

SMA SYSTEM SOLUTIONS

for the VDEcode of practice and the German Renewable Energy Act (EEG 2012) · As of December 2012



Performance Class

Plant power up to 3.68 kVA

VDE-AR-N 4105

- Active power reduction in case of overfrequency (starting with 50.2 Hz with characteristic curve)

German Renewable Energy Act (EEG 2012)

- Simplified feed-in management (remote controlled reduction of the feed-in power by the grid operator in case of grid overload)
- or
- Active power feed-in limitation at the grid connection point to 70 percent of installed power

Example A

Alternatively, feed-in management according §6 EEG 2012 or general limitation of active power feed-in at the grid connection point to 70% of installed power

Feed-back management according to §6 EEG 2012

Compatible products:

- SB 1200/1700/2500/3000
- SB 1300/1600/2100TL-10
- SB 2000/2500/3000HF-30
- SB 2500/3000TLST-21*
- SB 3300-11
- SB 3000/3600TL-21*

*compatible with the Power Control Module

Power Control Module
Power Reducer Box
Sunny WebBox
Sunny WebBox mit Bluetooth

Sunny Home Manager

Plant power greater than 3.68 kVA up to 13.8 kVA

VDE-AR-N 4105

- Active power reduction in case of overfrequency (starting with 50.2 Hz with characteristic curve)
- $\sum S_{\text{Emax}} \leq 4.6 \text{ kVA per phase}$
- Reactive power provision ($\cos(\phi)$ of 0.95_{underscited} up to 0.95_{overscited})

German Renewable Energy Act (EEG 2012)

- Simplified feed-in management (option allowing distribution grid operator to remotely reduce the feed-in power)
- or
- General limitation of active power feed-in at the grid connection point to 70 percent of installed power
- Plants over 10 kWp: a maximum of 90 percent of the annually generated kWh is compensated (effective as of January 1, 2014)

Example B

Alternatively, feed-in management according §6 EEG 2012 or general limitation of active power feed-in at the grid connection point to 70% of installed power

Feed-back management according to §6 EEG 2012

Compatible products:

- SB 3300/3800-11
- SB 3000/3600/4000/5000TL-21*
- SB 2500/3000TLST-21*
- SMC 4600A-11

*Limitation to 4.6 kVA when selecting the country data set for Germany

*compatible with the Power Control Module

Power Control Module
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Sunny Home Manager

Limiting of the active power feed-in to 70% of the installed power by using generated PV power for self-consumption

*Limitation to 4.6 kVA when selecting the country data set for Germany

STP 5000/6000/7000/8000/9000TL-20*
STP 10000/12000TL-10*

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Plant power greater than 13.8 kVA up to 30 kVA

VDE-AR-N 4105

- Active power reduction in case of overfrequency (starting with 50.2 Hz with characteristic curve)
- Use of three-phase inverters or communicative coupling of three one-phase devices for power exceeding 4.6 kVA per phase.
- Reactive power provision ($\cos(\phi)$ of 0.90_{underscited} up to 0.90_{overscited})

German Renewable Energy Act (EEG 2012)

- Simplified feed-in management (option allowing distribution grid operator to remotely reduce the feed-in power)
- or
- General limitation of active power feed-in at the grid connection point to 70 percent of installed power
- A maximum of 90 percent of the annually generated kWh is compensated (effective as of January 1, 2014)

Example A

Alternatively, feed-in management according §6 EEG 2012 or general limitation of active power feed-in at the grid connection point to 70% of installed power

Feed-back management according to §6 EEG 2012

Compatible products:

- SB 3300/3800-11
- SB 3000/3600/4000/5000TL-21*
- SB 2500/3000TLST-21*
- SMC 4600/5000/6000A-11
- SMC 7000HV-11
- SMC 9000/10000/11000TLRP-10

*compatible with the Power Control Module

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Limiting of the active power feed-in to 70% of the installed power by using generated PV power for self-consumption

STP 5000/6000/7000/8000/9000TL-20*
STP 10000/12000/15000/17000TL-10*
STP 15000/20000TLHE-10*
STP 15000/20000TLEE-10*

Power Control Module
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Sunny Home Manager

Plant power greater than 30 kVA up to 100 kVA

VDE-AR-N 4105

- Active power reduction in case of overfrequency (starting with 50.2 Hz with characteristic curve)
- Use of three-phase inverters or communicative coupling of three one-phase devices for power exceeding 4.6 kVA per phase.
- Reactive power provision ($\cos(\phi)$ of 0.90_{underscited} up to 0.90_{overscited})
- An external fail-safe central grid and plant protection system
- There is no longer a prescribed disconnection point that must be accessible at all times

German Renewable Energy Act (EEG 2012)

- Simplified feed-in management (option allowing distribution grid operator to remotely reduce the feed-in power)
- Plants that were commissioned after December 31, 2008 must be retrofit accordingly by the end of 2013
- A maximum of 90 percent of the annually generated kWh is compensated (effective as of January 1, 2014)

Example A

Feed-back management according to §6 EEG 2012

Externally controlled contactor according to FNN recommendation

Compatible products:

- SB 3300/3800-11
- SB 3000/3600/4000/5000TL-21*
- SB 2500/3000TLST-21*
- SMC 4600/5000/6000A-11
- SMC 7000HV-11
- SMC 9000/10000/11000TLRP-10

*compatible with the Power Control Module

Power Control Module
Power Reducer Box
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Sunny WebBox mit Bluetooth

Sunny Home Manager

SMA Grid Gate

Example B

Feed-back management according to §6 EEG 2012

Externally controlled contactor according to FNN recommendation

Compatible products:

- STP 5000/6000/7000/8000/9000TL-20*
- STP 10000/12000/15000/17000TL-10*
- STP 15000/20000TLHE-10*
- STP 15000/20000TLEE-10*
- Power Reducer Box
Sunny WebBox
Sunny WebBox mit Bluetooth

Sunny Home Manager

SMA Grid Gate

Plant power greater than 100 kVA

VDE-AR-N 4105

- Active power reduction in case of overfrequency (starting with 50.2 Hz with characteristic curve)
- Use of three-phase inverters or communicative coupling of three one-phase devices for power exceeding 4.6 kVA per phase.
- Reactive power provision ($\cos(\phi)$ of 0.90_{underscited} up to 0.90_{overscited})
- An external fail-safe central grid and plant protection system
- There is no longer a prescribed disconnection point that must be accessible at all times
- Feed-in management (option allowing the distribution grid operator to remotely reduce the feed-in power)

German Renewable Energy Act (EEG 2012)

- Feed-in management (option allowing the distribution grid operator to remotely reduce the feed-in power and call up the actual feed-in power)
- Latest from 2012/07/01 all plants built before 2012 must satisfy these specifications
- Plants up to 1,000 kWp: a maximum of 90 percent of the annually generated kWh is compensated (effective as of January 1, 2014)

Example A

Feed-back management according to §6 EEG 2012

Sunny WebBox Power Reducer Box (Radio) ripple control receiver

Compatible products:

- SB 3300/3800-11
- SB 3000/3600/4000/5000TL-21
- SB 2500/3000TLST-21
- SMC 4600/5000/6000A-11
- SMC 7000HV-11
- SMC 9000/10000/11000TLRP-10

STP 5000/6000/7000/8000/9000TL-20
STP 10000/12000/15000/17000TL-10
STP 15000/20000TLHE-10
STP 15000/20000TLEE-10

Power Reducer Box
Sunny WebBox
SMA Grid Gate

Example B

Feed-back management according to §6 EEG 2012

Sunny WebBox Power Reducer Box (Radio) ripple control receiver

Compatible products:

- STP 5000/6000/7000/8000/9000TL-20
STP 10000/12000/15000/17000TL-10
STP 15000/20000TLHE-10
STP 15000/20000TLEE-10

Power Reducer Box
Sunny WebBox
SMA Grid Gate

Visit www.SMA.de/gridintegration for the latest news regarding grid integration and further information