

Three Phase Inverter with Synergy Technology

For 220V/230V Line to Line Grids

SE50K / SE66.6K / SE90K / SE100K



Specifically designed to work with power optimizers

- / Pre-commissioning feature for automated validation of system components and wiring during the site installation process and prior to grid connection
- / Easy 2-person installation with lightweight, modular design (each inverter consists of 2 or 3 Synergy Units and one Synergy Manager)
- / Independent operation of each Synergy Unit enables higher uptime and easy serviceability
- / Built-in thermal sensors detect faulty wiring ensuring enhanced protection and safety
- / Built-in arc fault protection and optional rapid shutdown)
- / Built-in PID mitigation for maximized system performance
- / Monitored* and field-replaceable surge protection devices, to better withstand surges caused by lightning or other events: integrated RS485 and Type 2 DC SPDs, optional Type 2 AC SPD
- / Optional integrated DC safety switch eliminates the need for external DC isolators
- / Built-in module-level monitoring with Ethernet or cellular communication for full system visibility

*Applicable only for DC and AC SPDs

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Applicable to Inverter with Part Number	SExxK-xxx0lxxxx				
	SE50K	SE66.6K	SE90K	SE100K	
OUTPUT					
Rated AC Active Output Power	29000	38450	51900	57700	W
Maximum AC Apparent Output Power	29000	38450	51900	57700	VA
AC Output Voltage — Line to Line / Line to Neutral (Nominal)	220 / 127 ; 230 / 133				Vac
AC Output Voltage — Line to Line Range	176 - 253 / 184 - 264.5				Vac
AC Frequency	50/60 ± 5%				Hz
Maximum Continuous Output Current (per Phase)	72.5	96.5	130.5	145	Aac
AC Output Line Connections	3W + PE (Corner grounded not supported), 4W + PE				
Supported Grids	WYE: TN-C, TN-S, TN-C-S, TT, IT; Delta: IT				
Maximum Residual Current Injection ⁽¹⁾	200		300		mA
Utility Monitoring, Islanding Protection, Configurable Power Factor, Country Configurable Thresholds	Yes				
Total Harmonic Distortion	≤ 3				%
Power Factor Range	+/-0.2 to 1				
INPUT					
Maximum DC Power (Module STC) Inverter / Synergy Unit	43500 / 21750	57600 / 28800	78000 / 26000	86400 / 28800	W
Transformer-less, Ungrounded	Yes				
Maximum Input Voltage DC+ to DC-	600				Vdc
Operating Voltage Range	370 - 600				Vdc
Maximum Input Current	2 x 36.25	2 x 48.25	3 x 43.5	3 x 48.25	Adc
Reverse-Polarity Protection	Yes				
Ground-Fault Isolation Detection	167kΩ Sensitivity per Synergy Unit ⁽²⁾				
Maximum Inverter Efficiency	98.3				%
European Weighted Efficiency	98				%
Nighttime Power Consumption	< 8		< 12		W
ADDITIONAL FEATURES					
Supported Communication Interfaces ⁽³⁾	2 x RS485, Ethernet, Wi-Fi (optional), Cellular (optional)				
Smart Energy Management	Export Limitation				
Inverter Commissioning	With the SetApp mobile application using built-in Wi-Fi access point for local connection				
Arc Fault Protection	Built-in, User Configurable (According to UL1699B)				
Rapid Shutdown	Optional (automatic upon AC Grid Disconnect)				
PID Rectifier	Nighttime, built-in				
RS485 Surge Protection (ports 1 + 2)	Type II, field replaceable, integrated				
DC Surge Protection	Type II, field replaceable, integrated				
AC Surge Protection	Type II, field replaceable, optional				
DC Fuses (Single Pole)	25A, optional				
DC Disconnect Switch	Optional				
STANDARD COMPLIANCE					
Safety	IEC-62109-1, IEC-62109-2, AS3100				
Grid Connection Standards ⁽⁴⁾	EN50549-1, EN50549-2, VDE-AR-N 4105, VDE-AR-N 4110, VDE V 0126-1-1, CEI 0-21, CEI 0-16, TOR Erzeuger Typ A+B, G99 Type A+B, G99 (NI) Type A+B, VFR 2019				
Emissions	IEC61000-6-2, IEC61000-6-3 Class A, IEC61000-3-11, IEC61000-3-12				
RoHS	Yes				

(1) If an external RCD is required, its trip value must be ≥ 200mA for SE50K/SE66.6K; ≥ 300mA for SE90K, SE100K

(2) Where permitted by local regulations

(3) For specifications of the optional communication options, visit <https://www.solaredge.com/products/communication> or the Resource Library webpage: <https://www.solaredge.com/resource-library>, to download the relevant product datasheet

(4) For all standards and certificates download, refer to Certifications category on the Resource Library webpage: <https://www.solaredge.com/resource-library>

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INSTALLATION SPECIFICATIONS				
Number of Synergy Units per Inverter	2		3	
AC Wire Cross Section and Outer Diameter: Line/PE (Aluminum or Copper)	Cross section up to 120 / 70 mm ² ; outer diameter 30-50 /12-20 mm			
DC Input: Inverter / Synergy Unit ⁽⁵⁾⁽⁶⁾	8 / 4 MC4 pairs		12 / 4 MC4 pairs	
	Gland, 2 pairs / 1 pair, Cross section up to 50 mm ² , aluminum or copper Cable outer diameter 12-20 mm		Gland, 3 pairs / 1 pair, Cross section up to 50 mm ² , aluminum or copper Cable outer diameter 12-20 mm	
Dimensions (H x W x D)	Synergy Unit: 558 x 328 x 273 Synergy Manager: 360 x 560 x 295			mm
Weight	Synergy Unit: 32 Synergy Manager: 18			kg
Operating Temperature Range	-40 to +60 ⁽⁷⁾			°C
Cooling	Fan (user replaceable)			
Noise	< 67			dBA
Protection Rating	IP65 — outdoor and indoor			
Mounting	Brackets provided			

(5) DC input is available with MC4 or Gland connection under the inverter part number. For more information, contact SolarEdge

(6) Only MC4 connectors manufactured by Staubli are approved for use

(7) For power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note.pdf>

Accessories (purchased separately)

Accessory	PN
AC SPD kit for Synergy Manager (5 units per box)	SE-AC-SPD-SM
Antenna for Wi-Fi and ZigBee Wireless Communications	SE-ANT-ZB-WIFI-03