



Sunny Highpower PEAK3 FLEX-US

A superior distributed generation solution for repowering large-scale power plants

25 YEAR
DESIGN LIFE



SMA
Smart Connected



Maximum flexibility for repowering

- First device with UL approved nominal AC voltage range from 200V up to 660V
- No additional field inspection necessary
- IT-Grid support up to 500Vac max
- Repowering possibilities for plants with DC voltages from 600V up to 1500V

Simple install, commissioning

- Ergonomic handling and simple connections enable quick installation
- Centralized commissioning and control with SMA Data Manager

Highly innovative

- SMA Smart Connected reduces O&M costs and simplifies field-service
- Powered by award winning ennexOS cross sector energy management platform

The Sunny Highpower PEAK3 FLEX inverter offers best-in-class flexibility in a modular architecture that achieves a universal solution for repowering large-scale PV plants.

With fast, simple installation and commissioning without the need of an additional UL field inspection, the PEAK3 FLEX brings repowering to a new level. SMA has also brought its field-proven Smart Connected technology to the PEAK3, which simplifies O&M and contributes to lower lifetime service costs. The PEAK3 distributed generation power plant solution is powered by the ennexOS cross sector energy management platform, 2018 winner of the Intersolar smarter E AWARD.

Technical Data	Sunny Highpower PEAK3 FLEX-US-21
Input (DC)	
Maximum array power ¹⁾	344 kWp
Maximum system voltage	1500 Vdc
Rated MPP voltage range	880...1450 V ²⁾
MPPT operating voltage range	298 V ²⁾ ...1500 V
MPP trackers	1
Maximum operating input current	180 A
Maximum input short-circuit current	325 A
Output (AC)	
Nominal AC power	52...172 kVA ³⁾
Maximum apparent power	172 kVA
Output phases / line connections	3 / 3-PE
Nominal AC voltage	200 V...660 V
Compatible transformer winding configuration	Wye-grounded / Wye (500 Vmax) / Delta (500 Vmax)
Maximum output current	151 A
Rated grid frequency	60 Hz
Grid frequency / range	50 Hz, 60 Hz / -6 Hz...+6 Hz
Power factor at rated power / adjustable displacement	1 / 0.8 leading...0.8 lagging
Harmonics (THD)	< 3%
Efficiency	
CEC efficiency	99.0% ²⁾
Protection and safety features	
Ground fault monitoring: Riso / Differential current	● / ●
DC reverse polarity protection	●
AC short circuit protection	●
Monitored surge protection (Type 2): DC / AC	● / ●
Protection class / overvoltage category (as per UL 840)	I / IV
General data	
Device dimensions (W / H / D)	770 / 830 / 462 mm (30.3 / 32.7 / 18.2 in)
Device weight	99 kg (218 lbs)
Operating temperature range	-25°C...+60°C (-13°F...+140°F)
Storage temperature range	-40°C...+70°C (-40°F...+158°F)
Audible noise emission (full power @ 1m and 25°C)	69 dB(A)
Internal consumption at night	< 5 W
Topology	Transformerless
Cooling concept	OptiCool (forced convection, variable speed fans)
Enclosure protection rating (UL 50E)	Type 4X
Maximum permissible relative humidity (non-condensing)	100%
Additional information	
Mounting	Rack mount
DC connection	Terminal lug (up to 600 kcmil CU/AL)
AC connection	Screw terminal (up to 300 kcmil CU/AL)
LED indicators (Status/Fault/Communication)	●
SMA Speedwire (Ethernet network interface)	● (2 x RJ45 ports)
Data protocols: SMA Modbus / SunSpec Modbus	● / ●
Integrated Plant Control / Q on Demand 24/7	● / ●
Off-grid capable / SMA Hybrid Controller compatible	- / ●
Monitoring	
SMA Sunny Portal (monitoring portal)	No cost for the lifetime of the system
SMA Smart Connected (monitoring and remote O&M service)	No cost on inverters under warranty
Supported protocols for outbound data	SMA external API, Modbus, FTP
Certifications	
Certifications and approvals*	UL 62109, UL 1998, CAN/CSA-C22.2 No.62109
Manufacturer's Declaration of Design Life	25 years
FCC compliance	FCC Part 15, Class A
Grid interconnection standards	IEEE 1547:2018, UL 1741-SA - CA Rule 21, HECO Rule 14H, UL 1741-SB
Advanced grid support capabilities	L/HVRT, L/HVRT, Volt-VAr, Volt-Watt, Frequency-Watt, Ramp Rate Control, Fixed Power Factor
Warranty	
Standard	5 years
Optional extensions (total warranty coverage cannot exceed 25 years)	+5 / +10 / +15 / +20 years
1) Higher DC array power permitted via site inverter load modeling in SMA Sunny Design 2) At 600Vac 3) Dependent on AC voltage	
Type designation	SHP FLEX-US-21
● Standard features ○ Optional features – Not available * Pending	

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