Parameters and Measured Values

SUNNY BOY 3000TL / 4000TL / 5000TL

Technical Description

SBNG_PAR-TEN084410 | Version 1.0

EN

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1 Notes on this Manual

1.1 Validity

These technical guidelines describe the operation parameters and measured values of SMA inverters of the type Sunny Boy 3000 TL (SB 3000 TL-20), 4000 TL (SB 4000 TL-20), and 5000 TL (SB 5000 TL-20).

1.2 Target Group

This manual is intended for installers and users. Some of the activities described in this document may only be performed by qualified electricians and are marked with a danger notice.

1.3 Symbols Used

The following safety precautions are used in this document.

DANGER!

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

2 Measured Values

The Sunny Boy measures a series of values during operation. These values are presented in the form of measured values in a communication device or communication software.

You will find the explanation of the various measured values in the following table. Values in gray can only be realized by an installer.

Measured value	Unit	Description
A.Ms.Amp	see "DcDcConv[0].Ms.Amp"	
A.Ms.Vol	see "DcDcConv[0].Ms.Vol"	
A.Ms.Watt	see "DcDcConv[0].Ms.Watt"	
B.Ms.Amp	see "DcDcConv[1].Ms.Amp"	
B.Ms.Vol	see "DcDcConv[1].Ms.Vol"	
B.Ms.Watt	see "DcDcConv[1].Ms.Watt"	
Cntry	see "GridGuard.Cntry"	
DcDcConv[0].MPPCtl.VSet	V	Input A nominal value of the PV voltage control
DcDcConv[0].Ms.Amp	A	Input A DC current
DcDcConv[0].Ms.Vol	V	Input A DC voltage
DcDcConv[0].Ms.Watt	W	Input A DC power
DcDcConv[1].MPPCtl.VSet	V	Input B nominal value of the PV voltage control
DcDcConv[1].Ms.Amp	A	Input B DC current
DcDcConv[1].Ms.Vol	V	Input B DC voltage
DcDcConv[1].Ms.Watt	W	Input B DC power
E-Total	see "Metering.TotkWh"	

Measured value	Unit	Description
GridGuard.Cntry	–	Current setting of the country-specific norm. • None (no setting) • Adj (user-defined settings) • VDE0126-1-1 (Germany, Switzerland) • VDE0126-1-1 A (special setting Germany, parameter "GridGuard.VolCtl.Rpro" = 244 V instead of 253 V) • VDE0126-1-1 B (special setting France, Bluetooth transmission power reduced in accordance with French requirements) • DK5940E2.2 (Italy) • RD1663 (Spain) • PPC (Greece) • C10/11 (Belgium) • EN50438 (Luxembourg) • ED50438-CZ (Czech Republic) • AS4777.3 (Australia) • G83/1 (England) • KEPCO guide (South Korea) • OFF grid (setting for inverter in the island grid)
GridMs.Hz	Hz	Grid frequency
GridMs.TotA	A	Grid current (total)
GridMs.TotW	W	Effective power released (total)
GridMs.A.phsA	A	Grid current phase L1
GridMs.A.phsB	A	Grid current phase L2
GridMs.A.phsC	A	Grid current phase L3
GridMs.PhV.phsA	V	Grid voltage phase L1
GridMs.PhV.phsB	V	Grid voltage phase L2
GridMs.PhV.phsC	V	Grid voltage phase L3
GridMs.W.phsA	W	Effective power phase L1
GridMs.W.phsB	W	Effective power phase L2
GridMs.W.phsC	W	Effective power phase L3

Measured value	Unit	Description
Inv.TmpLimStt	see "Inverter.TmpLimStt"	
Inverter.TmpLimStt	Power reduction because of too high temperature • None: temperature derating invalid • At: temperature derating effective	
Iso.FltA	see "isolation.FltA"	
Isolation.FltA	mA	Leakage current of the PV system (inverter and PV generator)
Isolation.LeakRis	kOhmkOhm	Insulation resistance of the PV system before the grid connection
Metering.DykWh	kWh	Daily yield counter
Metering.TotkWh	kWh	Total amount of feed-in energy
Metering.TotOpTmh	h	Total number of grid-feeding operational hours
Metering.TotTmh	h	Total hours of operation
Mt.TotOpTmh	see "Metering.TotOpTmh"	
Mt.TotTmh	see "Metering.TotTmh"	
Nameplate.SerNum	–	Serial number
Op.Dsc	see "Operation.Dsc"	
Op.EvtCntIstl	see "Operation.EvtCntIstl"	
Op.EvtCntusr	see "Operation.EvtCntUsr"	
Op.EvtNo	see "Operation.EvtNo"	
Op.GriSwCnt	see "Operation.GriSwCnt"	
Op.GriSwStt	see "Operation.GriSwStt"	
Op.Health	see "Operation.Health"	
Op.Msg	see "Operation.Msg"	
Op.Prio	see "Operation.Prio"	
Op.TmsRmg	see "Operation.TmsRmg"	
Operation.Dsc	Action guidelines for troubleshooting	
Operation.EvtCntIstl	–	Counter for events relevant to the installer
Operation.EvtCntUsr	–	Counter for events relevant to the operator
Operation.EvtNo	–	Number of the current event

Measured value	Unit	Description
Operation.GriSwCnt	–	Counter for grid connections
Operation.GriSwStt	State of the grid relay • Opn (grid relay open) • Cls (grid relay closed)	
Operation.Health	Current diagnosis state of the inverter	
Operation.Msg	Messages on the state of the inverter	
Operation.Prio	–	Notify the installer (wrench icon) or the SMA Service Line (telephone icon)
Operation.TmsRmg	s	Waiting time after an error event until the next connection attempt
Pac	see "GridMs.TotW"	
Riso	see "Isolation.LeakRis"	
Serial Number	see "Nameplate.SerNum"	

3 Operating Parameters

The different operating parameters control the functionality of the Sunny Boy. They can only be viewed and changed via a communication device or communication software. Some parameters can only be seen and changed by an installer (gray parameters). The so-called "installer password" is required for this.

Parameters designated with * are safety-related grid monitoring parameters. Entering your grid guard password is required to adjust grid guard parameters. Call the SMA Service Line to receive your personal grid guard password.

DANGER!

Danger to life through changing the internal safety specifications of the Sunny Mini Central!

Unauthorized changes to the grid guard parameters voids the operation permission.

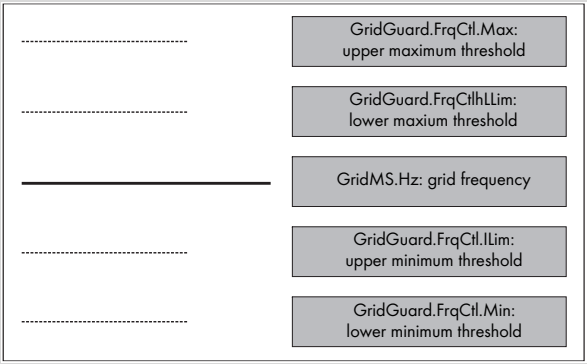
- Grid guard parameters may only be changed with the express authorization of the grid operator.

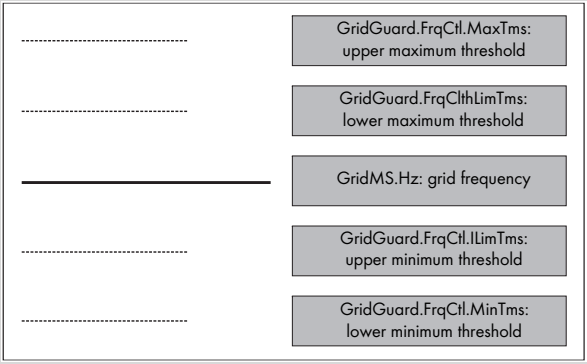
Parameters	Description
A.Const.VSet	see "DcDcConv[0].ConstVolCtl.VSet"
A.StrTms	see "DcDcConv[0].StrTms"
A.VStr	see "DcDcConv[0].VStr"
Aid.AngFact*	see "GridGuard.Aid.AngFact"
AMaxOfs*	see "GridGuard.AMaxOfs"
AMaxOfsTms*	see "GridGuard.AMaxOfsTms"
B.Const.VSet	see "DcDcConv[1].ConstVolCtlVSet"
B.StrTms	see "DcDcConv[1].StrTms"
B.VStr	see "DcDcConv[1].VStr"
BtPwr*	see "GridGuard.BtPwr"
CntrySet*	see "GridGuard.CntrySet"
ComRev	see "Nameplate.ComRev"
CoolSys.FanTst	By setting the parameter to "On", you can check the function of the fan. More detailed information can be found in the Sunny Boy installation guide. On: fan test on Off: fan test off

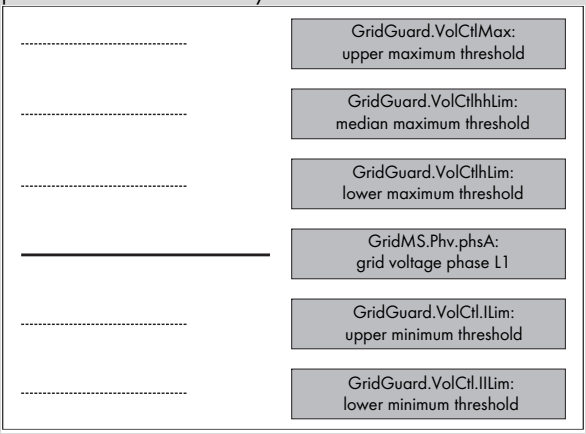
Parameters	Description
DcDcConv[0].StrTms	Input A start delay Delay time prior to a grid connection after reaching the start-up voltage (DcDcConv[0].VStr).
DcDcConv[0].VStr	Input A start-up voltage The start-up voltage required before the inverter begins feeding power into the grid. A value that is set too low can lead to increased grid connections and because of that to increased wear.
DcDcConv[0].ConstVolCtl .VSet	Nominal value input A for the constant voltage operation. This parameter is active in the operating mode "constant voltage" (setting of the parameter "Operation.OpModSet" to "VolDCConst").
DcDcConv[1].StrTms	Input B start delay Delay time prior to a grid connection after reaching the start-up voltage (DcDcConv[1].VStr).
DcDcConv[1].VStr	Input B start-up voltage The start-up voltage required before the inverter begins feeding power into the grid. A value that is set too low can lead to increased grid connections and because of that to increased wear.
DcDcConv[1].ConstVolCtl.VSet	Nominal value input B for the constant voltage operation. This parameter is active in the operation mode "constant voltage" (setting of the parameter "Operation.OpModSet" to VolDCConst").
FrqCtl.hLim*	see "GridGuard.FrqCtl.hLim"
FrqCtl.hLimTms*	see "gridGuard.FrqCtl.hLimTms"
FrqCtl.lLim*	see "GridGuard.FrqCtl.lLim"
FrqCtl.lLimTms*	see "GridGuard.FrqCtl.lLimTms"
FrqCtl.Max*	see "GridGuard.FrqCtl.Max"
FrqCtl.MaxTms*	see "GridGuard.FrqCtl.MaxTms"
FrqCtl.Min.*	see "GridGuard.FrqCtl.Min"
FrqCtl.MinTms*	see "GridGuard.FrqCtl.MinTms"

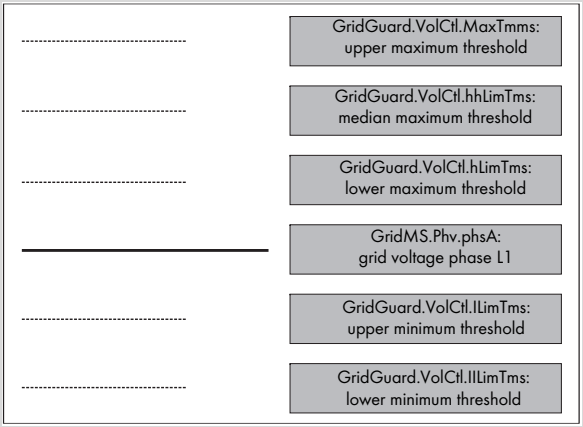
Parameters	Description
GridGruad.AMaxOfs*	Triggering threshold DC current monitoring This parameter sets the triggering threshold of the DC current monitoring. This parameter may only be changed after prior agreement with the SMA Service Line. You can restore the desired norm setting via the parameter "GridGuard.CntrySet."
GridGuard.AMaxOfsTms*	Triggering time DC current monitoring This parameter sets the norm cutoff time of the DC current monitoring This parameter can only be changed after prior agreement with the SMA Service Line. You can restore the desired norm setting via the parameter "GridGuard.CntrySet."
GridGuard.BtPwr*	Bluetooth transmission power Parameter for the setting of the Bluetooth transmission power. This parameter may only be changed after prior agreement with the SMA Service Line. You can restore the desired norm setting via the parameter "GridGuard.CntrySet."
GridGuard.CntrySet*	Parameter for setting the country-specific norm. • None (no setting) • VDE0126-1-1 (Germany, Switzerland) • VDE0126-1-1 A (special setting Germany, parameter "GridGuard.VolCtl.Rpro" = 244 V instead of 253 V) • VDE0126-1-1 B (special setting France, Bluetooth transmission power reduced according to French specifications) • DK5940E2.2 (Italy) • RD1663 (Spain) • PPC (Greece) • C10/11 (Belgium) • EN50438 (Luxembourg) • ED50438-CZ (Czech Republic) • AS4777.3 (Australia) • G83/1 (England) • KEPCO guide (South Korea) • OFF grid (setting for inverter in the island grid)

Parameters	Description
GridGuard.GnFltMonTms*	Grid observation time grid fault Parameter for setting the grid observation time for grid faults. You can restore the desired norm setting via the parameter "GridGuard.CntrySet."
GridGuard.GriFltReConTms*	Grid observation time brief grid fault Parameter for setting the grid observation time for temporary grid faults. The duration of the short grid fault is determined with the parameter "GridGuard.GriFltTms." You can restore the desired norm setting via the parameter GridGuard.CntrySet.
GridGuard.GriFltTms*	Duration of temporary grid faults. The parameter defines the duration of a temporary grid fault. You can restore the desired norm setting via the parameter "GridGuard.CntrySet."
GridGuard.GriStrTms*	Grid observation time restart Parameter for setting the grid observation time during a restart of the inverter. The duration of the short grid fault is determined with the parameter "GridGuard.GriFltTms." You can restore the desired norm setting via the parameter "GridGuard.CntrySet."
GridGuard.PEOpnMon	Parameter for activating PE connector monitoring. • on • off
GridGuard.AidAngFact*	Stand-alone grid connection escalation factor Parameter for activating the stand-alone grid connection This parameter may only be changed after prior agreement with the SMA Service Line. You can restore the desired norm setting via the parameter "GridGuard.CntrySet."

Parameters	Description
	Parameter for triggering thresholds of the frequency monitoring of the inverter. You can restore the desired norm setting with the parameter "GridGuard.CntrySet." 
GridGuard.FrqCtl.Max*	Frequency monitoring of upper maximum threshold: The inverter turns off after exceeding this threshold.
GridGuard.FrqCtl.hLim*	Frequency monitoring of lower maximum threshold: The inverter turns off after exceeding this threshold.
GridGuard.FrqCtl.lLim*	Frequency monitoring of upper minimum threshold: The inverter turns off after falling below this threshold.
GridGuard.FrqCtl.Min*	Frequency monitoring of lower minimum threshold: The inverter turns off after falling below this threshold.

Parameters	Description
	Parameter for the triggering times of the associated triggering thresholds of the frequency monitoring of the inverter. You can restore the desired norm setting with the parameter "GridGuard.CntrySet." 
GridGuard.FrqCtl.MaxTms*	Triggering time for upper maximum threshold After exceeding the associated threshold, the inverter turns off after this triggering time.
GridGuard.FrqCtl.hLimTms*	Triggering time for lower maximum threshold: After exceeding the associated threshold, the inverter turns off after this triggering time.
GridGuard.FrqCtl.lLimTms*	Triggering time for upper minimum threshold: After falling below the associated threshold, the inverter turns off after this triggering time.
GridGuard.FrqCtl.MinTms*	Triggering time for lower minimum threshold: After falling below the associated threshold, the inverter turns off after this triggering time.

Parameters	Description
	Parameter for the triggering thresholds of the voltage monitoring of the inverter. You can restore the desired norm setting with the parameter "GridGuard.CntrySet." 
GridGuard.VolCtl.Max*	Voltage monitoring of upper maximum threshold: The inverter turns off after exceeding this threshold.
GridGuard.VolCtl.hhLim*	Voltage monitoring of median maximum threshold: The inverter turns off after exceeding this threshold.
GridGuard.VolCtl.hLim*	Voltage monitoring of lower maximum threshold: The inverter turns off after exceeding this threshold.
GridGuard.VolCtl.lLim*	Voltage monitoring of upper minimum threshold: The inverter turns off after falling below this threshold.
GridGuard.VolCtl.llLim*	Voltage monitoring of lower minimum threshold: The inverter turns off after falling below this threshold.

Parameters	Description
	Parameter for the triggering times of the associated triggering thresholds of the voltage monitoring of the inverter. You can restore the desired norm setting with the parameter "GridGuard.CntrySet." 
GridGuard.VolCtl.MaxTmms*	Triggering time for upper maximum threshold: After exceeding the associated threshold, the inverter turns off after this triggering time.
GridGuard.VolCtl.hhLimTms*	Triggering time for median maximum threshold: After exceeding the associated threshold, the inverter turns off after this triggering time.
GridGuard.VolCtl.hLimTms*	Triggering time for lower maximum threshold: After exceeding the associated threshold, the inverter turns off after this triggering time.
GridGuard.VolCtl.lLimTms*	Triggering time for upper minimum threshold: After falling below the associated threshold, the inverter turns off after this triggering time.
GridGuard.VolCtl.llLimTms*	Triggering time for lower minimum threshold: After falling below the associated threshold, the inverter turns off after this triggering time.

Parameters	Description
GridGuard.VolCtl.Rpro*	Parameter for setting the 10-minute average for the voltage increase protection (only relevant for Germany). Inverters can feed up to 260 V AC into the public grid in Germany. However, DIN VDE 0126-1-1 stipulates that the average AC voltage over 10 minutes must not exceed 253 V. If the 10-minute average exceeds the threshold value of 253 V, the inverter disconnects itself from the grid. Once the average over 10 minutes returns to a value of less than 253 V, the inverter returns to feeding operation.
GnFltMonTms*	see "GridGuard.GriFltMonTms"
GriFltReConTms*	see "GridGuard.GriFltReConTms"
GriFltTms*	see "GridGuard.GriFltTms"
GriStrTms*	see "GridGuard.GriStrTms"
Inv.OutPhsSet	see "Inverter.OutPhsSet"
Inv.OutWModSet	see "Inverter.OutWModSet"
Inv.StopTms	see "Inverter.StopTms"
Inverter.OutPhsSet	Parameter for identification of the connected feeding phase. The set phase is also shown in the display. • PhsA (feeding phase L1) • PhsB (feeding phase L2) • PhsC (feeding phase L3)
Inverter.OutWLim	This parameter displays the upper limit of the AC output power.
Inverter.OutWMax	Setting of the AC power limit of the inverter
Inverter.OutWModSet	Setting of the power limit type. The default is determined through the selected norm and power class. • Lim10m (10 min. average limit) • LimFst (spot value limit)
Inverter.StopTms	Disconnection delay This parameter determines the time that the inverter waits before it disconnects itself from the grid if the feeding conditions are no longer given.

Parameters	Description
Inverter.OffGri.HzdLim	Frequency power curve endpoint Setting of the frequency-dependent power reduction in the parameter "CntrySet" (country configuration "OFF-Grid") You can set the endpoint of the frequency power curve with this parameter.
Inverter.OffGri.HzdStr	Frequency power curve start point Setting of the frequency-dependent power reduction in the parameter "CntrySet" (country configuration "OFF-Grid"). You can set the start point of the frequency power curve with this parameter.
Iso.LeakRisMin	see "Isolation LeakRisMin"
Isolation.LeakRisMin	Insulation resistance lower triggering threshold Setting the threshold value of the insulation monitoring. You can restore the desired norm setting via the parameter "GridGuard.CntrySet."
Metering.TotkWhSet	Total energy specification Setting of the total energy yield ("Metering.TotkWh" measured value) of the inverter. A change may be necessary if you exchange your Sunny Boy and you would like to take over the yields of the old device.
Metering.TotOpTmhSet	Feed-in time specification Setting of the feed-in time (measured value "Metering.TotOpTmh") of the inverter. A change may be necessary if you exchange your Sunny Boy and you would like to take over the feed-in time of the old device.
Metering.TotTmhSet	Operating time specification Setting of the operating time (measuring value Metering.TotTmh) of the inverter. A change may be necessary if you exchange your Sunny Boy and you would like to take over the operating time of the old device.
Model	see "Nameplate.Model"
Mt.TotkWhSet	see "Metering.TotkWhSet"
Mt.TotOpTmhSet	see "Metering.TotOpTmhSet"
Mt.TotTmhSet	see "Metering.TotTmhSet"
Nameplate.ComRev	Channel list version (not changeable)

Parameters	Description
Nameplate.Location	Input of a freely selectable inverter identifier.
Nameplate.Mainmodel	Display of the inverter device family (e.g., Sunny Boy).
Nameplate.Model	Display of the inverter device type e.g. SB 5000TL-20)
Nameplate.SerNumSet	Display of the inverter serial number.
Nameplate.Vendor	Display of the inverter manufacturer.
OffGri.HzdLim	see "Inverter.OffGri.HzdLim"
OffGri.HzdStr	see "Inverter.OffGri.HzdStr"
Op.OpModSet	see "Operation.OpModSet"
Op.StoFncSet	see "Operation.StoFncSet"
Operation.OpModSet	Select desired operating mode: • MPP • VolDCConst • Stp
Operation.StoFncSet	Set operating counter (yield + operational hours) or default settings of the operating parameter that are not protected with the inst. code back to the delivery state. • NoFnc (standard entry if nothing is set or if the started function is locked) • DfltParaLod (loading of the default settings other than the grid guard parameter) • RsOpDat (resetting the total operation data) • RsPermStoOp
PEOpnMon	see "GridGuard.PEOpnMon"
Plimit	see "Inverter.OutWLim"
Pmax	see "Inverter.OutWMax"
SerNumSet	see "Nameplate.SerNumSet"
SY_Systemzeit	see "Sys.UnixTmSet"
Sys.UnixTmSet	Set the time of the inverter

Parameters	Description
VolCtl.hhLim*	see "GridGuard.VolCtl.hhLim"
VolCtl.hhLimTms*	see "GridGuard.VolCtl.hhLimTms"
VolCtl.hLim*	see "GridGuard.VolCtl.hLim"
VolCtl.hLimTms*	see "GridGuard.VolCtl.hLimTms"
VolCtl.lLim*	see "GridGuard.VolCtl.lLim"
VolCtl.lLimTms*	see "GridGuard.VolCtl.lLimTms"
VolCtl.llLim*	see "GridGuard.VolCtl.llLim"
VolCtl.llLimTms*	see "GridGuard.VolCtl.llLimTms"
VolCtl.Max*	see "GridGuard.VolCtl.Max"
VolCtl.MaxTmms*	see "GridGuard.VolCtl.MaxTmms"
VolCtl.Rpro*	see "GridGuard.VolCtl.Rpro"

4 Default Parameter Settings

4.1 Germany

Parameter	Unit	Value range	Factory setting		
			SB 3000TL-20	SB 4000TL-20	SB 5000TL-20
A.Const.VSet	see "DcDcConv[0].ConstVolCtl.VSet"				
A.StrTms	see "DcDcConv[0].StrTms"				
A.VStr	see "DcDcConv[0].VStr"				
Aid.AngFact*	see "GridGuard.Aid.AngFact"				
AMaxOfs*	see "GridGuard.AMaxOfs"				
AMaxOfsTms*	see "GridGuard.AMaxOfsTms"				
B.Const.VSet	see "DcDcConv[1].ConstVolCtl VSet"				
B.StrTms	see "DcDcConv[1].StrTms"				
B.VStr	see "DcDcConv[1].VStr"				
BtPwr*	siehe "GridGuard.BtPwr*				
Cntry	see "GridGuard.Cntry"				
CntrySet*	see "GridGuard.CntrySet"				
ComRev	see "Nameplate.ComRev"				
CoolSys.FanTst	–	Off On	Off		
CoolSys.FanTst	see "CoolSys.FanTst"				
DcDcConv[0].StrTms	s	0.1 ... 4	1		
DcDcConv[0].VStr	V	125 ... 550	150		
DcDcConv[0].ConstVolCtl.VSet	V	125 ... 550	550		
DcDcConv[1].StrTms	s	0.1 ... 4	1		
DcDcConv[1].VStr	V	125 ... 550	150		
DcDcConv[1].ConstVolCtl.VSet	V	125 ... 550	550		
FrqCtl.hLim*	see "GridGuard.FrqCtl.hLim"				
FrqCtl.hLimTms*	see "GridGuard.FrqCtl.hLimTms"				
FrqCtl.lLim*	see "GridGuard.FrqCtl.lLim"				
FrqCtl.lLimTms*	see "GridGuard.FrqCtl.lLimTms"				
FrqCtl.Max*	see "GridGuard.FrqCtl.Max"				
FrqCtl.MaxTms*	see "GridGuard.FrqCtl.MaxTms"				
FrqCtl.Min.*	see "GridGuard.FrqCtl.Min"				
FrqCtl.MinTms*	see "GridGuard.FrqCtl.MinTms"				

Parameter	Unit	Value range	Factory setting		
			SB 3000TL-20	SB 4000TL-20	SB 5000TL-20
GridGruad.AMaxOfs*	A	0.02 ... 5	1		
GridGuard.AMaxOfsTms*	s	0.1 ... 10	0.2		
GridGuard.BtPwr*	dBm	1 ... 20	16		
GridGuard.Cntry	–	None Adj VDE0126-1-1 VDE0126-1-1 A VDE0126-1-1 B G 83/1 AS4777.3 RD1663 DK5940E2.2 Kepco guide PPC Off grid EN 50438 EN50438-CZ C10/11	VDE0126-1-1		
GridGuard.CntrySet*	–	None VDE0126-1-1 VDE0126-1-1 A VDE0126-1-1 B G 83/1 AS4777.3 RD1663 DK5940E2.2 Kepco guide PPC OFF-Grid EN50438 EN50438-CZ C10/11	None		
GridGuard.GnFltMonTms*	s	0 ... 400	30		
GridGuard.GriFltReConTms*	s	0 ... 400	5		
GridGuard.GriFltTms*	s	0 ... 400	3		
GridGuard.GriStrTms*	s	0 ... 400	30		
GridGuard.PEOpnMon	–	off on	on		
GridGuard.Aid.AngFact*	–	0 ... 40	12		
GridGuard.FrqCtl.hLim*	Hz	50 ... 65	50.2		
GridGuard.FrqCtl.hLimTms*	s	0.1 ... 10	0.2		

Parameter	Unit	Value range	Factory setting		
			SB 3000TL-20	SB 4000TL-20	SB 5000TL-20
GridGuard.FrqCtl.lLim*	Hz	45 ... 60	47.5		
GridGuard.FrqCtl.lLimTms*	s	0.1 ... 10	0.2		
GridGuard.FrqCtl.Max*	Hz	50 ... 65	51		
GridGuard.FrqCtl.MaxTms*	s	0.1 ... 10	10		
GridGuard.FrqCtl.Min*	Hz	45 ... 60	45		
GridGuard.FrqCtl.MinTms*	s	0.1 ... 10	10		
GridGuard.VolCtl.hhLim*	G	230 ... 280	280		
GridGuard.VolCtl.hhLimTms*	s	0.1 ... 10	10		
GridGuard.VolCtl.hLim*	G	230 ... 280	264.5		
GridGuard.VolCtl.hLimTms*	s	0.1 ... 10	0.2		
GridGuard.VolCtl.lLim*	Hz	100 ... 230	184		
GridGuard.VolCtl.lLimTms*	s	0.1 ... 10	0.2		
GridGuard.VolCtl.llLim*	G	100 ... 230	100		
GridGuard.VolCtl.llLimTms*	s	0.1 ... 10	10		
GridGuard.VolCtl.Max*	V	300 ... 420	400		
GridGuard.VolCtl.MaxTmms*	ms	0.1 ... 5	0.312		
GridGuard.VolCtl.Rpro*	G	230 ... 280	253		
GnFltMonTms*	see "GridGuard.GriFltMonTms"				
GriFltReConTms*	see GridGuard.GriFltReConTms"				
GriFltTms*	see "GridGuard.GriFltTms"				
GriStrTms*	see "GridGuard.GriStrTms"				
Inv.OutPhsSet	see "Inverter.OutPhsSet"				
Inv.OutWModSet	see "Inverter.OutWModSet"				
Inv.StopTms	see "Inverter.StopTms"				
Inv.TmpLimStt	see "Inverter.TmpLimStt"				
Inverter.OutPhsSet	–	PhsA PhsB PhsC		PhsA	
Inverter.OutWLim	W	4000 ... 4000 5000 ... 5000	3000	4000	5000
Inverter.OutWMax	W	0 ... 4060 / 0 ... 5060	3000	4000	5000
Inverter.OutWModSet	–	Lim10m LimFst	LimFst	LimFst	Lim10m
Inverter.StopTms	s	1 ... 3600	2		

Parameter	Unit	Value range	Factory setting		
			SB 3000TL-20	SB 4000TL-20	SB 5000TL-20
Inverter.TmpLimStt	–	None At	–		
Inverter.OffGri.HzdLim	Hz	0 ... 5	2		
Inverter.OffGri.HzdStr	Hz	0 ... 5	1		
Iso.LeakRisMin	see "Isolation.LeakRisMin"				
Isolation.LeakRisMin	kOhm	500 ... 5000	1000		
Metering.TotkWhSet	kWh	0 ... 4294967	0		
Metering.TotOpTmhSet	h	0 ... 1193046	0		
Metering.TotTmhSet	h	0 ... 1193046	0		
Model	see "Nameplate.Model"				
Mt.TotkWhSet	see "Metering.TotkWhSet"				
Mt.TotOpTmhSet	see "Metering.TotOpTmhSet"				
Mt.TotTmhSet	see "Metering.TotTmhSet"				
Nameplate.ComRev	–	0 ... 4294967295	xxx...		
Nameplate.Location	–	1 ... 30	SN: xxx... (serial number)		
Nameplate.Mainmodel	–	1 ... 16	Sunny Boy		
Nameplate.Model	–	SB 3000TL-20 SB 4000TL-20 SB 5000TL-20	SB 3000TL-20	SB 4000TL-20	SB 5000TL-20
Nameplate.SerNumSet	–	0 ... 4294967295	xxx...		
Nameplate.Vendor	–	1 ... 24	SMA Solar Technology AG		
OffGri.HzdLim	see "Inverter.OffGri.HzdLim"				
OffGri.HzdStr	see "Inverter.OffGri.HzdStr"				
Op.OpModSet	see "Operation.OpModSet"				
Op.StoFncSet	see "Operation.StoFncSet'				
Operation.OpModSet	–	MPP VolDCConst Stp	MPP		
Operation.StoFncSet	–	NoFnc DfltParaLod RsOpDat RsPermStoOp	NoFnc		
PEOpnMon	see "GridGuard.PEOpnMon"				
Plimit	see "Inverter.OutWLim"				
Pmax	see "Inverter.OutWMax"				

Parameter	Unit	Value range	Factory setting		
			SB 3000TL-20	SB 4000TL-20	SB 5000TL-20
SerNumSet	see "Nameplate.SerNumSet"				
SY_Systemzeit	see "Sys.UnixTmSet"				
Sys.UnixTmSet	–	0 ... 4294967295	xxx...		
VolCtl.hhLim	see "GridGuard.VolCtl.hhLim"				
VolCtl.hhLimTms	see "GridGuard.VolCtl.hhLimTms"				
VolCtl.hLim	see "GridGuard.VolCtl.hLim"				
VolCtl.hLimTms	see "GridGuard.VolCtl.hLimTms"				
VolCtl.lLim	see "GridGuard.VolCtl.lLim"				
VolCtl.lLimTms	see "GridGuard.VolCtl.lLimTms"				
VolCtl.llLim	see "GridGuard.VolCtl.llLim"				
VolCtl.llLimTms	see "GridGuard.VolCtl.llLimTms"				
VolCtl.Max	see "GridGuard.VolCtl.Max"				
VolCtl.MaxTmms	see "GridGuard.VolCtl.MaxTmms"				
VolCtl.Rpro	see "GridGuard.VolCtl.Rpro"				

4.2 Country-specific Parameters

Parameter	Unit	Setting												
Cntry(Set)*/ GridGuard Cntry(Set)*	–	VDE0126-1-1	VDE0126-1-1 A	VDE0126-1-1 B	G 83/1	RD1663	AS4777.3	DK5940E2.2	Kepco guide	PPC	OFF-Grid	EN50438	EN50438-CZ	C10/11
Aid.AngFact*	see "GridGuard.Aid.AngFact"													
AMaxOfs*	see "GridGuard.AMaxOfs"													
AMaxOfsTms*	see "GridGuard.AMaxOfsTms"													
BtPwr*	siehe "GridGuard.BtPwr*													
FrqCtl.hLim*	see "GridGuard.FrqCtl.hLim"													
FrqCtl. hLimTmms*	see "GridGuard.FrqCtl.hLimTmms"													
FrqCtl.lLim*	see "GridGuard.FrqCtl.lLim"													
FrqCtl. lLimTmms*	see "GridGuard.FrqCtl.lLimTmms"													
FrqCtl.Max*	see "GridGuard.FrqCtl.Max"													
FrqCtl. MaxTmms*	see "GridGuard.FrqCtl.MaxTmms"													
FrqCtl.Min.*	see "GridGuard.FrqCtl.Min"													
FrqCtl. MinTmms*	see "GridGuard.FrqCtl.MinTmms"													
GridGuard. AMaxOfs*	A	1	1	1	0.02	*5*	SB3000TL-20: 0.08 SB4000TL-20: 0.09 SB5000TL-20: 0.10				*5*	1	1	1
GridGuard. AMaxOfsTms*	s	0.2	0.2	0.2	*5*	10	2	0.1	2	0.5	10	0.2	0.2	0.2
GridGuard. BtPwr*	dBm	16	16	8	16	16	16	8	16	16	16	16	16	16
GridGuard. GriFltMonTms*	s	30	30	30	180	0	60	0	300	180	0	20	20	30
GridGuard.GriFlt ReConTms*	s	*5*	*5*	*5*	180	0	60	0	300	180	0	20	20	30
GridGuard. GriFltTms*	s	3												
GridGuard. GriStrTms*	s	30	30	30	0	0	60	0	0	0	0	20	20	30
GridGuard.Aid AngFact	–	12	12	12	12	0	12	0	12	12	0	0	0	12
GridGuard. FrqCtlhLim*	Hz	50.2	50.2	50.2	50.5	51	55	50.3	60.3	50.5	54.5	51	50.5	50.2

Parameter	Unit	Setting												
Cntry(Set)*/ GridGuard Cntry(Set)*	–	VDE0126-1-1	VDE0126-1-1 A	VDE0126-1-1 B	G 83/1	RD1663	AS4777.3	DK5940E2.2	Kepco guide	PPC	OFF-Grid	EN50438	EN50438-CZ	C10/11
GridGuard. FrqCtl. hLimTms*	s	0.2	0.2	0.2	5	0.5	2	0.1	2	0.5	0.2	0.5	0.2	0.2
GridGuard. FrqCtl.lLim*	Hz	47.5	47.5	47.5	47	49	45	49.7	59.7	49.5	45	47	49.5	47.5
GridGuard. FrqCtl. lLimTms*	s	0.2	0.2	0.2	5	0.5	2	0.1	2	0.5	2	0.5	0.2	0.2
GridGuard. FrqCtl.Max*	Hz	51	51	51	51	55	55	50.3	62	55	55	51	51	51
GridGuard. FrqCtl. MaxTms*	s	10	10	10	10	10	10	0.1	0.25	10	10	10	10	10
GridGuard. FrqCtl.Min*	Hz	45	45	45	45	45	45	49.7	58	45	45	45	45	45
GridGuard. FrqCtl. MinTms*	s	10	10	10	3	10	1.5	0.1	0.25	10	10	10	10	10
GridGuard. VolCtl.hhLim*	V	280	280	280	280	280	280	280	264	280	280	280	280	280
GridGuard. VolCtl. hhLimTms*	s	10	10	10	10	10	10	10	0.16	10	10	10	10	10
GridGuard. VolCtl.hLim*	V	264.5	264.5	264.5	264	253	270	276	242	264.5	264.5	264.5	264.5	253
GridGuard. VolCtl.hLimTms*	s	0.2	0.2	0.2	5	0.5	2	0.1	2	0.5	0.2	0.2	0.2	0.2
GridGuard. VolCtl.lLim*	V	184	184	184	207	195.5	200	184	193.6	184	180	195.5	195.5	184
GridGuard. VolCtl. lLimTms*	s	0.2	0.2	0.2	5	10	10	10	0.16	10	10	1.5	0.2	0.2
GridGuard. VolCtl.llLim*	V	100												
GridGuard. VolCtl. llLimTms*	s	10	10	10	10	10	10	10	0.16	10	10	10	10	10
GridGuard. VolCtl.Max*	V	400												

Parameter	Unit	Setting												
Cntry(Set)*/ GridGuard Cntry(Set)*	–	VDE0126-1-1	VDE0126-1-1 A	VDE0126-1-1 B	G 83/1	RD1663	AS4777.3	DK5940E2.2	Kepco guide	PPC	OFF-Grid	EN50438	EN50438-CZ	C10/11
GridGuard. VolCtl. MaxTmms*	ms	0.312												
GridGuard. VolCtl.Rpro*	V	253	244	253	280	280	280	280	280	253	280	253	253	280
GnFltMonTms*	see "GridGuard.GriFltMonTms"													
GriFltReConTms*	see "GridGuard.GriFltReConTms"													
GriFltTms*	see "GridGuard.GriFltTms"													
GriStrTms*	see "GridGuard.GriStrTms"													
Inv. OutWModSet	see "Inverter.OutWModSet"													
Inverter. OutWModSet	–	SB3000TL-20: LimFst SB4000TL-20: LimFst SB5000TL-20: Lim10m												
Iso.LeakRisMin	see "Isolation.LeakRisMin"													
Insulation LeakRisMin	kOhm	1000												
VolCtl.hhLim	see "GridGuard.VolCtl.hhLim"													
VolCtl. hhLimTms	see "GridGuard.VolCtl.hhLimTms"													
VolCtl.hLim	see "GridGuard.VolCtl.hLim"													
VolCtl. hLimTms	see "GridGuard.VolCtl.hLimTms"													
VolCtl.lLim	see "GridGuard.VolCtl.lLim"													
VolCtl. lLimTms	see "GridGuard.VolCtl.lLimTms"													
VolCtl.llLim	see "GridGuard.VolCtl.llLim"													
VolCtl. llLimTms	see "GridGuard.VolCtl.llLimTms"													
VolCtl.Max	see "GridGuard.VolCtl.Max"													
VolCtl. MaxTmms	see "GridGuard.VolCtl.MaxTmms"													
VolCtl.Rpro	see "GridGuard.VolCtl.Rpro"													

5 Contact

If you have technical problems concerning our products, please contact the SMA Service Line. We require the following information in order to provide you with the necessary assistance:

- Inverter type
- Serial number of the Sunny Boy
- Type and number of modules connected
- Event number or display message of the Sunny Boy
- Type of communication, if applicable
- Type of fault signaling contact connected, if applicable

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