

PV INVERTER RESIDENTIAL

ENERGY
THAT
CHANGES



Technical data	SB 240-10	SB 1300TL-10	SB 1600TL-10	SB 2100TL	SB 2000HF-30	SB 2500HF-30	SB 3000HF-30	SB 2500TLST-21	SB 3000TLST-21	SB 3000TL-21	SB 3600TL-21	SB 4000TL-21	SB 5000TL-21	STP 5000TL-20	STP 6000TL-20	STP 7000TL-20	STP 8000TL-20	STP 9000TL-20	
Input (DC)																			
Max. DC power (@ cos φ = 1)	245 W	1400 W	1700 W	2200 W	2100 W	2600 W	3150 W	2650 W	3200 W	3200 W	3880 W	4200 W	5250 W ¹⁾	5100 W	6125 W	7175 W	8200 W	9225 W	
Max. input voltage	45 V	600 V	600 V	600 V	700 V	700 V	700 V	750 V	750 V	750 V	750 V	750 V	750 V	1000 V	1000 V	1000 V	1000 V	1000 V	
MPP voltage range / rated input voltage	23 V - 32 V / 29 V	125 V - 480 V / 400 V	155 V - 480 V / 400 V	200 V - 480 V / 400 V	175 V - 560 V / 530 V	175 V - 560 V / 530 V	210 V - 560 V / 530 V	180 - 500 V / 400 V	213 - 500 V / 400 V	175 V - 500 V / 400 V	175 V - 500 V / 400 V	175 V - 500 V / 400 V	175 V - 500 V / 400 V	245 V - 800 V / 580 V	295 V - 800 V / 580 V	290 V - 800 V / 580 V	330 V - 800 V / 580 V	370 V - 800 V / 580 V	
Min. input voltage / Max. initial input voltage	23 V / 40 V	100 V / 120 V	125 V / 150 V	125 V / 150 V	175 V / 220 V	175 V / 220 V	175 V / 220 V	125 V / 150 V	125 V / 150 V	125 V / 150 V	125 V / 150 V	125 V / 150 V	125 V / 150 V	150 V / 188 V	150 V / 188 V	150 V / 188 V	150 V / 188 V	150 V / 188 V	
Max. input current	8.5 A	11 A	11 A	11 A	12 A	15 A	15 A	15 A	15 A	15 A	15 A	15 A	15 A	15 A / 188 V	150 V / 188 V	150 V / 188 V	150 V / 188 V	150 V / 188 V	
Max. input current input A / input B										15 A / 15 A	15 A / 15 A	15 A / 15 A	15 A / 15 A	11 A / 10 A	11 A / 10 A	15 A / 10 A	15 A / 10 A	15 A / 10 A	
Max. input current per string	8.5 A	11 A	11 A	11 A	12 A	15 A	15 A	15 A	15 A	15 A	15 A	15 A	15 A	11 A / 10 A	11 A / 10 A	15 A / 10 A	15 A / 10 A	15 A / 10 A	
Max. input current per string input A / input B										15 A / 15 A	15 A / 15 A	15 A / 15 A	15 A / 15 A	11 A / 10 A	11 A / 10 A	15 A / 10 A	15 A / 10 A	15 A / 10 A	
Number of independent MPP inputs / strings per MPP input	1 / 1	1 / 1	1 / 1	1 / 2	1 / 2	1 / 2	1 / 2	1 / 2	1 / 2	2 / A;2; B:2	2 / A;2; B:2	2 / A;2; B:2	2 / A;2; B:2	2 / A;2; B:2	2 / A;2; B:2	2 / A;2; B:2	2 / A;2; B:2	2 / A;2; B:2	
Output (AC)																			
Rated power (@ 230 V, 50 Hz)	230 W	1300 W	1600 W	1950 W	2000 W	2500 W	3000 W	2500 W	3000 W	3000 W	3680 W	4000 W	4600 W	5000 W	6000 W	7000 W	8000 W	9000 W	
Max. apparent AC power	230 VA	1300 VA	1600 VA	2100 VA	2000 VA	2500 VA	3000 VA	2500 VA	3000 VA	3000 VA	3680 VA	4000 VA	5000 VA ²⁾	5000 VA	6000 VA	7000 VA	8000 VA	9000 VA	
Nominal AC voltage		220 V 230 V 240 V	230 V 230 V 240 V	230 V 230 V 240 V	230 V 230 V 240 V	230 V 230 V 240 V	230 V 230 V 240 V	230 V 230 V 240 V	230 V 230 V 240 V	230 V 230 V 240 V	230 V 230 V 240 V	230 V 230 V 240 V	230 V 230 V 240 V	230 V 230 V 240 V	3/N/PE; 220 V/380 V 3/N/PE; 230 V/400 V 3/N/PE; 240 V/415 V	3/N/PE; 220 V/380 V 3/N/PE; 230 V/400 V 3/N/PE; 240 V/415 V	3/N/PE; 220 V/380 V 3/N/PE; 230 V/400 V 3/N/PE; 240 V/415 V	3/N/PE; 220 V/380 V 3/N/PE; 230 V/400 V 3/N/PE; 240 V/415 V	3/N/PE; 220 V/380 V 3/N/PE; 230 V/400 V 3/N/PE; 240 V/415 V
Nominal AC voltage range	230 V / 184 V - 270 V	180 V - 260 V	180 V - 260 V	180 V - 260 V	180 V - 280 V	180 V - 280 V	180 V - 280 V	180 V - 280 V	180 V - 280 V	180 V - 280 V	180 V - 280 V	180 V - 280 V	180 V - 280 V	160 V - 280 V	160 V - 280 V	160 V - 280 V	160 V - 280 V	160 V - 280 V	
AC power frequency / range	50 Hz / 45.5 Hz ... 63 Hz	50 Hz / 4.5 Hz ... +2.5 Hz	50 Hz / 4.5 Hz ... +2.5 Hz	50 Hz / 4.5 Hz ... +2.5 Hz	50 Hz, 60 Hz / 4.5 Hz ... +4.5 Hz	50 Hz, 60 Hz / 4.5 Hz ... +4.5 Hz	50 Hz, 60 Hz / 4.5 Hz ... +4.5 Hz	50 Hz, 60 Hz / -5 Hz ... +5 Hz	50 Hz, 60 Hz / -5 Hz ... +5 Hz	50 Hz, 60 Hz / -5 Hz ... +5 Hz	50 Hz, 60 Hz / -5 Hz ... +5 Hz	50 Hz, 60 Hz / -5 Hz ... +5 Hz	50 Hz, 60 Hz / -5 Hz ... +5 Hz	50 Hz, 60 Hz / -5 Hz ... +5 Hz	50 Hz, 60 Hz / -5 Hz ... +5 Hz	50 Hz, 60 Hz / -5 Hz ... +5 Hz	50 Hz, 60 Hz / -5 Hz ... +5 Hz	50 Hz, 60 Hz / -5 Hz ... +5 Hz	
Rated grid frequency / rated grid voltage	50 Hz / 230 V	50 Hz / 230 V	50 Hz / 230 V	50 Hz / 230 V	50 Hz / 230 V	50 Hz / 230 V	50 Hz / 230 V	50 Hz / 230 V	50 Hz / 230 V	50 Hz / 230 V	50 Hz / 230 V	50 Hz / 230 V	50 Hz / 230 V	50 Hz / 230 V	50 Hz / 230 V	50 Hz / 230 V	50 Hz / 230 V	50 Hz / 230 V	
Max. output current	1 A	7.2 A	8.9 A	11 A	11.4 A	14.2 A	15 A	10.9 A	13.1 A	16 A	16 A	22 A	22 A	7.3 A	8.7 A	10.2 A	11.6 A	13.1 A	
Power factor at rated power	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Adjustable displacement factor		-	-	-	-	-	-	0.8 overexcited ... 0.8 underexcited	0.8 overexcited ... 0.8 underexcited	0.8 overexcited ... 0.8 underexcited	0.8 overexcited ... 0.8 underexcited	0.8 overexcited ... 0.8 underexcited	0.8 overexcited ... 0.8 underexcited	0.8 overexcited ... 0.8 underexcited	0.8 overexcited ... 0.8 underexcited	0.8 overexcited ... 0.8 underexcited	0.8 overexcited ... 0.8 underexcited	0.8 overexcited ... 0.8 underexcited	
Feed-in phases / connection phases	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	3 / 3	3 / 3	3 / 3	3 / 3	3 / 3	
Efficiency																			
Max. efficiency / European efficiency	95.8 % / 95.3 %	96.0 % / 94.3 %	96.0 % / 95.0 %	96.0 % / 95.2 %	96.3 % / 95 %	96.3 % / 95.3 %	96.3 % / 95.4 %	97 % / 96.0 %	97 % / 96.1 %	97 % / 96 %	97 % / 96.3 %	97 % / 96.4 %	97 % / 96.5 %	98 % / 97.1 %	98 % / 97.4 %	98 % / 97.5 %	98 % / 97.6 %	98 % / 97.6 %	
Protective devices																			
DC-side disconnection device	• / •	○	○	○	•	•	•	○	○	•	•	•	•	•	•	•	•	•	
Ground fault monitoring / grid monitoring	• / •	• / •	• / •	• / •	• / •	• / •	• / •	• / •	• / •	• / •	• / •	• / •	• / •	• / •	• / •	• / •	• / •	• / •	
DC reverse polarity protection / AC short-circuit current capability / galvanically isolated	• / • / •	• / • / -	• / • / -	• / • / -	• / • / •	• / • / •	• / • / •	• / • / -	• / • / -	• / • / -	• / • / -	• / • / -	• / • / -	• / • / -	• / • / -	• / • / -	• / • / -	• / • / -	
All-pole-sensitive residual-current monitoring unit	•	•	•	•	-	-	-	•	•	•	•	•	•	•	•	•	•	•	
Protection class (as per IEC 62103) / overvoltage category (as per IEC 60664-1)		I / III	I / III	I / III	I / III	I / III	I / III	I / III	I / III	I / III	I / III	I / III	I / III	I / III	I / III	I / III	I / III	I / III	
General data																			
Dimensions (W / H / D)	188 / 218 / 44 mm [7.4 / 8.6 / 1.7 inch]	440 / 339 / 214 mm [17.3 / 13.4 / 8.4 inch]	440 / 339 / 214 mm [17.3 / 13.4 / 8.4 inch]	440 / 339 / 214 mm [17.3 / 13.4 / 8.4 inch]	348 / 580 / 145 mm [13.7 / 22.8 / 5.7 inch]	348 / 580 / 145 mm [13.7 / 22.8 / 5.7 inch]	348 / 580 / 145 mm [13.7 / 22.8 / 5.7 inch]	490 / 519 / 185 mm [19.3 / 20.4 / 7.3 inch]	490 / 519 / 185 mm [19.3 / 20.4 / 7.3 inch]	490 / 519 / 185 mm [19.3 / 20.4 / 7.3 inch]	490 / 519 / 185 mm [19.3 / 20.4 / 7.3 inch]	490 / 519 / 185 mm [19.3 / 20.4 / 7.3 inch]	490 / 519 / 185 mm [19.3 / 20.4 / 7.3 inch]	490 / 519 / 185 mm [19.3 / 20.4 / 7.3 inch]	470 / 730 / 240 mm [18.5 / 28.7 / 9.5 inch]	470 / 730 / 240 mm [18.5 / 28.7 / 9.5 inch]	470 / 730 / 240 mm [18.5 / 28.7 / 9.5 inch]	470 / 730 / 240 mm [18.5 / 28.7 / 9.5 inch]	
Weight	1.3 kg [2.9 lb]	16 kg [35.3 lb]	16 kg [35.3 lb]	16 kg [35.3 lb]	17 kg [37.4 lb]	17 kg [37.4 lb]	17 kg [37.4 lb]	23 kg [50.6 lb]	23 kg [50.6 lb]	23 kg [50.6 lb]	26 kg [57.3 lb]	26 kg [57.3 lb]	26 kg [57.3 lb]	26 kg [57.3 lb]	37 kg [81.6 lb]	37 kg [81.6 lb]	37 kg [81.6 lb]	37 kg [81.6 lb]	
Operating temperature range	-40 °C ... +65 °C [-40 °F ... +149 °F]	-25 °C ... +60 °C [-13 °F ... +140 °F]	-25 °C ... +60 °C [-13 °F ... +140 °F]	-25 °C ... +60 °C [-13 °F ... +140 °F]	-25 °C ... +60 °C [-13 °F ... +140 °F]	-25 °C ... +60 °C [-13 °F ... +140 °F]	-25 °C ... +60 °C [-13 °F ... +140 °F]	-25 °C ... +60 °C [-13 °F ... +140 °F]	-25 °C ... +60 °C [-13 °F ... +140 °F]	-25 °C ... +60 °C [-13 °F ... +140 °F]	-25 °C ... +60 °C [-13 °F ... +140 °F]	-25 °C ... +60 °C [-13 °F ... +140 °F]	-25 °C ... +60 °C [-13 °F ... +140 °F]	-25 °C ... +60 °C [-13 °F ... +140 °F]	-25 °C ... +60 °C [-13 °F ... +140 °F]	-25 °C ... +60 °C [-13 °F ... +140 °F]	-25 °C ... +60 °C [-13 °F ... +140 °F]	-25 °C ... +60 °C [-13 °F ... +140 °F]	
Noise emission (typical)	< 38 dB(A)	≤ 33 dB(A)	≤ 33 dB(A)	≤ 33 dB(A)	38 dB(A)	38 dB(A)	38 dB(A)	25 dB(A)	25 dB(A)	25 dB(A)	25 dB(A)	25 dB(A)	25 dB(A)	40 dB(A)	40 dB(A)	40 dB(A)	40 dB(A)	40 dB(A)	
Self-consumption (at night)	< 0.03 W	< 0.1 W	< 0.1 W	< 0.1 W	1 W	1 W	1 W	1 W	1 W	1 W	1 W	1 W	1 W	1 W	1 W	1 W	1 W	1 W	
Topology / cooling concept	HF Transformer / Convection	Transformerless / OptiCool	Transformerless / OptiCool	Transformerless / OptiCool	Convection [SB 2000HF] / HF-Transformer / OptiCool	Convection [SB 2000HF] / HF-Transformer / OptiCool	Convection [SB 2000HF] / HF-Transformer / OptiCool	Transformerless / OptiCool	Transformerless / OptiCool	Transformerless / OptiCool	Transformerless / OptiCool	Transformerless / OptiCool	Transformerless / OptiCool	Transformerless / OptiCool	Transformerless / OptiCool	Transformerless / OptiCool	Transformerless / OptiCool	Transformerless / OptiCool	
Degree of protection (as per IEC 60529)	IP65	IP65	IP65	IP65	IP65	IP65	IP65	IP65	IP65	IP65	IP65	IP65	IP65	IP65	IP65	IP65	IP65	IP65	
Climatic category (as per IEC 60721-3-4)		4K4H	4K4H	4K4H	4K4H	4K4H	4K4H	4K4H	4K4H	4K4H	4K4H	4K4H	4K4H	4K4H	4K4H	4K4H	4K4H	4K4H	
Maximum permissible value for relative humidity (non-condensing)	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	
Features																			
DC terminal / AC terminal	Connector	SUNCLIX / Connector	SUNCLIX / Connector	SUNCLIX / Connector	SUNCLIX / Connector	SUNCLIX / Connector	SUNCLIX / Connector	SUNCLIX / Spring-cage terminal	SUNCLIX / Spring-cage terminal	SUNCLIX / Spring-cage terminal	SUNCLIX / Spring-cage terminal	SUNCLIX / Spring-cage terminal	SUNCLIX / Spring-cage terminal	SUNCLIX / Spring-cage terminal	SUNCLIX / Spring-cage terminal	SUNCLIX / Spring-cage terminal	SUNCLIX / Spring-cage terminal	SUNCLIX / Spring-cage terminal	
Display		Text line	Text line	Text line	Graphic	Graphic	Graphic	Graphic	Graphic	Graphic	Graphic	Graphic	Graphic	Graphic	Graphic	Graphic	Graphic	Graphic	
Interfaces: RS485, Bluetooth®, Speedwire/Webconnect		○ / ○ / ○	○ / ○ / ○	○ / ○ / ○	○ / ○ / -	○ / ○ / -	○ / ○ / -	○ / ○ / ○	○ / ○ / ○	○ / ○ / ○	○ / ○ / ○	○ / ○ / ○	○ / ○ / ○	○ / ○ / ○	○ / ○ / ○	○ / ○ / ○	○ / ○ / ○	○ / ○ / ○	
Multi-function relay / Power Control Module		- / -	- / -	- / -	○ / -	○ / -	○ / -	○ / ○	○ / ○	○ / ○	○ / ○	○ / ○	○ / ○	○ / ○	○ / ○	○ / ○	○ / ○	○ / ○	
Warranty: 5 / 10 / 15 / 20 / 25 years	• / ○ / ○ / ○ / ○	• / ○ / ○ / ○ / ○	• / ○ / ○ / ○ / ○	• / ○ / ○ / ○ / ○	• / ○ / ○ / ○ / ○	• / ○ / ○ / ○ / ○	• / ○ / ○ / ○ / ○	• / ○ / ○ / ○ / ○	• / ○ / ○ / ○ / ○	• / ○ / ○ / ○ / ○	• / ○ / ○ / ○ / ○	• / ○ / ○ / ○ / ○	• / ○ / ○ / ○ / ○	• / ○ / ○ / ○ / ○	• / ○ / ○ / ○ / ○	• / ○ / ○ / ○ / ○	• / ○ / ○ / ○ / ○	• / ○ / ○ / ○ / ○	
Certificates and approvals on request	www.SMA-Solar.com	www.SMA-Solar.com	www.SMA-Solar.com	www.SMA-Solar.com	www.SMA-Solar.com	www.SMA-Solar.com	www.SMA-Solar.com	www.SMA-Solar.com	www.SMA-Solar.com	www.SMA-Solar.com	www.SMA-Solar.com	www.SMA-Solar.com	www.SMA-Solar.com	www.SMA-Solar.com	www.SMA-Solar.com	www.SMA-Solar.com	www.SMA-Solar.com	www.SMA-Solar.com	
Type designation	SB240-10	SB 1300TL-10	SB 1600TL-10	SB 2100TL	SB 2000HF-30	SB 2500HF-30	SB 3000HF-30	SB 2500TLST-21	SB 3000TLST-21	SB 3000TL-21	SB 3600TL-21	SB 4000TL-21	SB 5000TL-21	STP 5000TL-20	STP 6000TL-20	STP 7000TL-20	STP 8000TL-20	STP 9000TL-20	

¹⁾ 4825 W bei VDE-AR-N 4105 ²⁾ 4600 VA bei VDE-AR-N 4105
Legend: • Standard features ○ Optional features - Not available Data at nominal conditions As of July 2013

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