

# SUNNY BOY 3.0-US / 3.8-US / 5.0-US / 6.0-US / 7.0-US / 7.7-US



SB3.0-1 SP-US-40 / SB3.8-1 SP-US-40 / SB5.0-1 SP-US-40  
SB6.0-1 SP-US-40 / SB7.0-1 SP-US-40 / SB7.7-1 SP-US-40



**COMPLIANT TO UL 1741 SA**  
GRID SUPPORT UTILITY INTERACTIVE INVERTER



## Value-Added Improvements

- Superior integration with SMA's MLPE Power+ Solution
- World's first Secure Power Supply\* now offers up to 2,000 W
- Full grid management capabilities ensure a utility-compliant solution for any market

## Reduced Labor

- New Installation Assistant with direct access via smartphone minimizes time in the field
- Integrated disconnect simplifies equipment stocking and speeds installation

## Unmatched Flexibility

- SMA's proprietary OptiTrac™ Global Peak technology mitigates shade with ease
- Multiple independent MPPTs accommodate hundreds of stringing possibilities

## Trouble-Free Servicing

- Two-part enclosure concept allows for simple, expedited servicing
- Enhanced AFCI technology reduces false tripping while improving sensitivity in real arcs

## SUNNY BOY 3.0-US / 3.8-US / 5.0-US / 6.0-US / 7.0-US / 7.7-US

Reduce costs across your entire residential business model

The residential PV market is changing rapidly. Your bottom line matters more than ever—so we've designed a superior residential solution to help you decrease costs at every stage of your business operations. The Sunny Boy 3.0-US/3.8-US/5.0-US/6.0-US/7.0-US/7.7-US join the SMA lineup of field-proven solar technology backed by the world's #1 service team, along with a wealth of improvements. Simple design, improved stocking and ordering, value-driven sales support and streamlined installation are just some of the ways that SMA helps your business operate more efficiently. And, Sunny Boy's superior integration with the innovative Power+ Solution means installers have even more flexibility in addressing their toughest challenges.

| Technical data   | Sunny Boy 3.0-US   |             | Sunny Boy 3.8-US |             | Sunny Boy 5.0-US |             |
|--|--|-------------|------------------|-------------|------------------|-------------|
|  | 208 V  | 240 V       | 208 V            | 240 V       | 208 V            | 240 V       |
| <b>Input (DC)</b>  |  |             |                  |             |                  |             |
| Max. usable DC power                                       | 3100 W   | 3100 W      | 3450 W           | 4000 W      | 5150 W           | 5150 W      |
| Max. DC voltage  | 600 V  |             |                  |             |                  |             |
| Rated MPP voltage range                                    | 155 - 480 V  |             | 195 - 480 V      |             | 220 - 480 V      |             |
| MPPT operating voltage range                               | 100 - 550 V  |             |                  |             |                  |             |
| Min. DC voltage / start voltage                            | 100 V / 125 V  |             |                  |             |                  |             |
| Max. operating input current per MPPT                      | 10 A   |             |                  |             |                  |             |
| Max. short circuit current per MPPT                        | 18 A   |             |                  |             |                  |             |
| Number of MPPT tracker / string per MPPT tracker           | 2/1  |             |                  |             | 3 / 1            |             |
| <b>Output (AC)</b>   |  |             |                  |             |                  |             |
| AC nominal power   | 3000 W   | 3000 W      | 3330 W           | 3800 W      | 5000 W           | 5000 W      |
| Max. AC apparent power                                     | 3000 VA  | 3000 VA     | 3330 VA          | 3800 VA     | 5000 VA          | 5000 VA     |
| Nominal voltage / adjustable                               | 208 V / ●  | 240 V / ●   | 208 V / ●        | 240 V / ●   | 208 V / ●        | 240 V / ●   |
| AC voltage range   | 183 - 229 V  | 211 - 264 V | 183 - 229 V      | 211 - 264 V | 183 - 229 V      | 211 - 264 V |
| AC grid frequency  | 60 Hz / 50 Hz  |             |                  |             |                  |             |
| Max. output current  | 14.5 A   | 12.5 A      | 16.0 A           | 16.0 A      | 24.0 A           | 24.0 A      |
| Power factor (cos φ)                                       | 1  |             |                  |             |                  |             |
| Output phases / line connections                           | 1 / 2  |             |                  |             |                  |             |
| Harmonics  | < 4 %  |             |                  |             |                  |             |
| <b>Efficiency</b>  |  |             |                  |             |                  |             |
| Max. efficiency  | 97.2 %   | 97.6 %      | 97.2 %           | 97.5 %      | 97.2 %           | 97.5 %      |
| CEC efficiency   | 96 %   | 96.5 %      | 96.5 %           | 96.5 %      | 96.5 %           | 97 %        |
| <b>Protection devices</b>                                  |  |             |                  |             |                  |             |
| DC disconnect device                                       | ●  |             |                  |             |                  |             |
| DC reverse polarity protection                             | ●  |             |                  |             |                  |             |
| Ground fault monitoring / Grid monitoring                  | ●  |             |                  |             |                  |             |
| AC short circuit protection                                | ●  |             |                  |             |                  |             |
| All-pole sensitive residual current monitoring unit (RCMU) | ●  |             |                  |             |                  |             |
| Arc fault circuit interrupter (AFCI)                       | ●  |             |                  |             |                  |             |
| Protection class / overvoltage category                    | I / IV   |             |                  |             |                  |             |
| <b>General data</b>  |  |             |                  |             |                  |             |
| Dimensions (W / H / D) in mm (in)                          | 535 x 730 x 198 (21.1 x 28.5 x 7.8)  |             |                  |             |                  |             |
| Packaging dimensions (W / H / D) in mm (in)                | 600 x 800 x 300 (23.6 x 31.5 x 11.8)   |             |                  |             |                  |             |
| Weight / packaging weight                                  | 26 kg (57 lb) / 30 kg (66 lb)  |             |                  |             |                  |             |
| Operating temperature range                                | - 25 °C ...+60 °C  |             |                  |             |                  |             |
| Noise emission (typical)                                   | 39 dB(A)   |             |                  |             |                  |             |
| Internal power consumption at night                        | < 5 W  |             |                  |             |                  |             |
| Topology   | Transformerless  |             |                  |             |                  |             |
| Cooling concept  | Convection   |             |                  |             |                  |             |
| <b>Features</b>  |  |             |                  |             |                  |             |
| Ethernet ports   | 2  |             |                  |             |                  |             |
| Secure Power Supply  | ● *  |             |                  |             |                  |             |
| Display (2 x 16 characters)                                | ●  |             |                  |             |                  |             |
| WLAN   | ●  |             |                  |             |                  |             |
| Sensor module / External WLAN antenna                      | ○ / ○  |             |                  |             |                  |             |
| Warranty: 10 / 15 / 20 years                               | ● / ○ / ○  |             |                  |             |                  |             |
| Certificates and approvals                                 | UL 1741, UL 1998, UL 1699B, IEEE1547, FCC Part 15 (Class A & B), CAN/CSA V22.2 107.1-1                   |             |                  |             |                  |             |
| ● Standard features ○ Optional features – Not available    | Data at nominal conditions NOTE: US inverters ship with gray lids. * Not functional with Power+ Solution |             |                  |             |                  |             |
| Type designation   | SB3.0-1SP-US-40  |             | SB3.8-1SP-US-40  |             | SB5.0-1SP-US-40  |             |



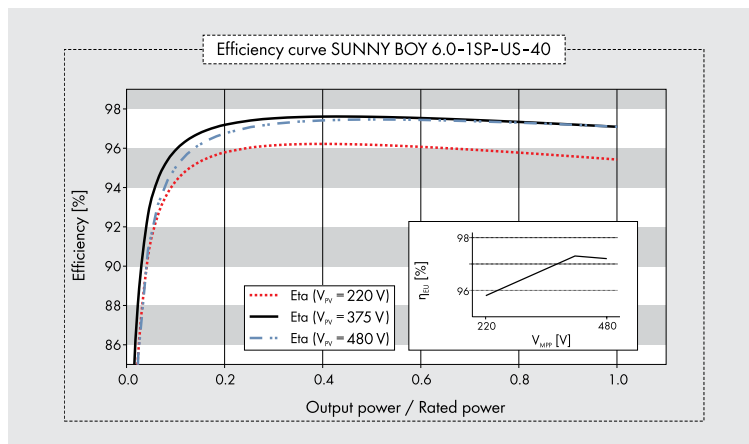
Sensor module  
MD.SEN-US-40



External WLAN antenna  
EXTANT-US-40



SMA Rooftop  
Communication Kit  
ROOFCOMMKIT-P1-US



| Technical data  | Sunny Boy 6.0-US   |             | Sunny Boy 7.0-US |             | Sunny Boy 7.7-US |             |
|---|--|-------------|------------------|-------------|------------------|-------------|
|   | 208 V  | 240 V       | 208 V            | 240 V       | 208 V            | 240 V       |
| <b>Input (DC)</b>   |  |             |                  |             |                  |             |
| Max usable DC power   | 5400 W   | 6200 W      | 6900 W           | 7200 W      | 6900 W           | 7950 W      |
| Max. DC Voltage   | 600 V  |             |                  |             |                  |             |
| Rated MPP Voltage range                                     | 220 - 480 V  |             | 245 - 480 V      |             | 270 - 480 V      |             |
| MPPT operating voltage range                                | 100 - 550 V  |             |                  |             |                  |             |
| Min. DC voltage / start voltage                             | 100 V / 125 V  |             |                  |             |                  |             |
| Max. operating input current per MPPT                       | 10 A   |             |                  |             |                  |             |
| Max. short circuit current per MPPT                         | 18 A   |             |                  |             |                  |             |
| Number of MPPT tracker / string per MPPT tracker            | 3 / 1  |             |                  |             |                  |             |
| <b>Output (AC)</b>  |  |             |                  |             |                  |             |
| AC nominal power  | 5200 W   | 6000 W      | 6660 W           | 7000 W      | 6660 W           | 7680 W      |
| Max. AC apparent power                                      | 5200 VA  | 6000 VA     | 6660 VA          | 7000 VA     | 6660 VA          | 7680 VA     |
| Nominal voltage / adjustable                                | 208 V / ●  | 240 V / ●   | 208 V / ●        | 240 V / ●   | 208 V / ●        | 240 V / ●   |
| AC voltage range  | 183 - 229 V  | 211 - 264 V | 183 - 229 V      | 211 - 264 V | 183 - 229 V      | 211 - 264 V |
| AC grid frequency   | 60 Hz / 50 Hz  |             |                  |             |                  |             |
| Max. output current   | 25.0 A   | 25.0 A      | 32.0 A           | 29.2 A      | 32.0 A           | 32.0 A      |
| Power factor (cos φ)  | 1  |             |                  |             |                  |             |
| Output phases / line connections                            | 1 / 2  |             |                  |             |                  |             |
| Harmonics   | < 4 %  |             |                  |             |                  |             |
| <b>Efficiency</b>   |  |             |                  |             |                  |             |
| Max. efficiency   | 97.2 %   | 97.6 %      | 97.1 %           | 97.5 %      | 97.1 %           | 97.5 %      |
| CEC efficiency  | 96.5 %   | 97 %        | 96.5 %           | 97 %        | 96.5 %           | 97 %        |
| <b>Protection devices</b>                                   |  |             |                  |             |                  |             |
| DC disconnect device  | ●  |             |                  |             |                  |             |
| DC reverse polarity protection                              | ●  |             |                  |             |                  |             |
| Ground fault monitoring / Grid monitoring                   | ●  |             |                  |             |                  |             |
| AC short circuit protection                                 | ●  |             |                  |             |                  |             |
| All-pole sensitive residual current monitoring unit (RCMU)  | ●  |             |                  |             |                  |             |
| Arc fault circuit interrupter (AFCI)                        | ●  |             |                  |             |                  |             |
| Protection class / overvoltage category                     | I / IV   |             |                  |             |                  |             |
| <b>General data</b>   |  |             |                  |             |                  |             |
| Dimensions (W / H / D) in mm (in)                           | 535 x 730 x 198 (21.1 x 28.5 x 7.8)  |             |                  |             |                  |             |
| Packaging Dimensions (W / H / D) in mm (in)                 | 600 x 800 x 300 (23.6 x 31.5 x 11.8)   |             |                  |             |                  |             |
| Weight / packaging weight                                   | 26 kg (57 lb) / 30 kg (66 lb)  |             |                  |             |                  |             |
| Operating temperature range                                 | - 25 °C ... +60 °C   |             |                  |             |                  |             |
| Noise emission (typical)                                    | 39 dB(A)   |             | 45 dB(A)         |             |                  |             |
| Internal power consumption at night                         | < 5 W  |             |                  |             |                  |             |
| Topology  | Transformerless  |             |                  |             |                  |             |
| Cooling concept   | Convection   |             |                  | Fan         |                  |             |
| <b>Features</b>   |  |             |                  |             |                  |             |
| Ethernet ports  | 2  |             |                  |             |                  |             |
| Secure Power Supply   | ●*   |             |                  |             |                  |             |
| Display (2 x 16 characters)                                 | ●  |             |                  |             |                  |             |
| WLAN  | ●  |             |                  |             |                  |             |
| Sensor module / External WLAN antenna                       | ○ / ○  |             |                  |             |                  |             |
| Warranty: 10 / 15 / 20 years                                | ●/○/○  |             |                  |             |                  |             |
| Certificates and approvals                                  | UL 1741, UL 1998, UL 1699B, IEEE1547, FCC Part 15 (Class A & B), CAN/CSA V22.2 107.1-1                       |             |                  |             |                  |             |
| ● Standard features   ○ Optional features   – Not available | Data at nominal conditions   NOTE: US inverters ship with gray lids.   * Not functional with Power+ Solution |             |                  |             |                  |             |
| Type designation  | SB6.0-1SP-US-40  |             | SB7.0-1SP-US-40  |             | SB7.7-1SP-US-40  |             |

## POWER+ SOLUTION

The SMA Power+ Solution combines legendary SMA inverter performance and intelligent DC module-level electronics in one cost-effective, comprehensive package. This means that you can achieve maximum solar power production for your customers while also realizing significant installation savings.

Unlike conventional microinverter and DC optimizer systems, Power+ is faster to install, provides more flexibility, boasts logistical advantages, and reduces service risk.

Visit [www.SMA-America.com](http://www.SMA-America.com) for more information.





### SIMPLE, FLEXIBLE DESIGN

Speed the completion of customer proposals and maximize the efficiency of your design team with the Sunny Boy-US series, which provides a new level of flexibility in system design by offering:

- » Hundreds of stringing configurations and multiple independent MPPTs
- » SMA's proprietary OptiTrac™ Global Peak shade mitigation technology
- » Diverse application options including on- and off-grid compatibility



### VALUE-DRIVEN SALES ENABLEMENT

SMA wants to enable your sales team by arming them with an abundance of feature/benefit support. Show your customers the value of the Sunny Boy-US series by utilizing:

- » Secure Power Supply, now with 2,000 W of opportunity power in the event of a grid outage, as an increased value-add or upsell opportunity
- » SMA's 35 year history and status as the #1 global inverter manufacturer instills homeowners with peace of mind and the long-term security they demand from a PV investment
- » An economical solution for shade mitigation and the challenges of complex roofs



### IMPROVED STOCKING AND ORDERING

Ensure that your back office business operations run smoothly and succinctly while mitigating potential errors. The Sunny Boy-US series can help achieve cost savings in these areas by providing:

- » An integrated DC disconnect that simplifies equipment stocking and allows for a single inverter part number
- » All communications integrated into the inverter, eliminating the need to order additional equipment



### STREAMLINED INSTALLATION AND COMMISSIONING

Expedite your operations in the field by taking advantage of the new Sunny Boy's installer-friendly feature set including:

- » Direct access via smartphone and utilization of SMA's Installation Assistant, which minimizes time/labor spent in the field and speeds the path to commissioning
- » Improved communication—no need to install additional equipment
- » Integrated DC disconnect that simplifies onsite logistics and eliminates the need to install a separate disconnect unit, speeding overall installation time



### SUPERIOR SERVICE

SMA understands the factors that contribute to lifetime PV ownership cost, that's why the Sunny Boy-US series was designed for maximum reliability and backstopped by an unmatched service offering. Benefit from:

- » The new Sunny Boy's two-part enclosure concept that separates the connection unit from the power unit, which allows for simple, expedited servicing
- » The #1 service team in the PV industry, as recognized by IMS research, with experience servicing an installed base of more than 55 GW