



## AC source assistance (Smart-Boost function)

### General description

The function Smart-Boost enables to add to the source the inverter power, like for instance a genset or the shore power.

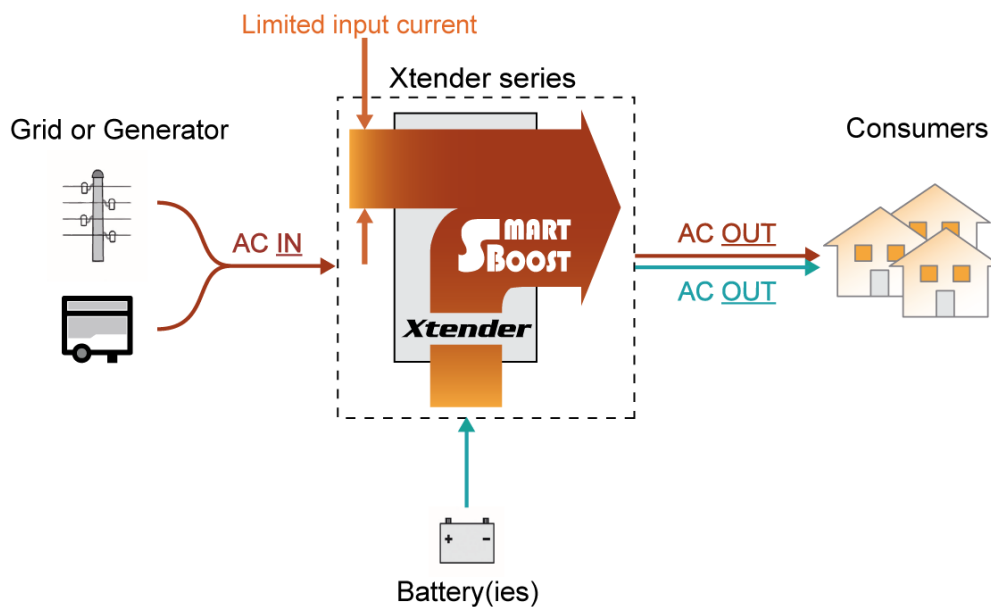
### Features & advantages

- Possibility to undersize an AC source (for example a generator).
- Possibility to add power to almost any other existing inverter (by adding an Xtender)
- Limitation of the AC source consumption with an automatic reduction of peak loads and an automatic allocation of the power available.

### Minimal configuration

- Range of inverters
  - All Xtender Series
- Xtender
  - Software vers. : 1.3.28 and higher
- RCC02 / 03
  - Software vers. : 1.3.32 and higher
  - RCC User level : EXPERT

## Application Schematic



(Figure 1) Smart-Boost power flows

## Detailed description

### The Smart-Boost function

A permanent measure of the input current allows to control the power taken from the AC source. If the loading current value exceeds the max current of the ac source value (set with the parameter {1107} "Maximum current of AC source (Input limit)"), then the Smart-Boost function will compensate the power required at the output.

Explanation with examples...

... If the max current of the ac source is set at 10A but the load is 15A, then 10A are taken from the grid and 5A are taken from the battery(-ies).

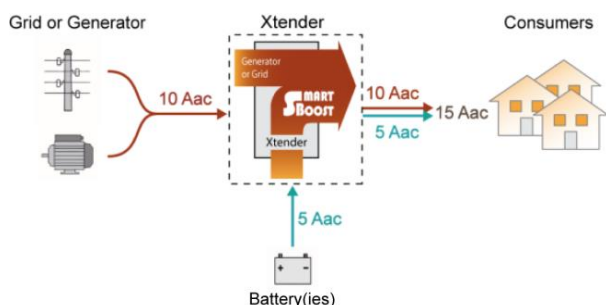


Figure 1, Xtender using the Smart-Boost function

... If the load is only 9A, then the Smart-Boost function won't be used. The max current of the ac source is always set at 10A. Then the 9A load will be powered by the grid and the 1A remaining will charge the battery(-ies).

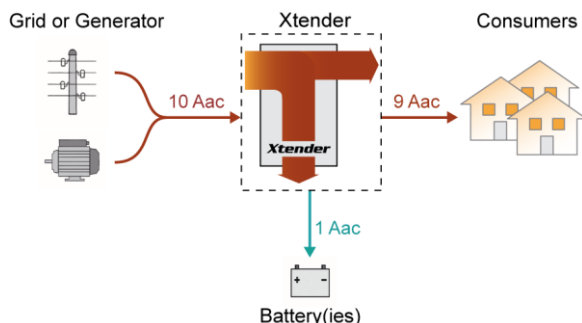


Figure 2, Xtender in charger mode

### Quick setting of the max current of the ac source

Once a system is installed in a place, there is normally no need to change Xtender settings anymore but users of mobile applications need to change very often the input currents value because they are moving all the time from one source to another.

Typical example of this is a boat sailing pier to pier and in each one it gets connected to another shorepower with a different maximal current.

To ease the use of the Xtender for these customers, there is on the RCC -02 / -03 a "one button push" access to the parameter {1107} from the default screen. By pressing the SET button it directly goes to the max current of the ac source value and it is possible to increase or decrease it with the up or down button.



Figure 3, Fast access to set the max current of the ac source

### Allow to go over the max current of the ac source value

In some situations it may happen that the battery(-ies) are empty, but the consumption could still be higher than the max current of the ac source value.

What are then the possibilities?

There is still one parameter that can be adjust in the installation, "Overrun AC source current limit without opening the transfer relay (Input limit)" {1436}.

This parameter is set at "YES" by default, which means if the power cannot be Smart-Boosted, then the grid current will go over the programmed max input limit value.

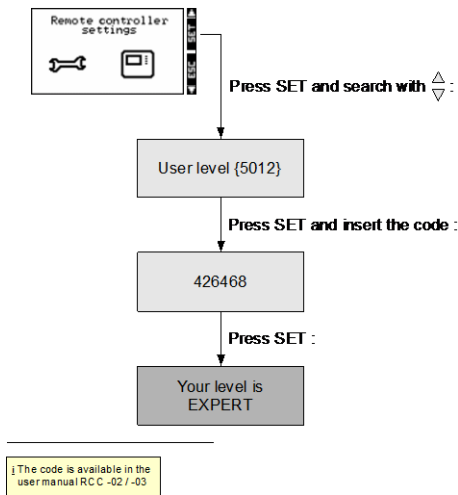
By setting it at "NO", then the transfer relay will open as soon as you go over the input limit.

For example, if this parameter is set at "NO", when the battery(-ies) are empty, the Smart-Boost will stop, then over-current is detected on the input and the transfer relay will open. The user has a power supply break and he must take loads away. The inverter restarts automatically and if load is under the input limit, it will go back to the grid and recharge the battery(-ies). In that case, the input breaker is not tripped.

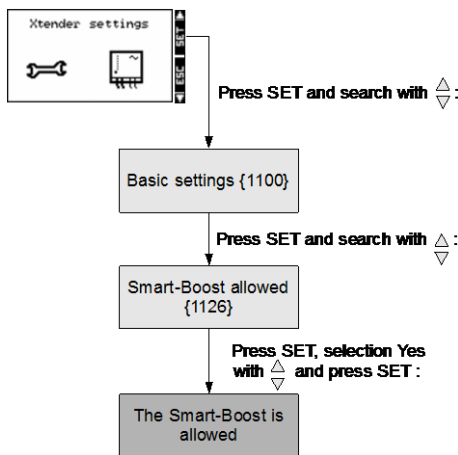
For such a system it could be a good option to use the auxiliary contact to disconnect unessential loads when battery(-ies) are getting empty, it becomes then a smarter system with a load management.

## RCC -02 / -03 programming guide

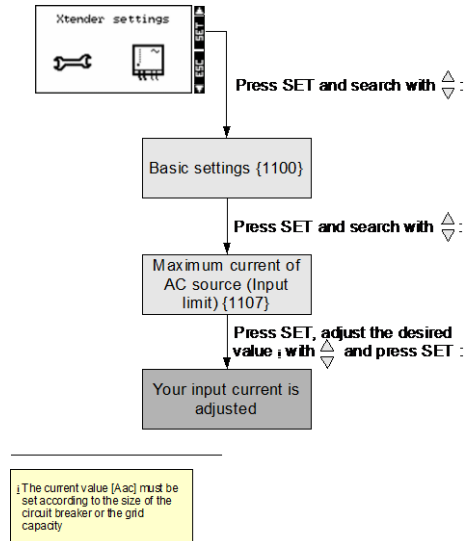
### 1. User level to EXPERT



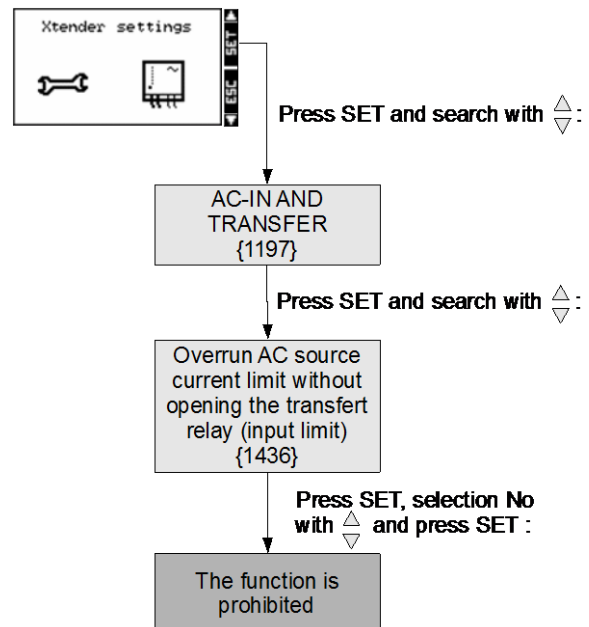
### 2. Smart-Boost allowed



### 3. Maximum current of AC source (Input limit)



### 4. Overrun AC source current limit without opening the transfer relay (Input limit)



**Notes**

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

**Worldwide sales and service**

**Switzerland**

Studer Innotec SA  
Rue des Casernes 57  
1950 SION / Switzerland  
Tel : 027 205 60 80 / Fax : 027 205 60 88  
Email: [info@studer-innotec.com](mailto:info@studer-innotec.com)  
Web : <http://www.studer-innotec.com>



---

**Limitation of responsibility**

The use of STUDER INNOTEC SA devices is the responsibility of the customer in all cases. STUDER INNOTEC SA reserves the right to make any modifications to the product without prior notification.

