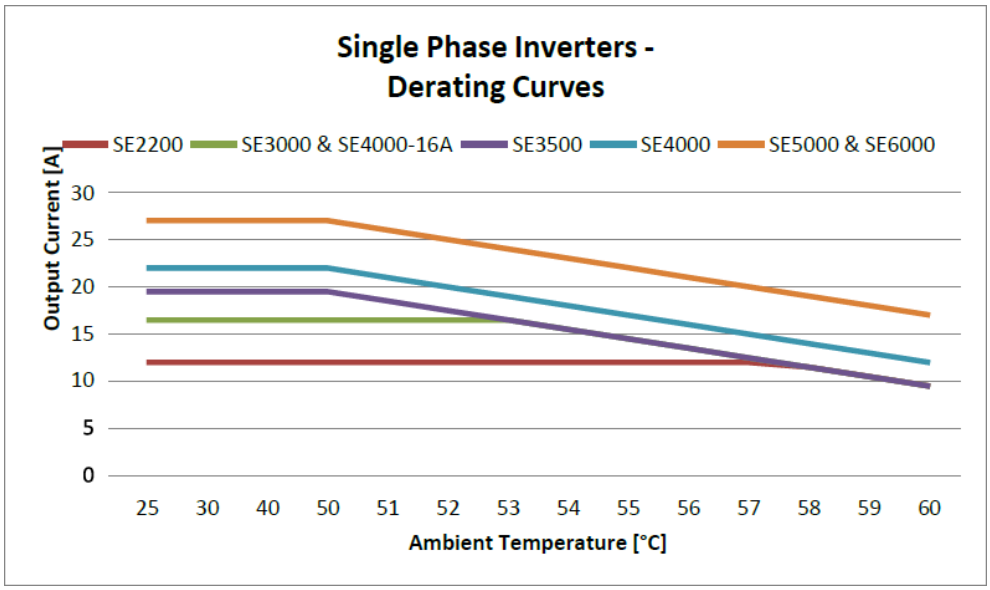
Single phase inverters

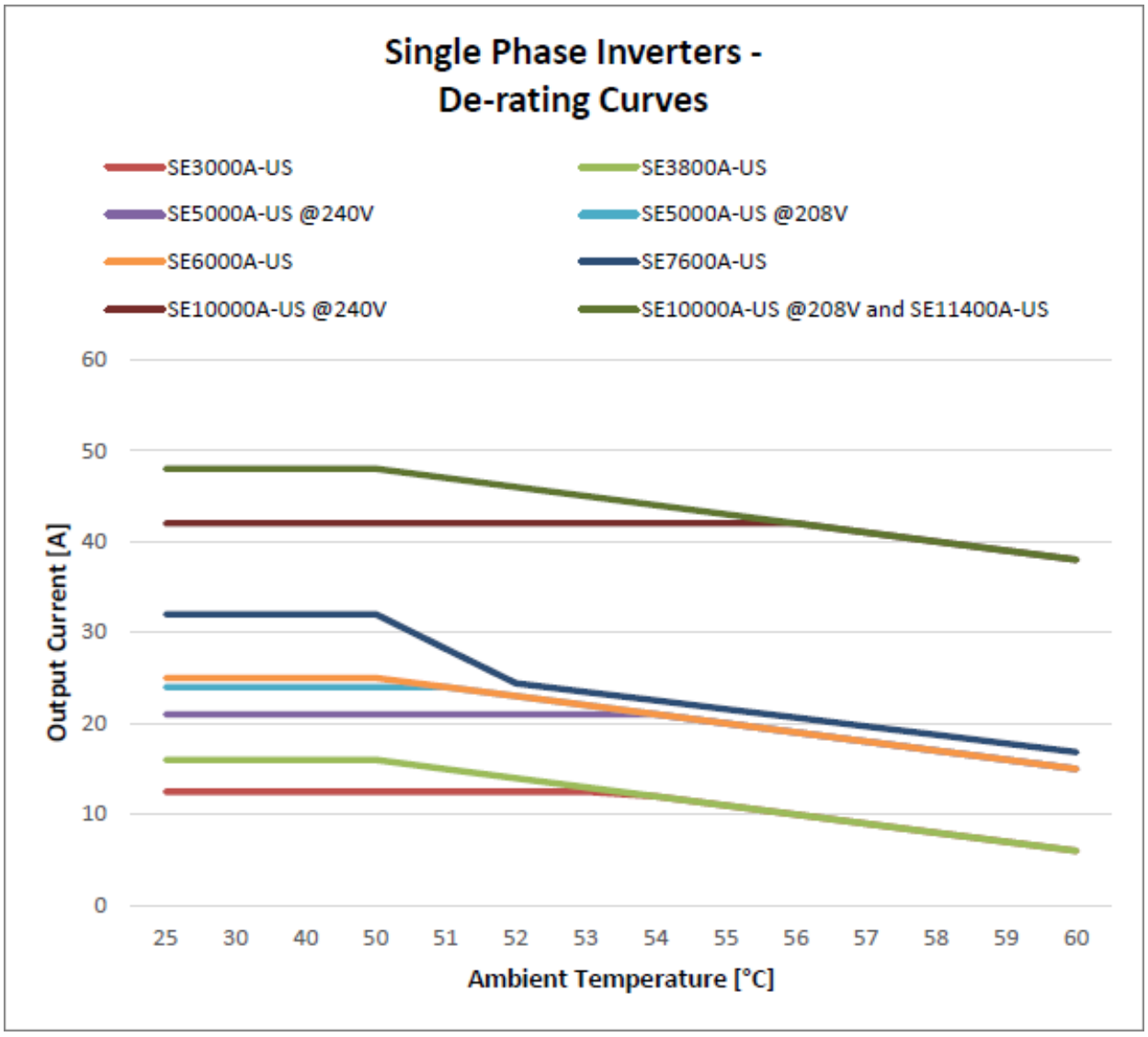
The following inverter models operate at full power and full current up to the ambient temperatures listed in the table.

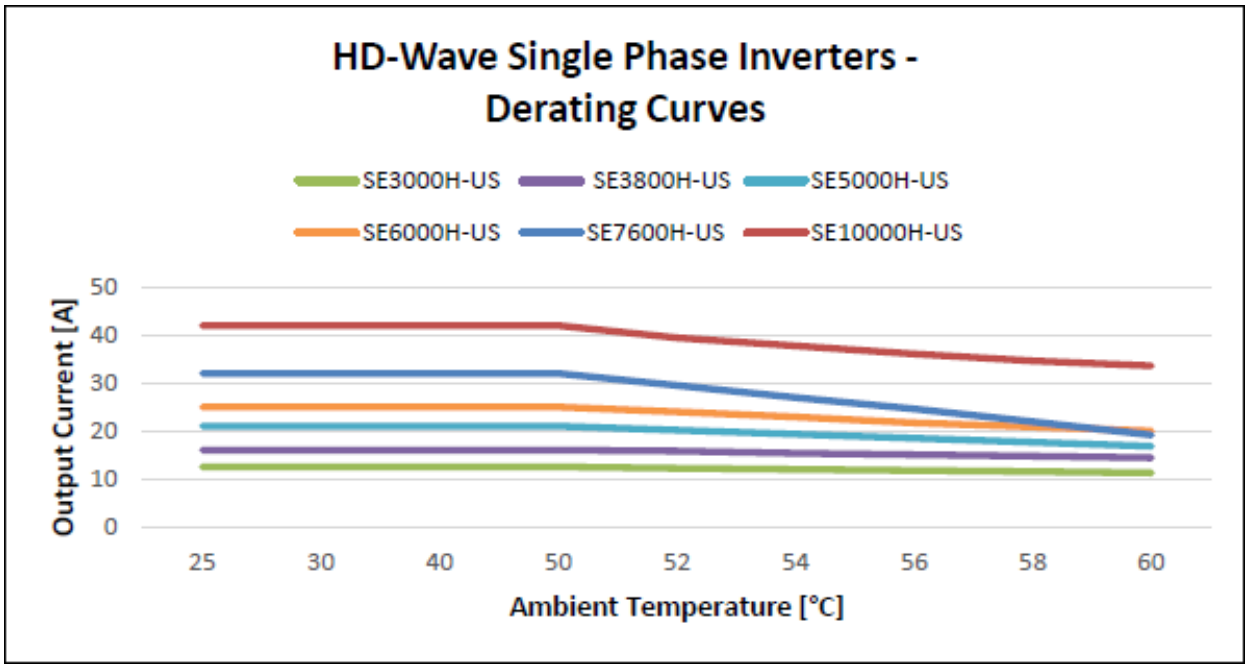
Ambient temperature for single phase inverters

Inverter Model	Ambient Temperature
SE2200, SE3000, SE3500, SE4000, SE4000-16A, SE5000, SE6000, SE3500H, SE3680H, SE4000H, SE5000H, SE6000H, SE8000H, SE8250H, SE9200H SE3000-US, SE3800-US, SE5000-US, SE6000-US, SE7600-US, SE10000-US, SE11400-US, SE5000H-US, SE6000H-US, SE7600H-US, SE10000H-US	120°F (50°C)
SE2200H, SE3000H, SE3000H-US, SE3800H-US	140°F (60°C)

These inverters operate at reduced ratings up to 140°F (60°C) according to the graphs below. The graphs describe the reduction in current relative to ambient temperature. The actual output current is never higher than the maximum current specified in the inverter datasheets and might be lower than described in the graphs due to specific inverter model ratings per country and grid requirements.







Three phase inverters

The following inverter models operate at full power and full current up to the ambient temperatures listed in the table:

Ambient temperature for three phase inverters

Inverter Model	Ambient Temperature
SE3K, SE4K, SE5K, SE6K, SE7K, SE8K, SE9K, SE10K, SE12.5K	140°F (60°C)
SE8K, SE8.25K	135.5°F (57.5°C)
SE25K, SE50K	127°F (53°C)
SE9K, SE9KUS, SE10K, SE10KUS, SE15K, SE16K, SE17K SE14.4KUS, SE17.3KUS, SE20.1K, SE27.6K, SE30K, SE30KUS, SE33.3K, SE33.3KUS, SE40K, SE40KUS, SE43.2KUS, SE55K, SE66.6K, SE66.6KUS, SE75K, SE80K, SE80KUS, SE82.8K, SE90K, SE100K, SE100KUS, SE120K, SE120KUS	120°F (50°C)
SE300K, SE330K, SE330KUS	113°F (45°C)

These inverters operate at reduced ratings up to 140°F (60°C) according to the graphs below. The graphs describe the reduction in current relative to ambient temperature. The actual output current is never higher than the maximum current specified in the inverter

datasheets and might be lower than described in the graphs due to specific inverter model ratings per country and grid requirements.