

**Procedure:**

1. Select the configuration option **Manual Configuration**.
  - The **Device Parameters** menu on the user interface will open and all available parameter groups of the inverter will be displayed.
2. Click on [**Edit parameters**].
3. Select the desired parameter group.
  - All available parameters of the parameter group will be displayed.
4. Set the desired parameters.
5. Select [**Save all**].
  - The inverter parameters are set.

**Also see:**

- [Logging Into the User Interface](#) ⇒ page 45

## 8.8 SHP FLEX-US

### 8.8.1 Configuration SHP FLEX-US

#### **QUALIFIED PERSON**

The SHP FLEX-US can be flexibly adjusted in terms of power and AC voltage and current. As a result, the SHP FLEX-US can be optimized for repowering purposes and used variably.

After commissioning the SHP FLEX-US, the following parameters must be set so that the product can be used as a replacement for existing devices.

If the grid protection limits have already been configured using a country data set or beyond, this does not have to be done again. The product works with standardized values based on the respectively set nominal voltage or the set maximum current.

If the country data set is changed or set again after configuring the following parameters, the **Grid nominal voltage** parameter must be set again.

If required by the grid operator, there is the option of having the parameters for apparent and active power limitation locked by Service via remote access. To do this, a suitable connection with external access to the grid must exist. Further information is available from Service.

#### AC voltage

Name	Value to be set
<b>Inverter nominal voltage</b>	Nominal voltage (RMS, line conductor-line conductor) of the system
<b>Nominal grid voltage</b>	Nominal voltage (RMS, line conductor-line conductor) of the system

#### AC current

Name	Value to be set
<b>AC current limitation</b>	Maximum current of the AC output

**AC power**

Name	Value to be set
<b>Nominal apparent power VAMaxOut</b>	Maximum apparent power of the AC output
<b>Nominal active power WMaxOut</b>	Maximum active power of the AC output
<b>Nominal reactive power VArMaxQ1</b>	Maximum reactive power of the AC output
<b>Nominal reactive power VArMaxQ4</b>	Maximum reactive power of the AC output

**Further parameters**

Name	Value to be set
<b>Minimum voltage input</b>	PV voltage to start the feed-in operation. Formula: AC voltage x 1.55
<b>Critical voltage to end feed-in</b>	Minimum PV voltage to which the MPP tracker tracks down. Formula: AC voltage x 1.4
<b>Disconnection limit for leakage current</b>	Disconnection threshold for the leakage current. Formula: Set power in kW / 100
<b>Disconnection limit for the lagging component of the leakage current</b>	Disconnection threshold for the lagging component of the leakage current. Should be set to the same values as <b>Disconnection limit for leakage current</b>

**Also see:**

- [Changing parameters ⇒ page 51](#)

**8.8.2 Label for SHP FLEX-US configuration****⚠ QUALIFIED PERSON**

On the product next to the type label a label is attached on which the set values must be checked using the permanent marker supplied. It should be noted that each digit of a number must be checked exactly once.

The label with the information about the set values ensures that the grid operator can be certain that the product settings are correct and that a follow-up inspection by the certification authorities is no longer necessary.

**8.8.3 Example configuration SHP FLEX-US**

Here we show you an example configuration and the corresponding marking on the label next to the type label.

**Example configuration**

- AC voltage (parameter **Nominal system voltage**) is set to 315 V.
- Max. AC power (parameter **Nominal active power WMaxOut**) is set to 65 kW.
- Max. AC current (parameter **AC current limitation**) is set to 120 A.

AC-Voltage [V]		
0	<input type="checkbox"/>	0 <input type="checkbox"/>
1	<input checked="" type="checkbox"/>	1 <input type="checkbox"/>
2	<input type="checkbox"/>	2 <input type="checkbox"/>
3	<input checked="" type="checkbox"/>	3 <input type="checkbox"/>
4	<input type="checkbox"/>	4 <input type="checkbox"/>
5	<input type="checkbox"/>	5 <input checked="" type="checkbox"/>
6	<input type="checkbox"/>	6 <input type="checkbox"/>
7	<input type="checkbox"/>	7 <input type="checkbox"/>
8	<input type="checkbox"/>	8 <input type="checkbox"/>
9	<input type="checkbox"/>	9 <input type="checkbox"/>

  

Max. AC-Power [kW]		
0	<input checked="" type="checkbox"/>	0 <input type="checkbox"/>
1	<input type="checkbox"/>	1 <input type="checkbox"/>
2	<input type="checkbox"/>	2 <input type="checkbox"/>
3	<input type="checkbox"/>	3 <input type="checkbox"/>
4	<input type="checkbox"/>	4 <input type="checkbox"/>
5	<input type="checkbox"/>	5 <input checked="" type="checkbox"/>
6	<input checked="" type="checkbox"/>	6 <input type="checkbox"/>
7	<input type="checkbox"/>	7 <input type="checkbox"/>
8	<input type="checkbox"/>	8 <input type="checkbox"/>
9	<input type="checkbox"/>	9 <input type="checkbox"/>

  

Max. AC-Current [A]		
0	<input type="checkbox"/>	0 <input checked="" type="checkbox"/>
1	<input checked="" type="checkbox"/>	1 <input type="checkbox"/>
2	<input checked="" type="checkbox"/>	2 <input type="checkbox"/>
3	<input type="checkbox"/>	3 <input type="checkbox"/>
4	<input type="checkbox"/>	4 <input type="checkbox"/>
5	<input type="checkbox"/>	5 <input type="checkbox"/>
6	<input type="checkbox"/>	6 <input type="checkbox"/>
7	<input type="checkbox"/>	7 <input type="checkbox"/>
8	<input type="checkbox"/>	8 <input type="checkbox"/>
9	<input type="checkbox"/>	9 <input type="checkbox"/>

All settings are parametrized accordingly to the certified ranges on the type label

206472-00.01

Figure 11: Marking of the exemplary configuration on the label next to the type label

## 8.9 Adjustable parameters for voltage and frequency monitoring

### **⚠ QUALIFIED PERSON**

You can set the following parameters for voltage and frequency monitoring via the user interface of the inverter.

Name	Value/range	Default value
<b>Voltage monitoring upper maximum threshold</b>	1.5 p.u. to 3 p.u.	1.78 p.u.
<b>Voltage monitoring upper maximum threshold, tripping time</b>	0.1 ms to 5 ms	0.312 ms
<b>Voltage monitoring, upper maximum threshold as RMS value</b>	1 p.u. to 2 p.u.	1.2 p.u.
<b>Voltage monitoring, upper minimum threshold as RMS value for tripping time</b>	0 ms to 1000000 ms	160 ms
<b>Voltage monitoring median maximum threshold (Overvoltage/Fast)</b>	1 p.u. to 2 p.u.	1.1 p.u.
<b>Voltage monitoring median max. threshold trip.time (Overvoltage/Fast, maximum time)</b>	0 ms to 1000000 ms	13000 ms
<b>Voltage monitoring lower maximum threshold (Overvoltage/Slow)</b>	1 p.u. to 2 p.u.	1.1 p.u.

Name	Value/range	Default value
<b>Voltage monitoring lower max. threshold trip. time</b> (Overvoltage/Slow, maximum time)	0 ms to 1000000 ms	1000000 ms
<b>Voltage monitoring upper minimum threshold</b> (Undervoltage/Slow)	0 p.u. to 1 p.u.	0.88 ms
<b>Voltage monitoring upper min. threshold trip. time</b> (Undervoltage/Slow, maximum time)	0 ms to 1000000 ms	1000000 s
<b>Voltage monitoring, median minimum threshold</b> (undervoltage/fast)	0 p.u. to 1 p.u.	0.88 ms
<b>Voltage monitoring, median minimum threshold, tripping time</b> (undervoltage/fast, maximum time)	0 ms to 1000000 ms	21000 ms
<b>Voltage monitoring, lower minimum threshold as RMS value</b>	0 p.u. to 1 p.u.	0.5 p.u.
<b>Voltage monitoring, lower minimum threshold as RMS value for tripping time</b>	0 ms to 1000000 ms	2000 ms
<b>Frequency monitoring median maximum threshold</b>	50 Hz to 66 Hz	62 Hz
<b>Frequency monitoring, median maximum threshold, tripping time</b> (overfrequency, maximum time)	0 ms to 1000000 ms	160 ms
<b>Frequency monitoring lower maximum threshold</b> (Overfrequency)	50 Hz to 66 Hz	61.2 Hz
<b>Frequency monitoring lower maximum threshold, tripping time</b>	0 ms to 1000000 ms	300000 ms
<b>Frequency monitoring upper minimum threshold</b> (Underfrequency)	44 Hz to 60 Hz	58.5 Hz
<b>Frq. monitoring upper min. threshold trip. time</b> (Underfrequency, maximum time)	0 ms to 1000000 ms	300000 ms
<b>Frequency monitoring, median minimum threshold</b>	44 Hz to 60 Hz	56.5 Hz
<b>Frequency monitoring, median minimum threshold, tripping time</b>	0 ms to 1000000 ms	160 ms
<b>Protection against voltage increase</b>	1 to 2	2 p.u.
<b>Protection against voltage increase, tripping time</b>	40 ms to 10000 ms	10000 ms
<b>Minimum voltage for reconnection</b>	0 p.u. to 1 p.u.	0.917 p.u.
<b>Maximum voltage for reconnection</b>	2 p.u. to 2 p.u.	1.05 p.u.
<b>Nominal grid voltage</b>	0.8 p.u. to 1.2 p.u.	1 p.u.

**Also see:**

- [Changing parameters ⇒ page 51](#)