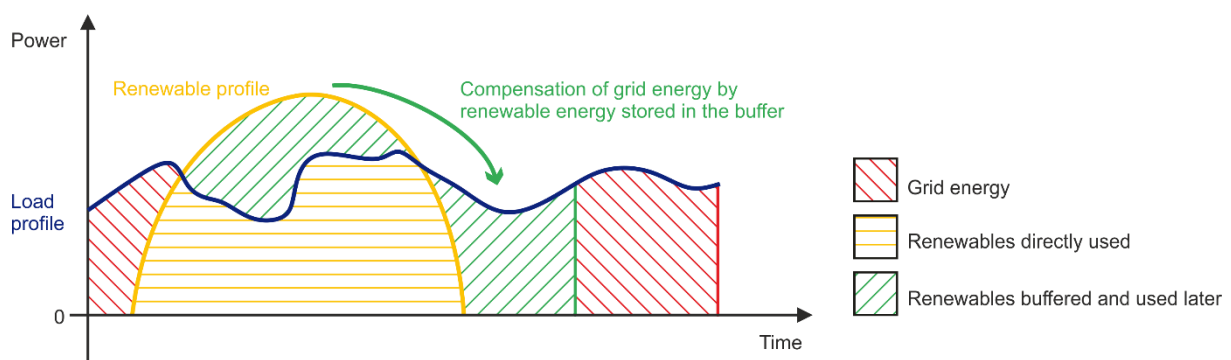




FAQ - How should I configure the system for maximizing the self-consumption?

For grid connected systems, adding battery storage provides a back-up energy source in the case of grid failure. The Studer standard application maintains the battery fully charged and supplies loads using solar and grid energy. If grid injection is authorized, excess solar energy is exported to the grid. Otherwise, with standard settings, excess solar energy is not used.

With the self-consumption application, the Xtender system allows the battery to be discharged at night in order to store excess solar energy during the day, and thus increase the amount of solar energy consumed onsite.



The following options are available for configuring the self-consumption in your Xtender system:

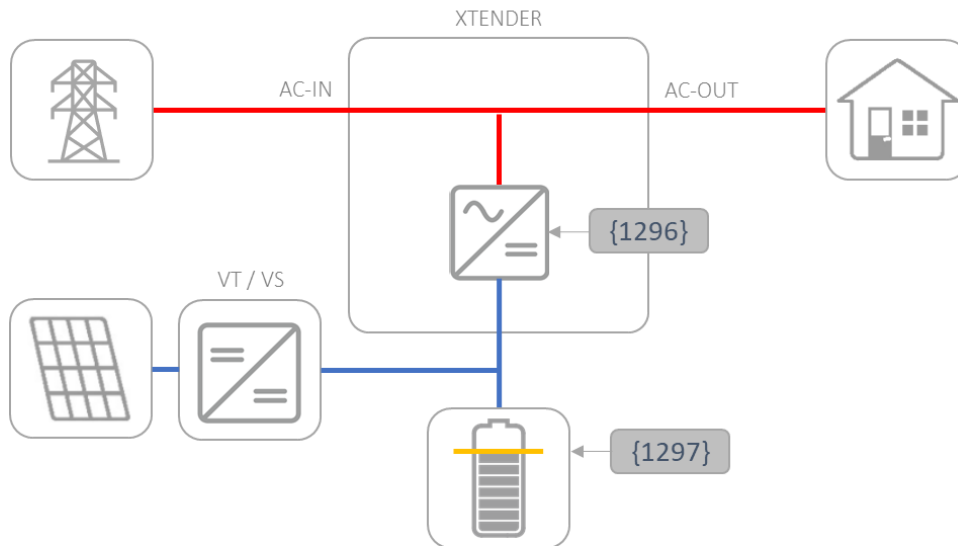
1) Battery priority function

By activating this function (1296) there is a battery priority voltage (1297) as reference and the behaviour of the Xtender will be different if the battery voltage is above or below this level:

- Battery voltage above battery priority voltage
 - The battery will be charged only with energy coming from Variotrack/Variostring (solar) and not from the grid.
 - The AC-in input limit will be automatically reduced from the value set by the user (1107) to a minimum of 1Amp
- Battery voltage below battery priority voltage
 - The battery will be charged from both Variotrack/Variostring (solar) and from the grid (AC-in).
 - The AC-in input limit remains fixed at the value set by the user (1107)

FAQ - How should I configure the system for maximizing the self-consumption?

Self-consumption configuration 1 "Battery priority function"



Device	Xtender settings	N°	Description	Value
XT	System	1296	Batteries priority as energy source	Yes
XT	System	1297	Battery priority voltage	51.6 Vdc*

Advantages:

- The grid is always available to support in case of peak of demand on AC-out
- The Xtender is always at transfer/boost/charger function. There is no transition from one function to another

Disadvantages:

- There is always a minimum of 1 Amp consumed from the grid. It is not possible to reach 0 consumption from the grid.
- There is some excess of solar energy that will be not used

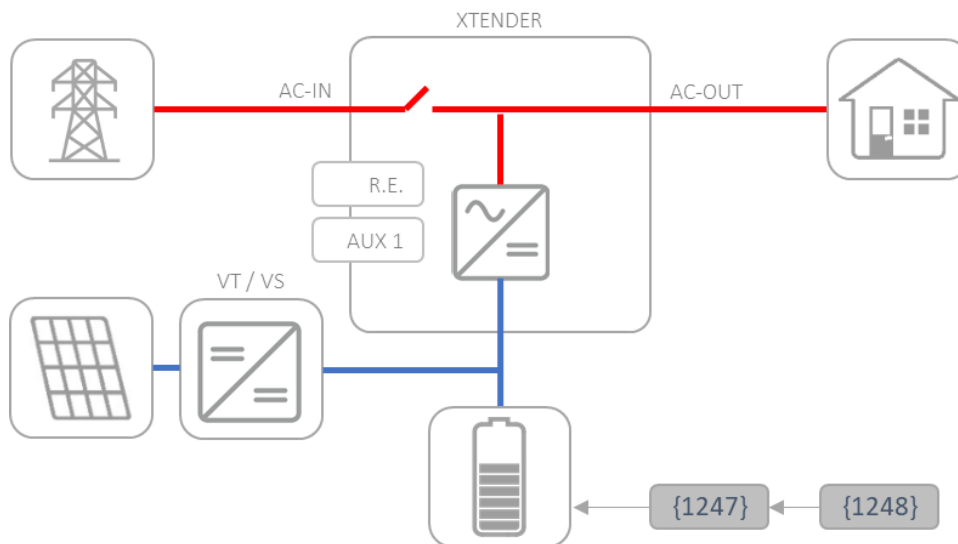
FAQ - How should I configure the system for maximizing the self-consumption?

2) Grid as generator function

In this case we use the grid as if it was a generator. The Xtender will be off-grid as soon as the battery level is good (according to battery voltage). When the battery voltage reach a certain level (1247, 1250, 1253), the Auxiliary Contact 1 from Xtender will be activated. The Remote Entry will be automatically activated according to Auxiliar 1 status. The Remote Entry will allow the connection to grid by disabling the transfer relay prohibition (1538).

Once the battery is charged and the battery voltage reaches the deactivation voltage (1255), the Auxiliary 1 will be deactivated, deactivating the Remote Entry and therefore forbidding the transfer relay again. The Xtender is again off-grid with 0 consumption from the grid.

Self-consumption configuration 2
"Grid as generator"



Device	Xtender settings	N°	Description	Value
XT	AUX 1	1202	Operating mode (AUX 1)	Rev. Auto.
XT	AUX 1	1247	Battery voltage 1 (AUX 1)	46.8 Vdc*
XT	AUX 1	1248	Delay 1 (AUX 1)	1 min*
XT	AUX 1	1255	Battery voltage to deactivate (AUX 1)	54 Vdc*
XT	AUX 1	1256	Delay to deactivate (AUX 1)	60 min*
XT	System	1545	Remote entry active	Closed
XT	System	1538	Prohibits transfer relay	Yes
XT	System	1578	Activated by AUX1 state	Yes

Advantages:

- The self-consumption of solar energy is maximized in comparison to the first option.
- When the Xtender is off-grid the consumption from the grid is 0.



FAQ - How should I configure the system for maximizing the self-consumption?

Disadvantages:

- There is a micro-shutdown (max. 15ms) during the transition from grid connected to off-grid.
- In case of peak of demand in off-grid mode, the Xtender will not have support from the grid and risk of overload is higher.

Self-consumption with Lithium Batteries

Additionally, when the Xtender works with Lithium batteries that are communicating through the Xcom-CAN bridge, the self-consumption could be easily configured thanks to the "SOC for backup" parameter (6062). For more information check the [Xcom-CAN manual](#) or the [FAQ](#) for lithium batteries.