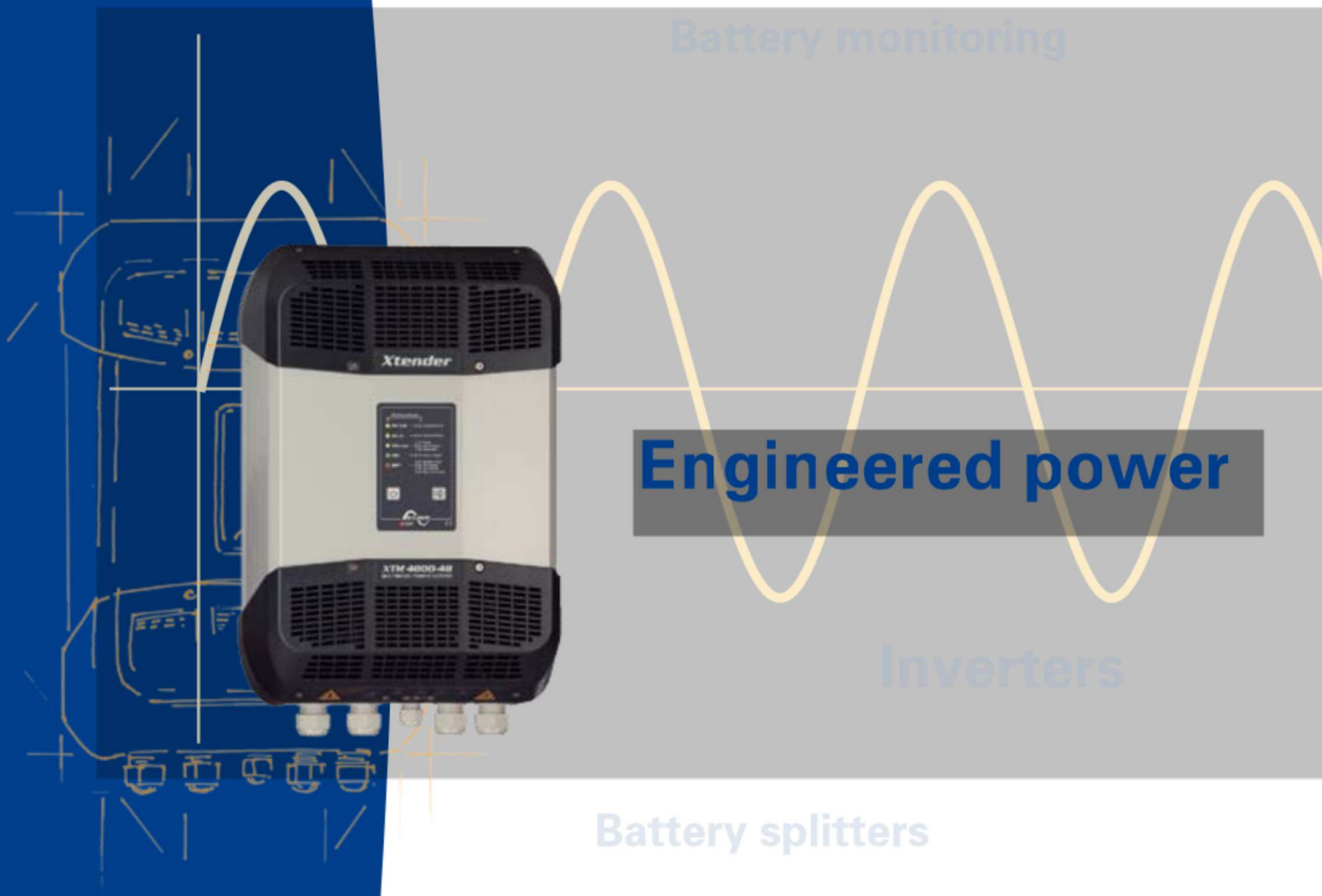
Catalogue

Battery chargers

Inverter-chargers

Battery monitoring



Engineered power

Inverters

Battery splitters

Battery separators

MPPT solar charge controllers

DC/DC converters

SWISS made power

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Photos credits
Robert Hofer, Céline Ribordy: Studer's products; EB techniek/De Hoeve: p. 8; Hacksss-Fotolia.com: p. 10; Getek AS: p. 19; Meteorisk: p. 3, 40; Perspective: p. 5, 28; SEI AG: p.12; Siblik: p. 27; Solarni Panely: p. 15; Steca: p. 6 bottom; Studer Innotec SA: p. 17.

Graphism
Atelier Perspective, R. Gigon, Sion.

September 2013

Production integration and flexibility

Studer Innotec's company philosophy has always been to master the complete process: from development to product sales. That is why Studer Innotec since its beginning is a vertically integrated company, capable of far greater flexibility than its competitors. Furthermore it has a team of 10 Research & Development engineers fully dedicated to turn the market expectations into products and services.

The performance choice

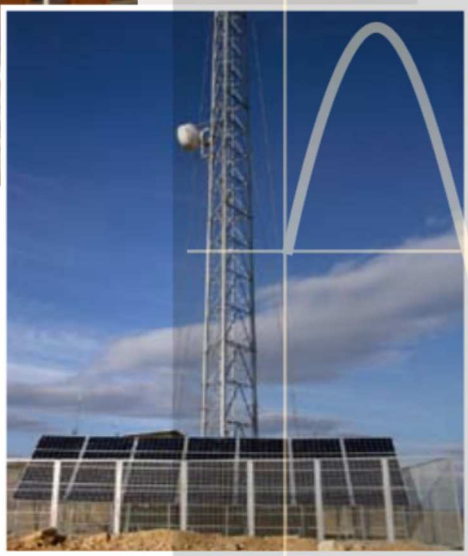
In order to comply with Studer Innotec's high-tech product concept including outstanding performance and reliability, the company choose its components with greatest care. This is the reason why Studer Innotec has selected the latest technologies; such as digital signal processors (DSP) that provide higher efficiency to its inverters.

Applications in remote areas

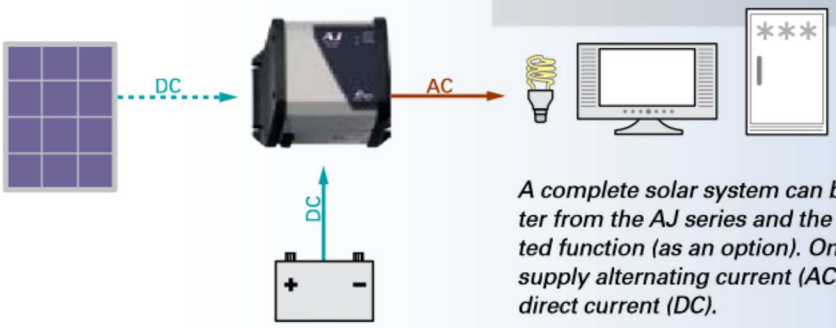
Security and comfort (lighting, heating, household appliances, leisure electronics, telecom...) can now be provided by autonomous energy systems; when far away from any electrical grid, either by choice or necessity.

These systems consist of three main components: first an energy source; normally a genset, a solar generator, a wind turbine or a combination of these; second battery storage; and third devices (inverter/charger, battery charger) able to charge the battery from the energy source(s) and to supply users with AC voltage (inverter, inverter/charger).

The examples below show the products in some stand-alone applications.



A complete solar system

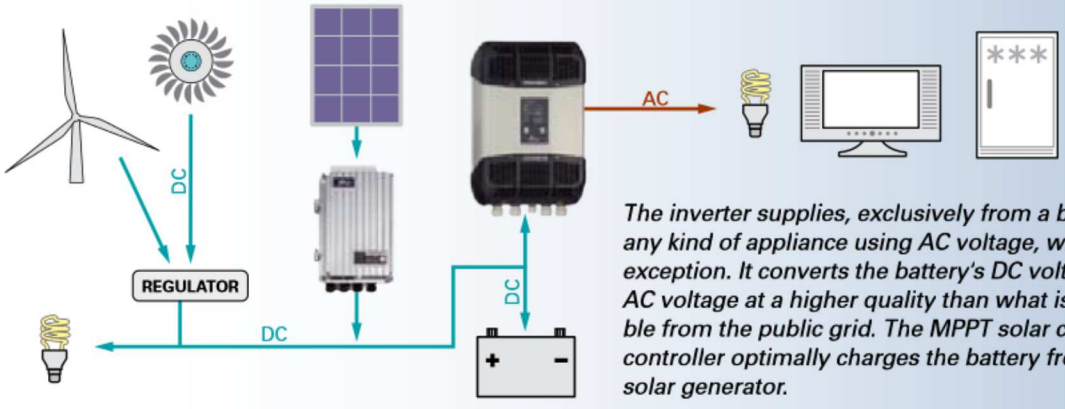


A complete solar system can be built by combining an inverter from the AJ series and the «solar charge control» integrated function (as an option). One single device can then both supply alternating current (AC) and charge the battery with direct current (DC).

Inverters

AJ series p. 26
(275 - 2'400VA)

Quality AC voltage for all electrical appliances



The inverter supplies, exclusively from a battery, any kind of appliance using AC voltage, without exception. It converts the battery's DC voltage into AC voltage at a higher quality than what is available from the public grid. The MPPT solar charge controller optimally charges the battery from the solar generator.

Inverters

Xtender series p. 16
(900 - 72'000VA)

Compact series p. 24
(1'400 - 4'000VA)

AJ series p. 26
(275 - 2'400VA)

MPPT solar charge controllers

VarioTrack series p. 14
(65 - 80A)

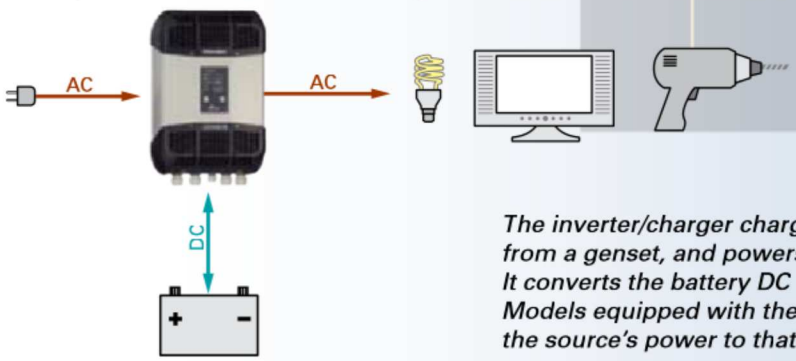
Mobile applications

A simple on-board energy system is often necessary to power the AC voltage appliances, while the vehicle or the boat is away from the electrical grid (port, garage, camping...).

In this case, energy is stored in the battery, which is actually charged by power sources on-board, such as a genset, solar generator, wind turbine, alternator or a combination of these. Studer Innotec offers a complete product range that ensures the management and conversion of this energy, while securing an optimal power supply to the on-board appliances.

The examples below show our products in some mobile applications.

A simple and reliable on-board system



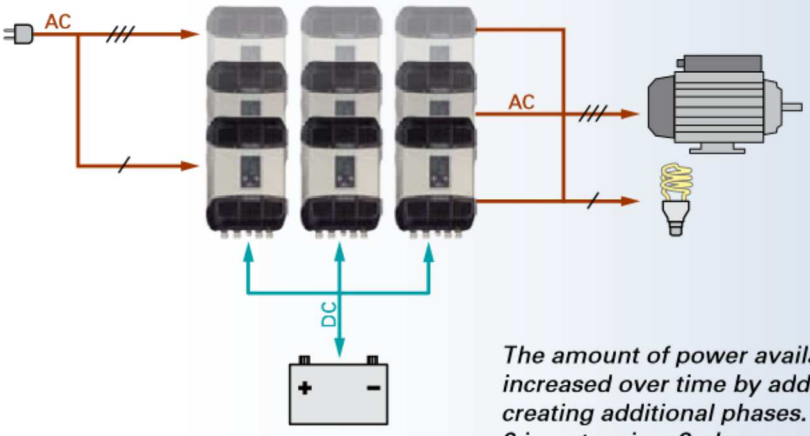
The inverter/charger charges the battery from the grid or from a genset, and powers any kind of electrical appliance. It converts the battery DC voltage to AC voltage. Models equipped with the Smart-Boost system can add the source's power to that of the inverter.

Inverters

Xtender series p. 16
(900 - 72'000VA)

Compact series p. 24
(1'400 - 4'000VA)

An upgradeable power



The amount of power available to the users can be increased over time by adding inverters in parallel or by creating additional phases. It is possible to install up to 9 inverters in a 3-phase power system.

Inverters

Xtender series p. 16
(900 - 72'000VA)

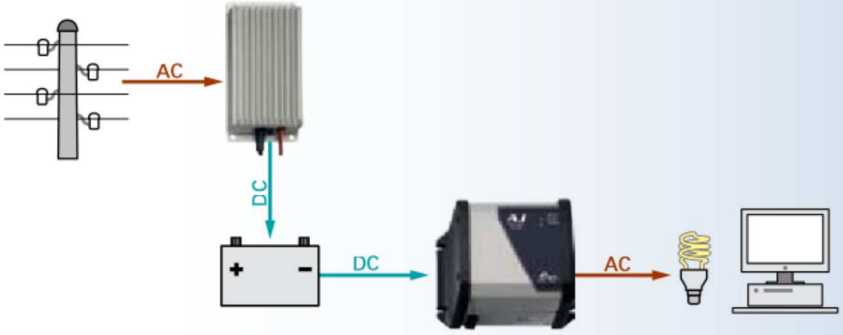
Backup applications

Appliances such as fridges, PCs, emergency lights, etc. which are supplied by the public grid and cannot afford any power cut, are electrically secured.

An inverter/charger with transfer relay or a combination of an inverter and a charger guarantees that the battery is well maintained and that an uninterrupted power supply to strategic appliances is sustained.

Studer Innotec offers solutions from 275VA up to 72kVA with a one of a kind product choice that remains unchallenged on the market.

Uninterruptible power supply on-line



In this system, the battery charge functions and appliances' power supply are separated: On one side is a battery charger, and on the other, an inverter. Grid current fluctuations have no impact on the appliances.

Inverters
AJ series p. 26
(275 - 2'400VA)

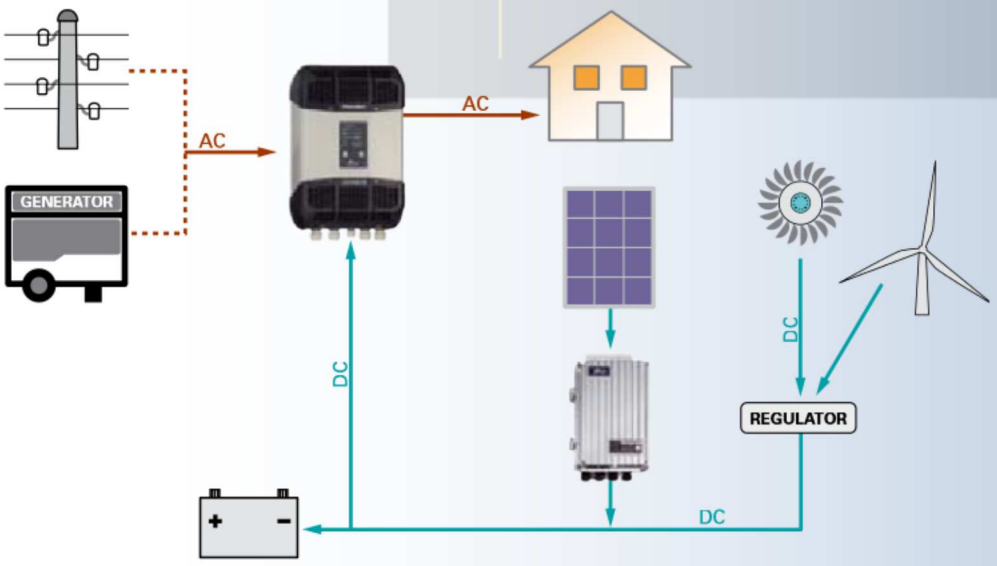
Battery chargers
MBC series p. 28

Self-consumption systems

In order to give priority to consumption of the energy generated from your own solar- or renewable installation, different systems including the Xtender inverter-chargers can be set up.

These systems store excess energy produced during daytime in batteries to be used at a later time, maximizing selfconsumption. The public grid will only be used to import or export small amounts of energy if absolutely necessary.

Priority to renewable energy without grid-injection



When it is forbidden or there is no incentive to inject energy into the public grid, an Xtender inverter-charger combined with a VarioTrack MPPT solar charge controller will minimize the grid consumption in favour of the locally produced energy. They will also guarantee an energy supply in case of grid-failure. This solution is easy to set-up using Studer products.

Inverters
Xtender series p. 16
(900 - 72'000VA)

MPPT solar charge controllers
VarioTrack series p. 14
(65 - 80A)

MPPT solar charge controller

VarioTrack series

The VarioTrack solar charge controller maximizes the energy generated from solar panels in any solar installation. It contains an MPPT (Maximum Power Point Tracking) algorithm that continuously tracks the maximum power point and automatically charges the batteries in an optimal way with all the available solar power.

VarioTrack
VT-65

VarioTrack
VT-80

Features and performances

- Easy and safe commissioning with full protection against incorrect wiring
- Rugged and durable, this device is designed to perform in harsh environmental conditions (IP54)
- High conversion efficiency, >99%
- Up to ´5 VarioTrack in parallel on the same communication bus
- 6 step charger for longer battery life
- Low self-consumption: <1W in night time mode
- Display with 7 LEDs showing status and current
- Comprehensive display, programming and datalogging with RCC-02/-03
- Suitable for any solar system
- Optimal usage in an Xtender system with synchronized battery management

VarioTrack range	Nominal battery voltage	Maximum power of the solar generator	Maximum voltage of the solar generator	Maximum charging current to the battery
VT-65	12 V	1000 W	80 Vdc	65A
	24 V	2000 W	150 Vdc	
	48 V	4000 W	150 Vdc	
VT-80	12 V	1250 W	80Vdc	80A
	24 V	2500 W	150 Vdc	
	48 V	5000 W	150 Vdc	

* Complete technical specifications on page 36.

Xtender Series

The Xtender series provides unmatched freedom of use due to its many functions. In a basic application, it offers a total package: the functions of inverter, battery charger, transfer system and assistance to the source. These functions can be combined and controlled in a totally automatic way for exceptional ease and optimal management of available energy.

The Xtender is equipped with a command entry and 2 configurable auxiliary contacts. This allows automatic control of a genset or loadshedding when the battery voltage is too low. The flexibility obtained makes it possible to implement special functionalities, often necessary for good energy management in standalone systems.

Xtender XTS

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

Xtender XTM

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

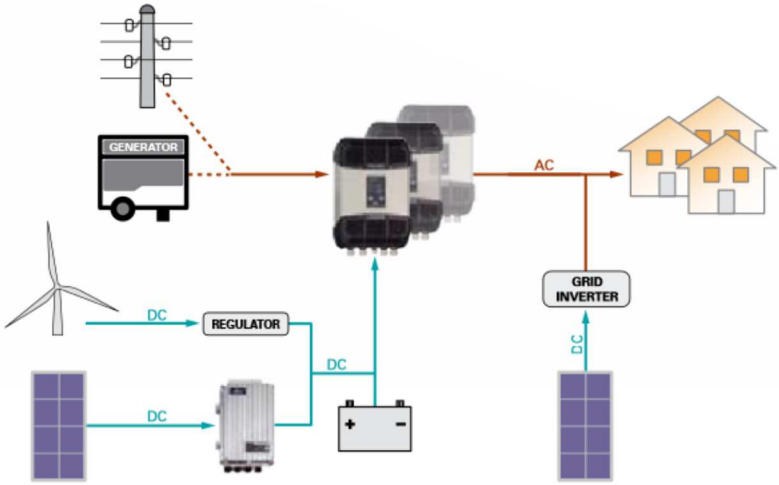
Xtender XTH

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

Features and performances

- Outstanding efficiency and overload.
- Perfect management and limitation of AC sources.
- Power shaving of the consumption peaks.
- Automatic allocation of available power.
- Active filtering of load steps on the genset.
- Automatic protection of the sources against overload.
- Battery priority (or to renewable sources).
- Parallel and three-phase setting, up to 9 units (72kVA).
- Powerful multi-stage PFC charger.
- Ultra-short transfer time (from 0 to 15ms max.).
- Automatic and efficient stand-by.
- 2 programmable auxiliary contacts (optional on the XTS).
- Compatible with AC coupling.
- XTS electronically protected against reverse polarity.
- Display, programming and data logging integrated in the remote control (RCC).
- Interactive with the Battery Status Processor (BSP).
- RS-232 communication for remote supervision.

The Xtender series offers an optimal use of all sources that can be found in hybrid systems, whatever their connecting mode (AC or DC bus), up to the nominal power of the Xtender system (single, parallel and/or three phase).

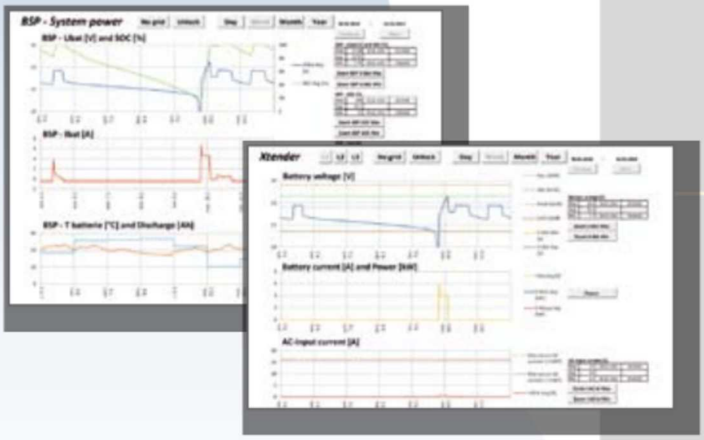


RCC-02

RCC-03

Remote control and programming centre RCC-02 or RCC-03

Apart from the enclosure difference, adapted for wall or panel mounting, both units have exactly the same features and allow the user to survey his system and fully customize it to his needs. The RCC gives a controlled access to the many adjustable parameters of the Xtender and the VarioTrack. It enables the setting of the charge curve of the battery, the programming of the auxiliary contacts and gives access to a lot of operation options. Thanks to its graphic display the RCC provides clear and comprehensive indications on the state of the system in selectable language. The unit records and displays the events that occurred on an installation and so it anticipates the problems that might appear. A slot for an SD card is incorporated in the RCC which allows parameters and log data to be recorded as well as a software update of the entire system.



Data logging and analysis

Analyze easily your data with the RCC-02/03 Data logger function that will record on the SD card the main electrical values of your Xtender system during its operation.

These standards enable the analysis of the system's energy consumption evolution, to check the power cuts, the state of the auxiliary contacts, the input currents and voltages, etc.

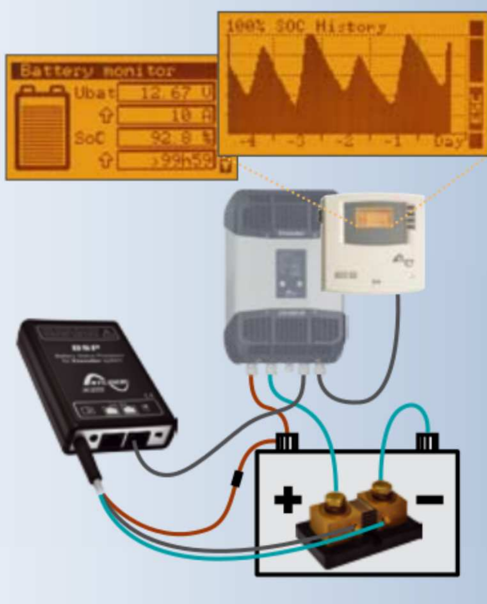
Studer Innotec offers for free a graphical and analysis tools, Xtender Data Analysis Tool. **(more information on our website and in the Application note AN006/www.studer-innotec.com).**

Battery Status Processor BSP for XTENDER and VarioTrack systems

One of the most important values for safe and effective operating of an energy system with batteries is their state of charge.
The BSP offers, for Xtender and VarioTrack systems, a highly precise measuring and an extremely efficient algorithm that calculates the state of charge in the most accurate way.
The remote control RCC-02/03 provides data logging, the display of values and the graphical display of the state of charge history and the settings. Values of the BSP can be used in the programming of Xtender and VarioTrack systems. In addition, 17 different values can be displayed such as:

s 3TATE OF CHARGE
s 6OLTAGE 6 DC
s #URRENT
s 4IME TO GO
s 4HROUGHPUT ENERGY
s "ATTERY TEMPERATURE

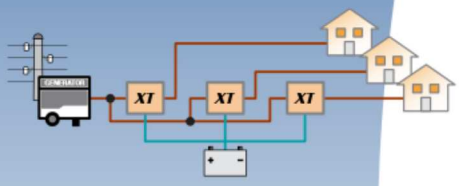
The two models, BSP 500 and BSP 1200, are supplied with a 500A or 1200A shunt respectively, a 5 m cable for battery connection, and a 5 m communication cable.



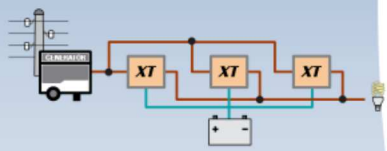
X-Connect system

Mounting frame for Xtender multi-system

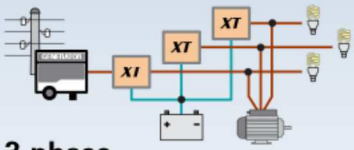
Offers a flexible and cost effective solution for high power systems based on the XTH inverter.



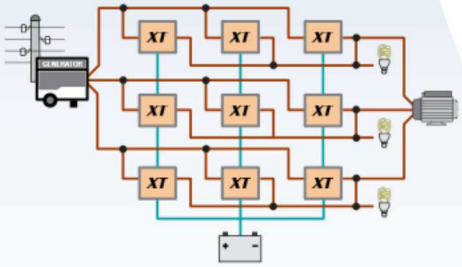
Centralized



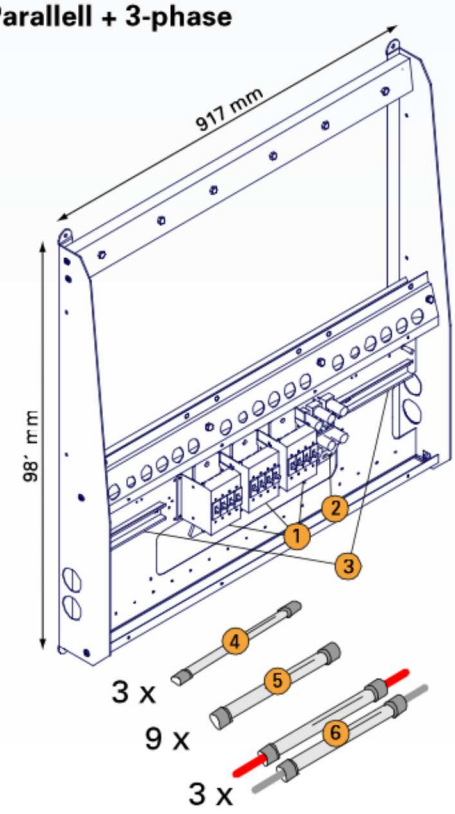
Parallell

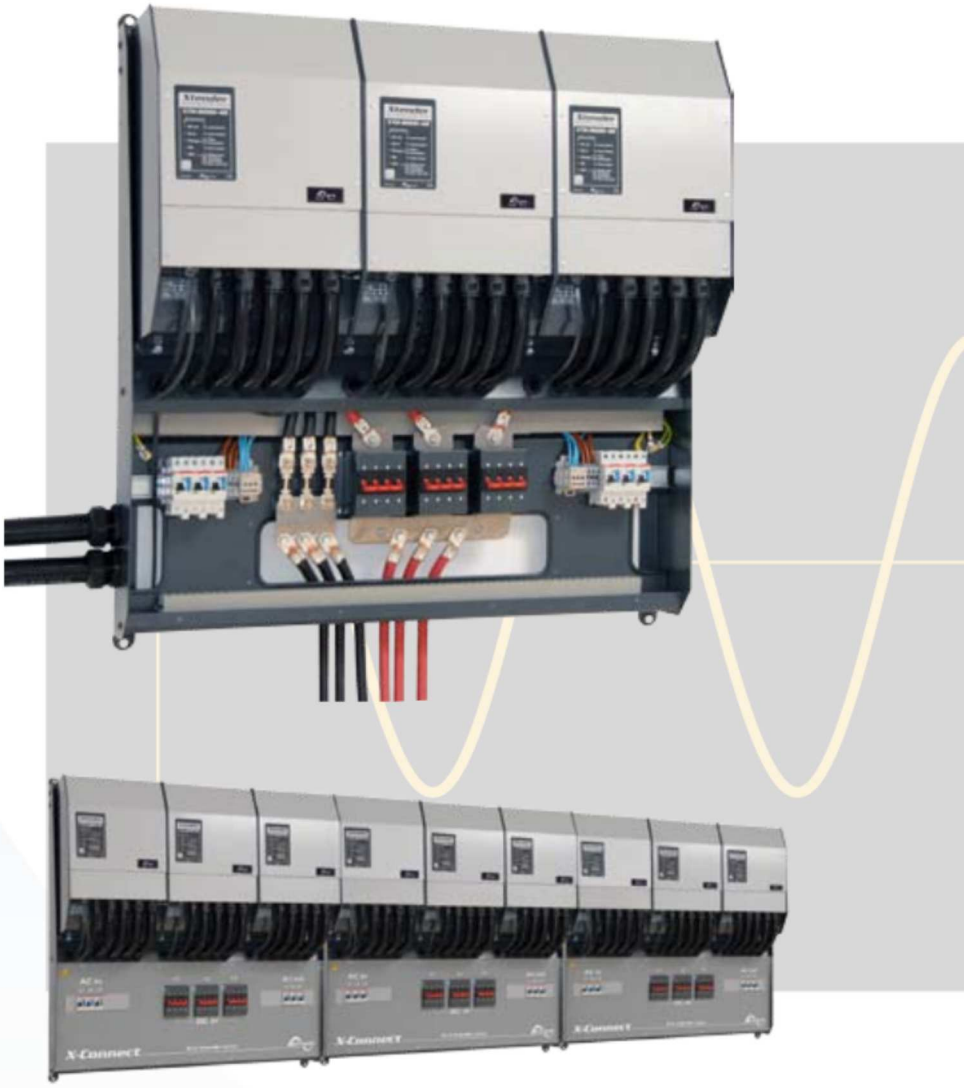


3-phase



Parallell + 3-phase





Up to 72kVA multi-unit system

Frame is supplied with:

1. Pre-installed DC circuit breakers
2. Pre-installed DC fuses
3. Pre-installed DIN rails
4. Interconnection pipes and gland for auxiliary contact wiring
5. Interconnection pipes and gland for AC wiring
6. Interconnection pipes and gland + 90 mm² wire terminated with appropriate ring tongues for DC wiring from Xtender to breakers and fuses

Screws set for frame assembly

Solsafe S-Box

Solsafe: the anti-blackout system for grid connected solar installations

Despite a solar system on your house, in case of power outage, the grid inverters will shut off and the solar generator, whatever its size, will be useless. Studer Innotec has developped, already in 2004, a concept in which its inverter/chargers allow acces to energy from the solar generator, even in case of a power cut.

S-Box: a genuine cabling solution to implement the Solsafe

- Hassle free cabling
- Quick installation
- Easy commissioning

Compared to other similar solutions, it offers:

- Great system flexibility by choosing both the grid inverter power (matching the solar generator) and the stand-alone power (matching the needs for autonomous energy) independently, as long as the stand-alone inverter is as big as, or bigger than the grid inverter.
- The choice of the grid inverter allows working with standard well known products.
- To choose the grid inverter with any voltage input range, independently from the battery voltage.
- A possible and easy upgrade of existing grid-connected solar installations.

The S-Box can be supplied in 4 versions:

For single phase application:

- Solsafe box 25A for Compact..... S-Box-25C
- Solsafe box 25A for Xtender..... S-Box-25X
- Solsafe box 25A for Compact with ENS-26..... S-Box-25C-E
- Solsafe box 25A for Xtender with ENS-26..... S-Box-25X-E

For Solsafe implementation in 3ph systems, a schematic is available upon request.

* See page 11 for a description of the solsafe anti-blackout system.

Easy set up of multi-units

Compatible with standard cable channel (230 x 60 mm)

The main configurations offered by the Xtender series

Wide modularity

By the implementation of several units, it is possible to create a 3-phase source or to set them in parallel to increase the power available without extra cost. Up to 9 inverters of the Xtender series can be combined together for a total power up to 72kVA.

Compact series

The Compact series models consist of 3 fully automatic functions: a sine wave inverter, a battery charger and a transfer system. Equipped with high-end technology, they optimally perform, thanks to Studer Innotec's extensive experience in the field of electrical supply.

XP COMPACT

XPC 1400-12
XPC 2200-24
XPC 2200-48

COMPACT

C 1600-12
C 2600-24
C 4000-48

Features and performances

- True sine wave voltage.
- Suitable for any kind of electrical appliance.
- Reliable and silent working with all kind of loads.
- Outstanding overload capabilities.
- Stand-by level adjustable over a large range and from a very low threshold.
- 4 STEP battery charger with PFC.
- Ultra-fast transfer relay.
- High efficiency.
- Full internal protection.
- Ultra-fast regulation.
- Microprocessor controlled.

Norm E certification

The XPC 1400-12, XPC 2200-24, C 1600-12 and C 2600-24 are certified to the ECE-R 10 norm.

Compact range	Output power P30/Pnom	Battery voltage	AC voltage	Charge current	Transfer current	Solar option (-S)
XPC 1400-12	1400VA / 1100VA	12Vdc	230Vac*	0 - 45A	16A	30A
XPC 2200-24	2200VA / 1600VA	24Vdc	230Vac*	0 - 37A	16A	30A
XPC 2200-48	2200VA / 1600VA	48Vdc	230Vac*	0 - 20A	16A	20A
C 1600-12	1600VA / 1300VA	12Vdc	230Vac	0 - 55A	16A	30A
C 2600-24	2600VA / 2300VA	24Vdc	230Vac	0 - 55A	16A	30A
C 4000-48	4000VA / 3500VA	48Vdc	230Vac	0 - 50A	16A	20A

* For the 120Vac/60Hz version, -01 is added to the model designation.

Complete technical specifications on page 33.

Applications

AJ series

The AJ range consists of sine wave inverters that convert a battery's DC voltage into AC voltage, which can be used by all electrical appliances.

AJ
AJ 275-12
AJ 350-24
AJ 400-48

AJ
AJ 500-12
AJ 600-24
AJ 700-48

AJ
AJ 1000-12
AJ 1300-24

AJ
AJ 2100-12
AJ 2400-24

Features and performances

- High and steady efficiency.
- Outstanding overload capabilities.
- Digital regulation and control by microprocessor.
- Electrical supply to any type of appliance.
- Full internal protection.
- Battery lifetime optimization (B.L.O.) function.
- Supplied with battery and AC cables.

Norm E certification

The AJs in 12 and 24Vdc are certified to the ECE-R 10 norm.

AJ range	Output power P30/Pnom	Battery voltage	AC voltage	Solar option (-S)
AJ 275-12 (-S)	275 VA / 200 VA	12 Vdc	230 Vac*	10 A
AJ 350-24 (-S)	350 VA / 300 VA	24 Vdc	230 Vac*	10 A
AJ 400-48 (-S)	400 VA / 300 VA	48 Vdc	230 Vac*	10 A
AJ 500-12 (-S)	500 VA / 400 VA	12 Vdc	230 Vac*	15 A
AJ 600-24 (-S)	600 VA / 500 VA	24 Vdc	230 Vac*	15 A
AJ 700-48 (-S)	700 VA / 500 VA	48 Vdc	230 Vac*	15 A
AJ 1000-12 (-S)	1000 VA / 800 VA	12 Vdc	230 Vac*	25 A
AJ 1300-24 (-S)	1300 VA / 1000 VA	24 Vdc	230 Vac*	25 A
AJ 2100-12 (-S)	2100 VA / 2000 VA	12 Vdc	230 Vac*	30 A
AJ 2400-24 (-S)	2400 VA / 2000 VA	24 Vdc	230 Vac*	30 A

* For the 120Vac/60HZ version, -01 is added to the model designation.

Complete technical specifications on pages 34-35.

Battery Lifetime Optimization: B.L.O.

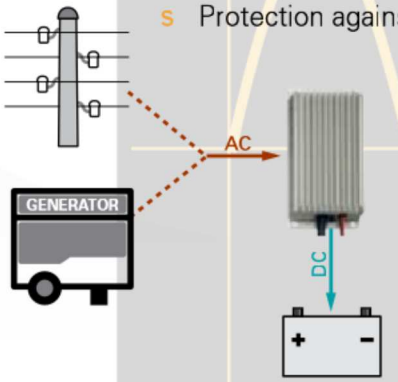
With this function the AJ inverters offer an advanced protection of the battery, by a smart management of the low voltage disconnection (LVD).

MBC series

The MBC chargers enable battery charging from an AC voltage supply source (genset, public grid, shorepower, etc.). These chargers are also watertight and therefore especially designed for outdoor applications (IP 65).

Features and performances

- Universal input voltage.
- Charge of lead acid batteries with liquid or gelled (GEL) electrolyte.
- Protection against battery overcharge.



MBC range	Battery voltage	Input voltage	Output current	Output
MBC 12-06/1	12 Vdc	230 Vac ±15%	6 A	1
MBC 12-15/1	12 Vdc	230 Vac ±15%	15 A	1
MBC 24-03/1	24 Vdc	230 Vac ±15%	3 A	1
MBC 24-08/1	24 Vdc	230 Vac ±15%	8 A	1
MBC 24-15/1	24 Vdc	230 Vac ±15%	15 A	1
MBC 24-32/1	24 Vdc	230 Vac ±15%	32 A	1

Complete technical specifications on page 37.

MOSFET battery splitters

MBI series

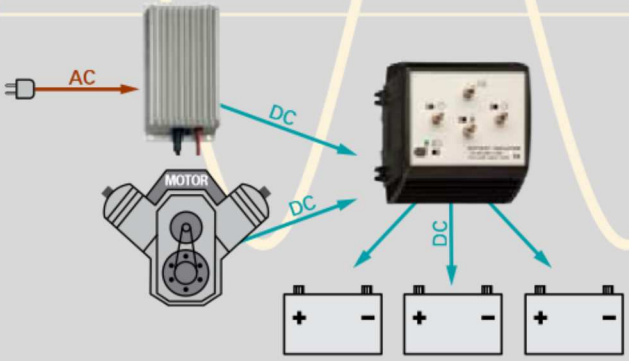
The MBI MOSFET battery splitters generate an insignificant voltage drop. They supply current from the charger or alternator to several batteries. All batteries are thus charged at the same time, and therefore will not charge or discharge each other.

MBI range	Input	Charge current	Charge input	Outputs
MBI 100/2	12/24 Vdc	100 A	1	2
MBI 150/2	12/24 Vdc	150 A	1	2
MBI 100/3	12/24 Vdc	100 A	1	3
MBI 150/3	12/24 Vdc	150 A	1	3
MBI 200/3	12/24 Vdc	200 A	1	3
MBI 2-100/3	12/24 Vdc	100 A	2	3

Complete technical specifications on page 38.

Features and performances

- Automatic adjustment to the batteries voltage.
- Possible charge of the battery from an alternator
- Voltage drop < 0.4 V at 100 Amp.
- Suitable for electronic alternators.



Battery separators

MBR series

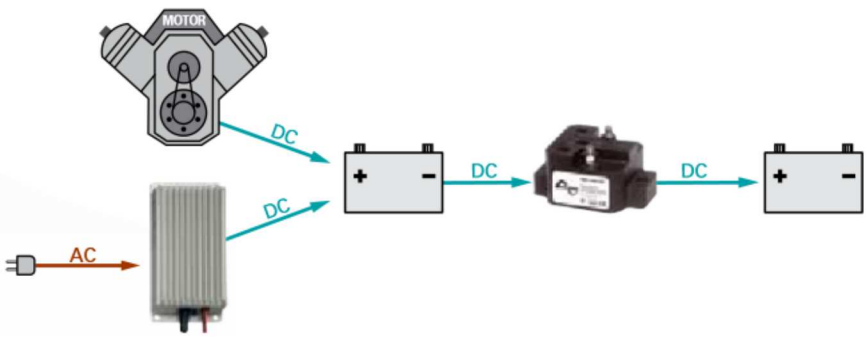
The MBR battery separators allow to supply the auxiliary battery or the appliances, as soon as the main battery voltage is high enough.

MBR range	Battery voltage	Charge current	Batteries
MBR 12/24-100	12/24 Vdc	100 A	2
MBR 12/24-160	12/24 Vdc	160 A	2
MBR 12/24-500	12/24 Vdc	500 A	2

Complete technical specifications on page 38.

Features and performances

- Insignificant voltage drop.
- Protects the auxiliary battery from any overvoltage.



Technical data

Xtender series

	Model	XTS 900-12	XTS 1200-24	XTS 1400-48	XTM 1500-12	XTM 2000-12	XTM 2400-24	XTM 2600-48	XTM 3500-24	XTM 4000-48	XTH 3000-12
	Inverter										
	Nominal battery voltage	12Vdc	24Vdc	48Vdc	12Vdc		24Vdc	48Vdc	24Vdc	48Vdc	12Vdc
	Input voltage range	9.5 - 17Vdc	19 - 34Vdc	38 - 68Vdc	9.5 - 17Vdc		19 - 34Vdc	38 - 68Vdc	19 - 34Vdc	38 - 68Vdc	9.5 - 17Vdc
	Continuous power @ 25°C	650**/500VA	800**/650VA	900**/750VA	1500VA	2000VA			3000VA	3500VA	2500VA
	Power 30 min. @ 25°C	900**/700VA	1200**/1000VA	1400**/1200VA	1500VA	2000VA	2400VA	2600VA	3500VA	4000VA	3000VA
	Power 5 sec. @ 25°C	2.3kVA	2.5kVA	2.8kVA	3.4kVA	4.8kVA	6kVA	6.5kVA	9kVA	10.5kVA	7.5kVA
	Maximum load	Up to short-circuit									
	Maximum asymmetric load	Up to Pcont.									
*	Load detection (stand-by)	2 to 25 W									
	Cos J	0.1-1									
	Maximum efficiency	93%	93%	93%	93%		94%	96%	94%	96%	93%
	Consumption OFF/Stand-by/ON	1.1W/1.4W/7W	1.2W/1.5W/8W	1.3W/1.6W/8W	1.2W/1.4W/8W	1.2W/1.4W/10W	1.4W/1.6W/9W	1.8W/2W/10W	1.4W/1.6W/12W	1.8W/2.1W/14W	1.2W/1.4W/14W
*	Output voltage	Pure sine wave 230Vac (± 2%) / 120Vac (1)									
*	Output frequency	Adjustable 45 - 60Hz (1) ± 0.05% (crystal controlled)									
	Harmonic distortion	<2%									
	Overload and short-circuit protection	Automatic disconnection with 3 time restart attempt									
	Overheat protection	Warning before shut-off - with automatic restart									
	Battery charger										
*	Charge Characteristic	6 steps: Bulk, Absorption, Floating, Equalization, reduced floating, periodic absorption Number of steps, thresholds, end current and times completely adjustable with the RCC-02/-03									
*	Maximum charging current	35A	25A	12A	70A	100A	55A	30A	90A	50A	160A
*	Temperature compensation	With BTS-01 or BSP 500/1200									
	Power Factor Correction (PFC)	EN 61000-3-2									
	General data	**XTS 900-12**	**XTS 1200-24**	**XTS 1400-48**	**XTM 1500-12**	**XTM 2000-12**	**XTM 2400-24**	**XTM 2600-48**	**XTM 3500-24**	**XTM 4000-48**	**XTH 3000-12**
*	Input voltage range	150 to 265Vac / 50 to 140Vac (1)									
	Input frequency	45 to 65Hz									
	Input current max. (transfer relay) / Output current max.	16Aac/20Aac			50Aac/56Aac						
	Transfer time	<15 ms									
	Multifunction contacts	Module ARM-02 with 2 contacts, in option			2 independent contacts (potential free 3 points, 16Aac/5Adc)						
	Weight	8.2 kg	9 kg	9.3 kg	15 kg	18.5 kg	16.2 kg		21.2 kg	22.9 kg	34 kg
	Dimension hxwxl [mm]	110x210x310	110x210x310	110x210x310	133x322x466				133x322x466		230x300x500
	Protection index	IP54			IP20						
	Conformity	Directive EMC 2004/108/EC: EN 61000-6-1, EN 61000-6-3, EN 55014, EN 55022, EN 61000-3-2, 62040-2 Low voltage directive 2006/95/EC: EN 62040-1-1, EN 50091-2, EN 60950-1									
	Operating temperature range	-20 to 55°C									
	Relative humidity in operation	100%			95% without condensation						
	Ventilation	Optional cooling module ECF-01			Forced from 55°C						
	Acoustic level	<40dB / <45dB (without/with ventilation)									
	Warranty	5 years									
	Accessories										
	Remote control RCC-02 or RCC-03	•	•	•	•	•	•	•	•	•	•
	Module Xcom-232i	•	•	•	•	•	•	•	•	•	•
	Internet based communication sets Xcom-LAN, Xcom-GSM	•	•	•	•	•	•	•	•	•	•
	Battery Status Processor BSP	•	•	•	•	•	•	•	•	•	•
	Remote Control Module RCM-10 (3 m)	•	•	•	•	•	•	•	•	•	
	2 aux. contacts module ARM-02	•	•	•							
	Cooling Module ECF-01	•	•	•							
	Battery temp. sensor BTS-01 (3 m)	•	•	•	•	•	•	•	•	•	•
	Communication cable for 3ph and // CAB-RJ45-8-2	•	•	•	•	•	•	•	•	•	•
	Mounting frame X-Connect										•

* Adjustable with the RCC-02/-03

** These features are valid only when using the cooling module ECF-01.

(1) With -01 at the end of the reference, means 120V/60Hz. Available for all Xtenders except XTH 8000-48

Data may change without any notice.

Technical data

AJ series

Model		AJ 275-12	AJ 350-24	AJ 400-48	AJ 500-12	AJ 600-24	AJ 700-48
Inverter							
Nominal battery voltage		12Vdc	24Vdc	48Vdc	12Vdc	24Vdc	48Vdc
Input voltage range		10.5 – 16Vdc (24Vdc max.)	21 – 32Vdc (44Vdc max.)	42 – 64Vdc (64Vdc max.)	10.5 – 16Vdc (24Vdc max.)	21 –32Vdc (44Vdc max.)	42 –64Vdc (64Vdc max.)
Continuous power @ 25°C		200VA	300VA	300VA	400VA	500VA	500VA
Power 30 min. @ 25°C		275VA	350VA	400VA	500VA	600VA	700VA
Power 5 min. @ 25°C		350VA	500VA	600VA	575VA	675VA	900VA
Power 5 sec. @ 25°C		450VA	650VA	1000VA	1000VA	1200VA	1400VA
Maximum asymmetric load		150VA	150VA	200VA	250VA	300VA	300VA
Max. efficiency (%)		93%	94%	94%	93%	94%	94%
Cos J max.		0.1 – 1 up to 200 VA	0.1 – 1 up to 300 VA	0.1 – 1 up to 300 VA	0.1 – 1 up to 400VA	0.1 – 1 up to 500VA	0.1 – 1 up to 500VA
Detection of the load		2W (only with the solar option -S)			Adjustable: 1 → 20W		
Current of short-circuit 2 sec. (exit)		2.3Aac (4.6Aac*)	3.2Aac (6.4Aac*)	4.6Aac (9.2Aac*)	5.2Aac (10.4Aac*)	5.7Aac (11.4Aac*)	7Aac (14Aac*)
Output voltage		Sine wave 230Vac (120Vac*) ±5%					
Frequency		50Hz (60Hz*) ± 0.05% (crystal controlled)					
Distortion THD (resistive load)		< 5% (@ Pnom.)					
Consumption Stand-by		0.3W**	0.5W**	1.1W**	0.4W	0.6W	1.5W
Consumption «ON» no load		2.4W	3.5W	5.2W	4.6W	7.2W	12W
Overheat protection (±5°C)		Shut down @ 75°C - Auto-restart @ 70°C					
Overload and short circuit protection		Automatic disconnection with 2 time restart attempt					
Reverse polarity protection as internal fuse		60A	40A	25A	120A	90A	60A
Deep discharge battery protection		Shut off @ 0.87 x Unom - Automatic restart @ Unom					
Max. battery voltage		Shut off @ >1.33 x Unom - Automatic restart @ < Umax					
Acoustic alarm		Before low battery or overheating disconnection					
General data							
Weight		2.4 kg	2.6 kg		4.5 kg		
Dimensions hxwxl [mm]		142x163x84			142x240x84		
Protection index IP		IP 30 conforms to DIN 40050					
Certification ECE-R 10 (E24)		•	•	Not available	•	•	Not available
EC conformity		EN 61000-6-1, EN 61000-6-3, EN 55014, EN 55022, EN 60950-1					
Operating temperature		-20°C to +50°C					
Relative humidity in operation		95% without condensation					
Ventilation forced		From 45°C ± 5°C					
Acoustic level		< 45 dB (with ventilation)					
Warranty		5 years					
Approximate correction of Pnom		-1.5%/°C since +25°C					
Recommended battery capacity		> 5 x Pnom/Unom (recommended value in Ah)					
Length cables (Battery/left AC)		1.2m / 1m			1.5m / 1m		
Options		**AJ 275-12-S**	**AJ 350-24-S**	**AJ 400-48-S**	**AJ 500-12-S**	**AJ 600-24-S**	**AJ 700-48-S**
Solar regulator	Voltage max.	25Vdc	45Vdc	90Vdc	25Vdc	45Vdc	90Vdc
	Current max.	10Aac			15Aac		
	Principle	Floating 3 stages (I/U/UO)					
	Absorption voltage	14.4Vdc	28.8Vdc	57.6Vdc	14.4Vdc	28.8Vdc	57.6Vdc
	Floating voltage	13.6Vdc	27.2Vdc	54.4Vdc	13.6Vdc	27.2Vdc	54.4Vdc
Plug for remote control (RCM)		•	•	•	•	•	•

* 120Vac/60Hz on request
** Standby with solar option -S

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VarioTrack series

Model	VT-65			VT-80		
Electrical characteristics PV array side						
At nominal battery voltage	12 V	24 V	48 V	12 V	24 V	48 V
Maximum solar power recommended (@STC)	1000 W	2000 W	4000 W	1250 W	2500 W	5000 W
Maximum solar open circuit voltage	80 Vdc	150 Vdc		80 Vdc	150 Vdc	
Maximum solar functional circuit voltage	75 Vdc	145 Vdc		75 Vdc	145 Vdc	
Minimum solar functional circuit voltage	Above battery voltage					
Electrical characteristics battery side						
Maximum output current	65 A			80 A		
Nominal battery voltages	Automatic / manual set to 12, 24 or 48 Vdc					
Operating voltage range	Above battery voltage, minimum 7 V					
Performances of the device						
Power conversion efficiency (in a 48 V typical-system)	>99 %					
Maximum stand-by self-consumption (48 V)	25 mA > 1.2 W					
Maximum stand-by self-consumption (24 V)	30 mA > 0.8 W					
Maximum stand-by self-consumption (12 V)	35 mA > 0.5 W					
Charging stages	6 stages: Bulk, Absorption, Float, Equalization, reduced floating, periodic absorption					
Battery temperature compensation (available with accessory BTS-01)	–3 mV /°C /cell (25°C ref) default value adjustable -8 to 0 mV /°C					
Electronic protections						
PV reverse polarity	Up to –150 Vdc					
Battery reverse polarity	Up to –150 Vdc					
Battery overvoltage	Up to 150 Vdc					
Over temperature	Protected					
Reverse current at night	Prevented by relays					
Environment						
Operating ambiant temperature range	–20 to 55°C					
Humidity	100 %					
Ingress protection of enclosures	IP54, IEC/EN 60529:2001					
Mounting location	indoor					
General data						
Warranty	5 years					
Weight	5.2 kg			5.5 kg		
Dimensions h/w/l [mm]	120 / 220 / 310			120 / 220 / 350		
Parallel operation (separated PV arrays)	Up to 15 devices					
Max wire size	35 mm²					
Glands	M 20 x 1,5					
Communication						
Network cabling	STUDER communication BUS					
Remote control and display	RCC-02/-03 / Xcom-232i					
Menu languages	English / French / German / Spanish					
Data logging	With RCC-02/03 on SD card - One point every minute					
Accordance to standards						
CE compliant	EMC 2004/108/CE - LV 2006/95/CE - RoHS 2002/95/CE					
Safety	IEC/EN 62109–1:2010					
EMC (Electro Magnetic Compatibility)	IEC/EN 61000–6–3:2011 - IEC/EN 61000–6–1:2005					
Accessories						
Remote control RCC-02 or RCC-03	•			•		
Module Xcom-232i	•			•		
Internet based communication sets Xcom-LAN, Xcom-GSM	•			•		
Battery Status Processor BSP	•			•		
2 aux. contacts module ARM-02	•			•		
Cooling Module ECF-01	•			•		
Battery temp. sensor BTS-01 (3 m)	•			•		
Communication cable for 3ph and // CAB-RJ45-8-2	•			•		

Data may change without any notice.

MBI series

MBI – Battery isolator, voltage drop free

Model	MBI 100/2 IG	MBI 150/2 IG	MBI 100/3 IG	MBI 150/3 IG	MBI 200/3 IG	MBI 2-100/3
Input nominal voltage (Vdc)	12/24					
Input voltage range (Vdc)	8-30					
Charge current max. (A)	100	150	100	150	200	100
Input number	1					2
Battery banks	2		3			
Voltage drop @ 10a/20A (V)	0.05 / 0.1					
Consumption (mA)	0					
Alternator start	•	•	•	•	•	
Operating temperature (°C)	-40 / +85					
Dimensions LxHxD (mm)	146x85x92		146x85x152			
Weight (gr)	780	810	780	810	815	780
Nominal voltage 12 or 24V	Automatic detection					
Insulation to ground	> 500V @ 60Hz					
Warranty	2 years					
Norms	EN 50081-1 (emission) EN 50082-1 (immunity) EN 60950-1 (safety)					

MBR series

MBR – Microprocessor controlled battery separator

Model	MBR 12/24-100	MBR 12/24-160	MBR 12/24-500
Nominal voltage (Vdc)	12/24	12/24	12/24
Charge current max. (Amp)	100	160	500
Connection threshold (Vdc) ± 2%	13.2/26.4	13.2/26.4	13.2/26.4
Disconnection threshold (Vdc) ± 2%	12.8/25.6	12.8/25.6	11.8/23.6
Battery banks	2		
Alternator start	•	•	•
Start contact for batteries paralleling		•	•
Micro switch for remote status indication			•
Dimensions LxHxD (mm)	46x46x80	46x93x96	72x70x80
Weight (gr)	110	300	417
Consumption	< 5mA		
Protection of the auxiliary battery against overvoltage	16 / 32Vdc		
Connection on the battery side	M6		M8
Other connections	6.3 mm Faston		
Warranty	2 years		
Norms	EN 50081-1 (emission) EN 50082-1 (immunity) Automotive Directive 95/54/CE		

Data may change without any notice.