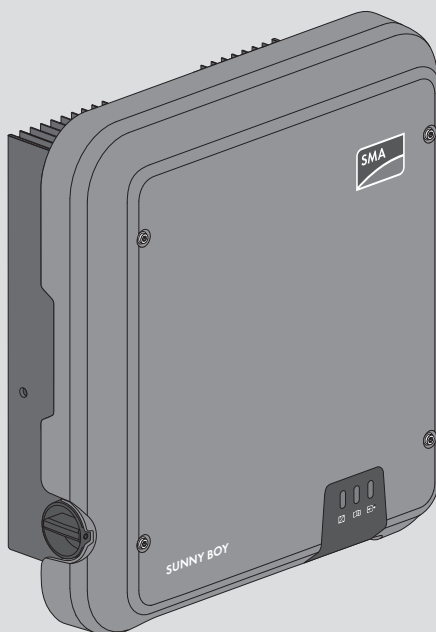


Operating manual

# SUNNY BOY 3.0 / 3.6 / 4.0 / 5.0 / 6.0



	SB3.0-1AV-41	SB3.6-1AV-41	SB4.0-1AV-41
Power factor at rated power	1	1	1
Displacement power factor $\cos \varphi$ , adjustable	0.8 overexcited to 0.8 underexcited	0.8 overexcited to 0.8 underexcited	0.8 overexcited to 1 to 0.8 underexcited
Feed-in phases	1	1	1
Phase connection	1	1	1
Surge category in accordance with IEC 60664-1	III	III	III

\* Depending on the configured country data set

## Efficiency

	SB3.0-1AV-41	SB3.6-1AV-41	SB4.0-1AV-41
Maximum efficiency, $\eta_{\max}$	97.0 %	97.0 %	97.0 %
European weighted efficiency, $\eta_{\text{EU}}$	96.4 %	96.5 %	96.5 %

## 13.1.2 Sunny Boy 5.0 / 6.0

### DC input

	SB5.0-1AV-41	SB6.0-1AV-41
Maximum PV array power	7500 W <sub>p</sub>	9000 W <sub>p</sub>
Maximum input voltage	600 V	600 V
MPP voltage range	125 V to 500 V	125 V to 500 V
Rated input voltage	365 V	365 V
Minimum input voltage	100 V	100 V
Initial input voltage	125 V	125 V
Maximum input current, input A	15 A	15 A
Maximum input current, input B	15 A	15 A
Maximum input current per string, input A	15 A	15 A
Maximum input current per string, input B	15 A	15 A
Maximum short-circuit current, input A*	20 A	20 A

	SB5.0-1AV-41	SB6.0-1AV-41
Maximum short-circuit current, input B*	20 A	20 A
Maximum reverse current into the PV array	0 A	0 A
Number of independent MPP inputs	2	2
Strings per MPP input	2	2
Surge category in accordance with IEC 60664-1	II	II

\* In accordance with IEC 62109-2: ISC PV

## AC Output

	SB5.0-1AV-41	SB6.0-1AV-41
Rated power at 230 V, 50 Hz*	5000 W	6000 W
Maximum apparent AC power at $\cos \varphi = 1$ **	5000 VA	6000 VA
Rated grid voltage	230 V	230 V
Nominal AC voltage	220 V / 230 V / 240 V	220 V / 230 V / 240 V
AC voltage range***	180 V to 280 V	180 V to 280 V
Nominal AC current at 220 V	22.8 A	26.1 A
Nominal AC current at 230 V	22 A	26.1 A
Nominal AC current at 240 V	21 A	25 A
Maximum output current****	22.8 A	26.1 A
Total harmonic distortion of the output current with total harmonic distortion of the AC voltage <2%, and AC power >50% of the rated power	≤3 %	≤3 %
Maximum output current under fault conditions	29 A	29 A
Inrush current	< 20% of the nominal AC current for a maximum of 10 ms	< 20% of the nominal AC current for a maximum of 10 ms
Rated power frequency	50 Hz	50 Hz
AC power frequency***	50 Hz / 60 Hz	50 Hz / 60 Hz
Operating range at AC power frequency 50 Hz	45 Hz to 55 Hz	45 Hz to 55 Hz
Operating range at AC power frequency 60 Hz	55 Hz to 65 Hz	55 Hz to 65 Hz
Power factor at rated power	1	1

	SB5.0-1AV-41	SB6.0-1AV-41
Displacement power factor $\cos \varphi$ , adjustable	0.8 overexcited to 1 to 0.8 underexcited	0.8 overexcited to 0.8 underexcited
Feed-in phases	1	1
Phase connection	1	1
Surge category in accordance with IEC 60664-1	III	III

\* According to VDE-AR-N 4105, the rated power at 230 V, 50 Hz of the SB5.0-1AV-41 is 4600 W

\*\* According to VDE-AR-N 4105, the rated power at 230 V, 50 Hz of the SB5.0-1AV-41 is 4600 VA

\*\*\* Depending on the configured country data set

\*\*\*\* According to AS 4777, the maximum output current is 21.7 A

## Efficiency

	SB5.0-1AV-41	SB6.0-1AV-41
Maximum efficiency, $\eta_{\max}$	97.0 %	97.0 %
European weighted efficiency, $\eta_{\text{EU}}$	96.5 %	96.5 %

## 13.2 General Data

Width x height x depth	435 mm x 470 mm x 176 mm
Weight	16 kg
Length x width x height of the packaging	495 mm x 595 mm x 250 mm
Transport weight	20.5 kg
Climatic category in accordance with IEC 60721-3-4	4K4H
Environmental category	Outdoors
Pollution degree outside the enclosure	3
Pollution degree inside the enclosure	2
Operating temperature range	-25 °C to +60 °C
Maximum permissible value for relative humidity (condensing)	100 %
Maximum operating altitude above mean sea level (MSL)	3000 m
Typical noise emission	25 dB(A)
Power loss in night mode	5 W
Maximum data volume per inverter with Speed-wire/Webconnect	550 MB/month

Additional data volume when using the Sunny Portal live interface	660 kB/hour
Topology	Transformerless
Cooling method	Convection
Degree of protection for electronics in accordance with IEC 60529	IP65
Protection class in accordance with IEC 62109-1	I
Grid configurations*	IT, Delta-IT, TN-C, TN-S, TN-C-S, TT (when $V_{N,PE} < 20$ V)

\* **IT, Delta-IT:** When using in these systems, the grounding conductor monitoring must be deactivated and an additional grounding connected to the inverter.

### 13.3 Climatic Conditions

#### Installation in accordance with IEC 60721-3-3, Class 4K4H

Extended temperature range	-25 °C to +60 °C
Extended humidity range	0% to 100%
Extended air pressure range	79.5 kPa to 106 kPa

#### Transport in accordance with IEC 60721-3-2, Class 2K3

Temperature range	-25 °C to +70 °C
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### 13.4 Protective Devices

DC reverse polarity protection	Short-circuit diode
Input-side disconnection point	DC Load-Break Switch
AC short-circuit current capability	Current control
Grid monitoring	SMA Grid Guard 10.0
Maximum overcurrent protection	32 A
Ground fault monitoring	Insulation monitoring: $R_{iso} > 200$ k $\Omega$
All-pole sensitive residual-current monitoring unit	Available

### 13.5 Equipment

DC connection	SUNCLIX DC connector
AC connection	AC connector
WLAN	As standard

SMA Speedwire/Webconnect	As standard
RS485	As standard

### 13.6 Torques

Screws for securing the inverter to the wall mounting bracket	2.5 Nm
Additional grounding	2.5 Nm
SUNCLIX swivel nut	2.0 Nm
Screw terminals of the AC connector	1.4 Nm

### 13.7 Data Storage Capacity

Energy yields in the course of the day	63 days
Daily yields	30 years
Event messages for users	1024 events
Event messages for installers	1024 events

