



SMILE M8/9/10-S

SINGLE-PHASE HYBRID INVERTER

The AlphaESS SMILE M8/9/10 S Series is a high-performance single-phase hybrid inverter designed for residential solar, battery storage and whole home backup. It supports up to 200% PV oversizing, four independent MPPTs and up to 27.98 kWh of compatible battery storage through a clean, integrated design. With five-minute commissioning and more than 30 VPP integrations, the series provides flexible installation, reliable backup and future



Seamless Battery
Integration



Whole Home
Backup



200% PV
Oversizing



5-Min Setup



4 Independent
MPPTs



30+ VPP
Integrations



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SMILE M8/9/10-S SINGLE-PHASE HYBRID INVERTER

INVERTER SPECIFICATIONS

MODEL RANGE	M8-S	M9-S	M10-S
DC SIDE (PV INPUT)			
Max. Input Power [W]	16000	18000	20000
Max. Input Voltage [Vdc]		600	
Nominal Input Voltage [Vdc]		360	
No. of MPPTs / Strings per MPPT		4 / 1	
MPPT Voltage Range [Vdc]		60 - 550	
Start-Up Voltage [Vdc]		70	
Max. Input Current per MPPT [A]		20 / 20 / 20 / 20	
Max. Short-Circuit Current per MPPT [A]		30 / 30 / 30 / 30	
BATTERY CONNECTION			
Battery Port DC Voltage Range [Vdc]		40 - 60	
Max. Charge / Discharge Current [A]		105 / 105	
Max. Charge / Discharge Power [W]	8800 / 8800	9900 / 9900	11000 / 11000
Compatible Battery Model	SMILE-M-BAT-13.9P		
Battery Modules per Inverter	1 to 2 (in Parallel)		
AC SIDE (GRID PORT)			
Max. Input Power [W]	14490	14490	14490
Max. Input Apparent Power [VA]	14490	14490	14490
Nominal Output Power [W]	8000	9000	10000
Rated Output Apparent Power [VA]	8000	9000	10000 ¹
Rated Output Current [A]	34.7	39.1	43.5
Max. Output Current [A]	34.7	39.1	43.5
Rated Grid Frequency [Hz]	50 / 60		
Rated Grid Voltage [V]	220 / 230, L/N/PE		
Displacement Power Factor	> 0.99 (0.8 leading to 0.8 lagging)		
Total Harmonic Distortion (THDi, Nominal Output)	< 3% @ Rated Output Power		
AC SIDE (BACKUP PORT)			
Rated Output Apparent Power [VA] (On-Grid)	14490	14490	14490
Rated Output Apparent Power [VA] (Off-Grid)	8000	9000	10000
Rated Output Current [A] (On-Grid)	63	63	63
Rated Output Current [A] (Off-Grid)	34.7	39.1	43.5
Max. Output Power [W] (150% for 10s, 200% for 2s)	21735 / 28980	21735 / 28980	21735 / 28980
Max. Output Current [A]	126	126	126
Backup Switching Time [ms]	< 20		
PROTECTION			
Overvoltage Category	DC II / AC III		
Active Anti-Islanding Method	AFD		
Integrated DC Switch	Yes		
Safety Protection Features	Insulation Resistance Protection, Surge Protection (DC Type II / AC Type II), Over-Temperature Protection, Islanding Protection, AC Over-Voltage Protection, Overload Protection, AC Short-Circuit Protection		
CERTIFICATIONS & COMPLIANCE			
EMC Standards	IEC/EN 61000-6-1/3		
Certification	AS/NZS 4777.2:2020, IEC62109-1/2		
Ingress Protection (IP) Rating	IP65 (Outdoor)		
Protection Class	Class I		
GENERAL INFORMATION			
Max. Inverter Efficiency [%]	97.47		
Weight [kg]	35.5		
Dimensions (W x H x D) [mm] (Without Cable Cover)	435 x 570 x 239.5		
Dimensions (W x H x D) [mm] (With Cable Cover)	620 x 570 x 239.5		
Max. Operating Altitude [m]	2000		
Cooling Method	Smart Fan		
Topology	Transformerless		
Noise Emission (Typical) [dB]	<35 (Fan Inactive), ≤45 (At Maximum Fan Speed)		
Operating Temperature Range	-25 °C to 60 °C		
Relative Humidity	0 to 100% (Non-condensing)		
Communication Interfaces	CAN, RS485, DRM/RRCR, Wi-Fi, LAN (Optional), Bluetooth		
Warranty	10 Years (Product Warranty)		
Country of Manufacture	China		

¹ 9999 VA for Australia.

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