Device for Power Control in PV Plants

POWER REDUCER BOX

Checklist for Commissioning

This checklist is intended for your support when commissioning the Power Reducer Box, from firmware version 1.7.0, in a local network. The checklist is no substitute for the user manual of the Power Reducer Box.

Go through the checklist point by point and tick off as completed. In the "Remarks" area, you can add notes.

PV plant: _____

No.	Work Step	Status	Remarks
1. Requirements			
1.1	The Sunny WebBox device(s) is/are connected to the Ethernet network and integrated in the network via static IP addresses. DHCP must be deactivated in the Sunny WebBox devices.	☐	
1.2	The firmware of the Sunny WebBox devices to be controlled has been updated to the latest version: • Sunny WebBox to firmware version 1.45 or higher • Sunny WebBox with *Bluetooth*® Wireless Technology to firmware version 1.04 or higher	☐	
1.3	There must be a connection between the Sunny WebBox/Sunny WebBox with *Bluetooth* and the inverters, and the inverters must be displayed with status "OK" ( ) on the user interface of the Sunny WebBox/Sunny WebBox with *Bluetooth* (see user manual of the Sunny WebBox or Sunny WebBox with *Bluetooth*).	☐	
1.4	In the Sunny WebBox with *Bluetooth*, the parameters for grid management are configured (see user manual of Sunny WebBox with *Bluetooth*).	☐	
1.5	In the inverters, the parameters for grid management are configured (see installation manual of the inverter).	☐	

No.	Work Step	Status	Remarks
2. Commissioning the Power Reducer Box			
2.1	The Power Reducer Box is connected to the ripple control receiver (see user manual of the Power Reducer Box). INFORMATION: grey: +5 V (connect to all relays) white: K1, brown: K2, green: K3, yellow: K4 If no ripple control receiver has yet been installed, simply connect the cable to the Power Reducer Box.	☐	
2.2	The computer is connected to the Power Reducer Box via the blue network cable (Ethernet crossover cable). INFORMATION: Make a note of the existing network settings of your computer in order to be able to reset the computer after configuration of the Power Reducer Box. Make the following network settings on your computer: Enter an IP address located in the same subnet as the IP address of the Power Reducer Box, e.g. "192.168.0.190". By default, the Power Reducer Box is set to the IP address "192.168.0.200". Enter the subnet mask "255.255.255.0".	☐	
2.3	The Power Reducer Box is switched on and the wiring of the ripple control receiver has been checked on the user interface under "Status". INFORMATION: To check the status, manually actuate the relays K1 to K4 on the ripple control receiver, and check whether each relay is displayed in "Status of the input ports". If no ripple control receiver has yet been installed, connect the white, brown, green and yellow wires one after another to the grey wire. This will simulate the relays of the ripple control receiver.	☐	

No.	Work Step	Status	Remarks
2.4	The network settings of the Power Reducer Box are adjusted to the network settings of the local Ethernet network (see user manual of the Power Reducer Box). INFORMATION: After configuration you will need to log into the Power Reducer Box again. Reset your computer to the default settings which were set prior to configuration of the Power Reducer Box. You can access your computer again via the local network.	☐	
2.5	The Power Reducer Box is connected to the local Ethernet network (e.g., to a switch, hub or router) via the red network cable (patch cable).	☐	
2.6	The standard passwords for user (0000) and installer (1111) have been changed (see user manual of the Power Reducer Box).	☐	
2.7	Date and time are set or automatic time synchronisation with Sunny Portal is activated (see user manual of the Power Reducer Box). INFORMATION: For the automatic time synchronisation with Sunny Portal, there must be an Internet connection to the Power Reducer Box.	☐	
2.8	All system states are configured according to the power supply company specifications of the network operator (see user manual of the Power Reducer Box). INFORMATION: Standard configuration upon delivery: K1: Active power 0% K2: Active power 30% K3: Active power 60% K4: Active power 100%	☐	
2.9	The maximum change in case of power increase/ power decrease is configured according to the power supply company specifications of the network operator (see user manual of the Power Reducer Box). INFORMATION: Standard configuration upon delivery: Maximum change in case of power increase: 10% Maximum power in case of power decrease: 100%	☐	

No.	Work Step	Status	Remarks
2.10	The reference parameters Pmax and Plimit are configured (see user manual of the Power Reducer Box). All inverters connected to the Sunny WebBox support the set reference parameter (see the compatibility list supplied with the Power Reducer Box). INFORMATION: Standard configuration upon delivery: Plimit	☐	
2.11	The current active power is 100%. INFORMATION: If no ripple control receiver has yet been installed, connect the wires in such way that the active power is 100%. If the standard configuration is still operative, connect the yellow and grey wires to simulate relay "K4" (active power of 100%). If the standard configuration is no longer operative, connect the wire of the relay assigned with 100% active power to the grey wire.	☐	
2.12	All the Sunny WebBox devices to be controlled are registered in the Power Reducer Box and their communication status is "OK" (see user manual of the Power Reducer Box).	☐	
3. Performing the Functional Test			
3.1	The Power Reducer Box and the entire PV plant are in operation.	☐	
3.2	The implementation of power setpoints of the network operator has been verified. Check how high the actual power output of the inverters is when active power limitation is "active" and active power is at 0%. INFORMATION: At an active power limitation of 0%, the feed-in power of some string inverters cannot be decreased to 0 watts. Depending on the inverter type used and the inverter parameters set, the inverters may continue to feed in a low residual power.	☐	

No.	Work Step	Status	Remarks
3.3	Active power has again been increased to 100%. All inverters are again in full feed-in operation. INFORMATION: If no ripple control receiver has yet been installed, connect the wires in such way that the active power is 100%. If the standard configuration is still operative, connect the yellow and grey wires to simulate relay "K4" (active power of 100%). If the standard configuration is no longer operative, connect the wire of the relay assigned with 100% active power to the grey wire. It may take several minutes for the active power to increase from 0% to 100%. How long it takes depends on which value is entered in the field "Maximum change in case of power increase" in the context menu "Status configuration".	☐	
3.4	Carry out random checks on some of the registered Sunny WebBox devices to see if there are any Power Reducer Box entries in the event log. INFORMATION: Check whether there is any entry on current active power via the user interface of the respective Sunny WebBox.	☐	

Place, date _____

Signature installer: _____

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