A STUDER solution for each situation!

Solar Home Systems : ► AJ series

Power any AC appliance from 200 to 2400VA (230V/50Hz and 120V/60Hz) with **AJ** sine wave inverters. A complete full featured AC Solar home system when ordered with built in optional solar regulator.

- Low self-consumption and high overload capacity due to "low frequency" technology.
- Perfect battery management thanks to the original algorithm B.L.O. and the ultra low standby consumption.
- Plug & Play, with DC (battery) and AC cables already mounted. Install and forget.

Hybrid Systems: ► Xtender & Vario series

Xtender and VarioTrack / VarioString series constitute the perfect base components to build up hybrid system for an off-grid electrification or solar backup in an unreliable grid environment.

Hybrid/bidirectional inverter: Xtender series

Create flexible hybrid energy systems with XTS, XTM or XTH, from small 1kW up to 24kW single phase or in 3-phase from 3 to 72kW with powerful transfer switch. It automatically manages the energy from generator or grid and local renewable energy from solar or other source, this with the following outstanding features and benefits:

- Wide design flexibility to cover the very variable size and topology of hybrid systems
- A large range of power matching various demands of rural electrification market
- Matches all kind of loads; asymmetrical, inductive and reactive
- Compatible with grid inverters for AC coupling with programmable frequency shift management
- An extensive set of parameters to fulfil the specific requirements of tailored hybrid systems
- Two independent programmable auxiliary relays and one programmable remote entry
- Scalable topology form one single phase unit up to 9 units in 3 phase configuration

MPPT solar charge controller : Vario series

Maximize the energy generated from solar generator by using **VarioTrack** or **VarioString** MPPT solar charge controller. Both models are the right choice for a coherent solar hybrid system with up to 15 units in parallel, perfectly synchronized with the **Xtender**.

VarioTrack 65 or 80A /12-24-48V

- Up to 150V PV Voc
- Full protection against incorrect wiring
- Designed for use in harsh environment (IP54)
- MPPT /conversion efficiency > 99.5 / 99%

VarioString 70A or 120A /48V

- Up to 1 x 600V or 2 x 600V / 1 x 900V PV Voc
- Reinforced isolation between PV and Battery
- Higher voltage string reduces BOS costs
- Safe, simple PV connection with SUNCLIX™
- MPPT /conversion efficiency > 99.5 / 98%

Communication and control ► RCC, Xcom & other accessories

A range of accessories allows control and communication with **Xtender/Vario** systems with wired local interface **RCC** and remotely through **Xcom SMS** or with internet navigation using the **Xcom-LAN** or **Xcom-GSM.** Whatever the solution, this will bring full and easy control of systems from everywhere in the world.
The **BSP-500/1200** allows precise battery computation enabling efficient energy management and the **Xconnect** mounting frame facilitates the system's wiring.

Full complementary information on: www.studer-innotec.com

AJ
Series

AJ 275-12(-S)
AJ 350-24(-S)
AJ 400-48(-S)

AJ 500-12(-S)
AJ 600-24(-S)
AJ 700-48(-S)

AJ 1000-12(-S)
AJ 1300-24(-S)

AJ 2100-12(-S)
AJ 2400-24(-S)

(-S) = Optional Built-In Solar Charge Controller

VarioTrack
Series

VT-65
VT-80

VarioString
Series

VS-70
VS-120

Xtender
Series

XTH 3000-12
XTH 5000-24
XTH 6000-48
XTH 8000-48

XTM 1500-12
XTM 2000-12
XTM 2400-24
XTM 2600-48
XTM 3500-24
XTM 4000-48

XTS 900-12
XTS 1200-24
XTS 1400-48

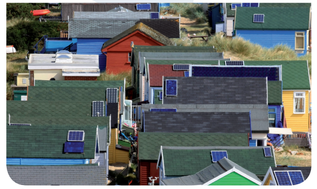
4KSB5 Brochure Studer 2015 Finale EN

Studer Innotec SA
Rue des Casernes 57
1950 Sion - Switzerland
Tel: +41 (0)27 205 60 80
Fax: +41 (0)27 205 60 88
info@studer-innotec.com
www.studer-innotec.com

March 2015 © Studer Innotec SA - V4.0

Off-Grid solutions

EN



solutions for rural electrification

swiss made power

Solar Home System (SHS)

Hybrid system: renewable / diesel + AC-coupling

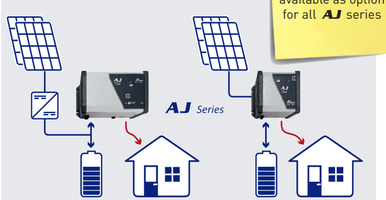
Electrical microgrid

▶ Efficient and simple

A Solar Home System (SHS) is **an independent electrification system for individual use**. It generally includes a battery bank, solar panels and an associated electronic device for load and battery management..
Such systems **supply different daily electrical devices** (light, appliances, etc...) with power through a local distribution network. This network can be either low-voltage DC (usually systems below 100-200W) or alternating current (AC) opened to higher power systems with wider applications, using standard high efficiency appliances. The ***AJ*** series inverters are designed to meet the very specific requirements of a SHS, like high efficiency at partial load, high surge capability, embedded protections, low power standby mode, effective battery management, etc, ...

Their proven reliability demonstrated by tens of thousand of systems in the field many years have made them the first choice for many solar home system integrators.

Solar Home System



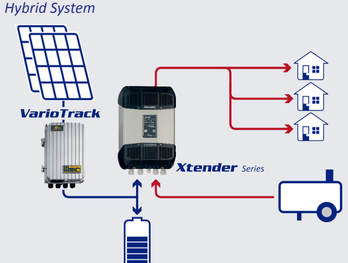
Built-in solar charge controller available as option for all ***AJ*** series

▶ At the heart of a hybrid system

A "hybrid system" is a combination of different energy sources: one or more renewable energy sources RES (solar, wind, hydro), a diesel/gas generator and a battery bank. The generator is used to fill the energy deficits of other RES producers that depend on environmental conditions. Including a generator allows to more acurately dimension the RES and battery components, which increases efficiency and reliability of the system.

STUDER Innotec has developed a wide range of components to build up coherent hybrid systems around the ***Xtender*** family of inverter/chargers, the core of the system. Connected to a battery bank and to a generator, **it will manage the energy to permanently** supply consumers. Battery management is synchronised with the **efficient MPPT charge controllers**, ***VarioTrack***, or ***VarioString***. The power assist function provides smooth and efficient operation of the generator. It can be sized to a lower power than the peak consumer loads, reducing fuel consumption and investment cost.

Hybrid System

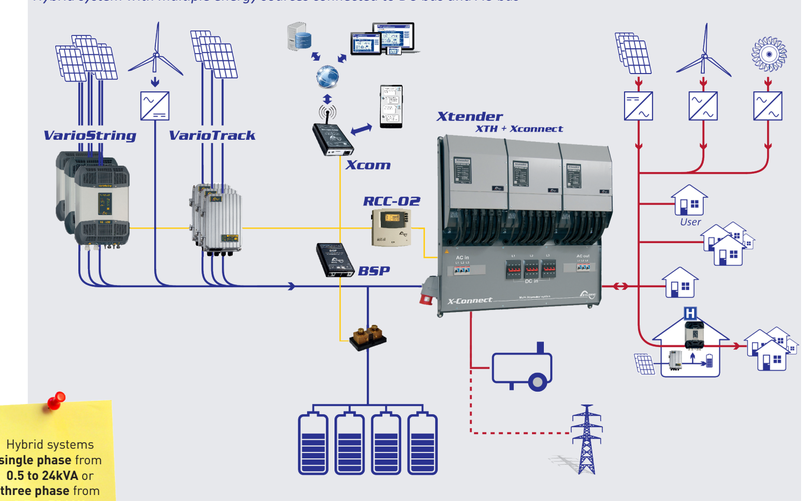


In comparison with a 100% green energy system, hybridisation of RES with a generator as backup is currently proven to be the **most economical and robust solution**.

▶ ***Xtender*** A true energy regulator

The ***Xtender***, while perfectly and preferably adapted to DC coupling, can also be used in systems where energy producers are connected directly to the AC-bus via standard grid-inverters. In such an installation, the ***Xtender*** (or the multi-Xtender system) plays the role of "energy regulator" for the system's energy production, consumption and storage. With frequency control for the AC-line and an automatic start/stop for the generator, the ***Xtender*** manages the different actors for an **optimal operation of the system.**

Hybrid system with multiple energy sources connected to DC-bus and AC-bus



Hybrid systems **single phase** from **0.5 to 24kVA** or **three phase** from **1.5 to 72 kVA**

▶ Studer Innotec brings an electrical grid within reach

Where a microgrid is an option for rural electrification, STUDER Innotec recommends a hybrid system, due to its robustness, flexibility and efficiency.

The ***Xtender***/***Vario*** series offer great flexibility in designing a microgrid, expandable up to 72kW. Beyond this power, we recommend deployment of supplementary clusters of 72kW. Each new cluster is independent from the others, mitigating the risk of a total blackout in the system.

A full range of accessories allow for comprehensive and harmonized monitoring, control and data logging of the system, either locally with the ***RCC-02*** device or from anywhere via a simple SMS or through the internet with the ***Xcom-LAN*** or ***Xcom-GSM***.

The robustness off the microgrid can be reinforced for some applications like hospitals, schools, public buildings, etc., by adding decentralized units with their own energy storage and power. These distributed systems benefit from access to energy from the microgrid while not being affected in the event of a blackout of the microgrid.

The microgrid will be ready to feed any excess renewable energy into a public grid if it should become available in the future. In this case it would participate as an energy producer and stabilizer of the grid and have a backup function in case of grid failure.

▶ Always in control of the system

The ***Xtender/Vario*** systems can be entirely and remotely controlled by mobile phone with the ***Xcom-SMS*** that requires a basic GSM (2G) coverage. The information exchange – change of parameters, data request, alarms or report sending, etc. – is then done by sending a simple SMS, secured by password.

In addition, total control of the system is also possible via internet on our secured server. The connection with the internet is carried out either by the ***Xcom-LAN***, provided the site has internet access via a local network; or by ***Xcom-GSM***, if there the site has access to the mobile phone network.

Our server will provide secure and full access – parameters, real time data, data log, configuration of alarms by SMS or E-Mail, etc. – to all sites with an ***Xcom-LAN*** or ***Xcom-GSM*** installed, and by means of any device with an internet browser: smartphone, PC or tablet.

Harmonized components ease control and system design

Internet control and communication