

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



SB3.0-1SP-US-41 / SB3.8-1SP-US-41 / SB5.0-1SP-US-41 / SB6.0-1SP-US-41 / SB7.0-1SP-US-41 / SB7.7-1SP-US-41 / SB3.0-1TP-US-41 / SB3.8-1TP-US-41 / SB5.0-1TP-US-41 / SB6.0-1TP-US-41 / SB7.0-1TP-US-41 / SB7.7-1TP-US-41



**INTEGRATED SUNSPEC  
RAPID SHUTDOWN**



## 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
- Advanced communication interface with fewer components creates 50% faster setup and commissioning

## 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
- Equipped with SMA Smart Connected, a proactive service solution that is integrated into Sunny Portal

## 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. Finally, SMA Smart Connected will automatically detect errors and initiate the repair and replacement process so that installers can reduce service calls and save time and money.

| 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. PV power   | 4800 Wp  |             | 6144 Wp                           |             | 8000 Wp                           |             |
| 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                            | 3840 W      | 5000 W                            | 5000 W      |
| Max. AC apparent power  | 3000 VA  | 3000 VA     | 3330 VA                           | 3840 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                            | 21.0 A      |
| Power factor (cos φ)  | 1  |             |                                   |             |                                   |             |
| Output phases / line connections  | 1 / 2  |             |                                   |             |                                   |             |
| Harmonics   | < 4 %  |             |                                   |             |                                   |             |
| <b>Efficiency</b>   |  |             |                                   |             |                                   |             |
| Max. efficiency   | 97.2 %   | 97.6 %      | 97.3 %                            | 97.6 %      | 97.3 %                            | 97.6 %      |
| CEC efficiency  | 96.2 %   | 96.3 %      | 96.4 %                            | 96.7 %      | 96.7 %                            | 96.9 %      |
| <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)  |             |                                   |             |                                   |             |
| Temperature range: operating / non-operating  | -25°C ...+60°C / -40°C ...+60°C  |             |                                   |             |                                   |             |
| Environmental protection rating   | NEMA 3R  |             |                                   |             |                                   |             |
| Noise emission (typical)  | 39 dB(A)   |             |                                   |             |                                   |             |
| Internal power consumption at night   | < 5 W  |             |                                   |             |                                   |             |
| Topology / Cooling concept  | Transformerless / Convection   |             |                                   |             |                                   |             |
| <b>Features</b>   |  |             |                                   |             |                                   |             |
| Ethernet ports  |  |             | 2                                 |             |                                   |             |
| Secure Power Supply   |  |             | ●*                                |             |                                   |             |
| Display (2 x 16 characters)   |  |             | ●                                 |             |                                   |             |
| 2.4 GHz WLAN / External WLAN antenna  |  |             | ●/○                               |             |                                   |             |
| Cellular (4G / 3G) / Revenue Grade Meter  |  |             | ○/○**                             |             |                                   |             |
| Warranty: 10 / 15 / 20 years  |  |             | ●/○/○                             |             |                                   |             |
| Certificates and approvals  | UL 1741, UL 1741 SA incl. CA Rule 21 RSD, UL 1998, UL 1699B Ed. 1, IEEE1547, FCC Part 15 (Class A & B), CAN/CSA V22.2 107.1-1, HECO Rule 14H, PV Rapid Shutdown System Equipment |             |                                   |             |                                   |             |
| ● Standard features ○ Optional features – Not available   |  |             |                                   |             |                                   |             |
| NOTE: US inverters ship with gray lids. Data at nominal conditions * Not compatible with the SunSpec Rapid Shutdown functionality **Standard in SBX.X-1TP-US-41 |  |             |                                   |             |                                   |             |
| Type designation  | SB3.0-1SP-US-41 / SB3.0-1TP-US-41  |             | SB3.8-1SP-US-41 / SB3.8-1TP-US-41 |             | SB5.0-1SP-US-41 / SB5.0-1TP-US-41 |             |



External WLAN antenna  
EXTANT-US-40



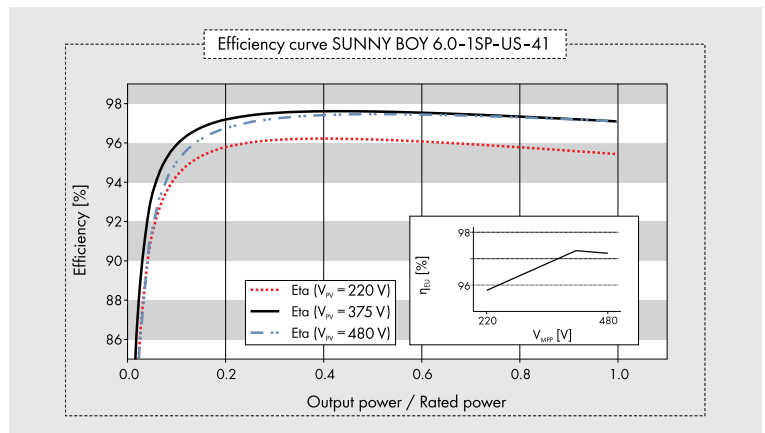
SMA Rooftop  
Communication Kit  
ROOFCOMMKIT-P2-US



Revenue Grade  
Meter Kit  
RGM05KIT-US-10



Cellular Modem Kit  
CELLMODKIT-US-10



| 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. PV power   | 9600 Wp  |             | 9940 Wp                              |             | 10905 Wp                          |             |
| 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   | 97.3 %   | 97.7 %      | 97.3 %                               | 97.9 %      | 97.3 %                            | 97.5 %      |
| CEC efficiency  | 96.7 %   | 96.9 %      | 96.4 %                               | 96.8 %      | 96.4 %                            | 96.8 %      |
| <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)        |             |                                   |             |
| Temperature range: operating / non-operating  |  |             | -25°C ...+60°C / -40°C ...+60°C      |             |                                   |             |
| Environmental protection rating   |  |             | NEMA 3R                              |             |                                   |             |
| Noise emission (typical)  | 39 dB(A)   |             |                                      |             | 45 dB(A)                          |             |
| Internal power consumption at night   |  |             | < 5 W                                |             |                                   |             |
| Topology / Cooling concept  | Transformerless / Convection   |             | Transformerless / Fan                |             |                                   |             |
| <b>Features</b>   |  |             |                                      |             |                                   |             |
| Ethernet ports  |  |             | 2                                    |             |                                   |             |
| Secure Power Supply   |  |             | ● *                                  |             |                                   |             |
| Display (2 x 16 characters)   |  |             | ●                                    |             |                                   |             |
| 2.4 GHz WLAN / External WLAN antenna  |  |             | ● / ○                                |             |                                   |             |
| Cellular (4G / 3G) / Revenue Grade Meter  |  |             | ○ / ○ **                             |             |                                   |             |
| Warranty: 10 / 15 / 20 years  |  |             | ● / ○ / ○                            |             |                                   |             |
| Certificates and approvals  | UL 1741, UL 1741 SA incl. CA Rule 21 RSD, UL 1998, UL 1699B Ed. 1, IEEE1547, FCC Part 15 (Class A & B), CAN/CSA V22.2 107.1-1, HECO Rule 14H, PV Rapid Shutdown System Equipment |             |                                      |             |                                   |             |
| ● Standard features ○ Optional features – Not available   |  |             |                                      |             |                                   |             |
| NOTE: US inverters ship with gray lids. Data at nominal conditions * Not compatible with the SunSpec Rapid Shutdown functionality **Standard in SBX.X-1TP-US-41 |  |             |                                      |             |                                   |             |
| Type designation  | SB6.0-1SP-US-41 / SB6.0-1TP-US-41  |             | SB7.0-1SP-US-41 / SB7.0-1TP-US-41    |             | SB7.7-1SP-US-41 / SB7.7-1TP-US-41 |             |

## 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.

**NEW!** This rapid shutdown solution fulfills UL 1741, NEC 2014, and NEC 2017 requirements and is compatible with the power line-based SunSpec Rapid Shutdown communication signal over DC wires, making it the most simple and cost-effective rapid shutdown solution on the market.

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
- » Simple commissioning and monitoring setup in a single online portal
- » New! Advanced communication interface with fewer components allows for 50% faster commissioning



### 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:

- » SMA Smart Connected, a proactive service solution integrated into Sunny Portal that automatically detects errors and initiates the repair and replacement process
- » The #1 service team in the PV industry, as recognized by IMS research, with experience servicing an installed base of more than 55 GW