



Inverters-chargers

Battery monitoring



**Engineered power**

Inverters

Battery chargers

Battery splitters

Battery separators

DC/DC converters

# Summary

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## Experience and competences

Studer Innotec was founded in 1987 by Roland Studer, current General Director. From 1987 to 1991, the company developed its areas of competences in the solar photovoltaics and in the energy conversion, with the first inverters (DC/AC).

In 2005, the Sommet Prize, organized among others by the Union Bank of Switzerland was awarded to Studer Innotec, for its capabilities to innovate as well as to export its inverters.



## 90% of the turnover exported

The launch in 1994 of the Twinpower, then in 1995 of the SI, both sine wave inverters with unbeaten performances so far, makes Studer Innotec's offer very attractive to demanding export markets.

This is the start of an export business which represents now some 90% of its turnover.



**Photos credits**  
 Robert Hofer : Studer's products ; Perspective : 4, 5, 20 ; Steca : p. 6 bottom ; Jeanneau : p. 8 top ; Meteorisk : p. 3, 8, 32 ; Siblik : p. 17.

**Graphism**  
 Atelier Perspective, R. Gigon, Sion.  
 October 2007



**Leadership**

Studer Innotec is today the leader of the inverter market in Switzerland and in Europe, and a major actor in the rest of the World.

It employs 40 people and manages a network of more than one hundred distributors in more than 70 countries.

Thanks to a large range of products, it is the only inverter manufacturer to cover the solar photovoltaic market as well as the nautical, the mobile, the backup and the telecom markets.

**Integration and flexibility of the production**

The philosophy of the company has been, from the very beginning, to master the process from A to Z, so from the development to the sales of the products. This is why Studer Innotec has started as a vertically integrated manufacturer, therefore more flexible than its competitors.

In other respects, to turn the markets expectations into products and services, an 8 people team is fully dedicated to Research & Development.

**The choice of the performance**

The high-tech design of its products, as well as the choice of the performance and of the reliability, brings Studer Innotec to select its components with the highest care. This is the reason why it has chosen the latest technologies, like the digital signal processors (DSP) which provide better performances and a higher efficiency to its inverters.



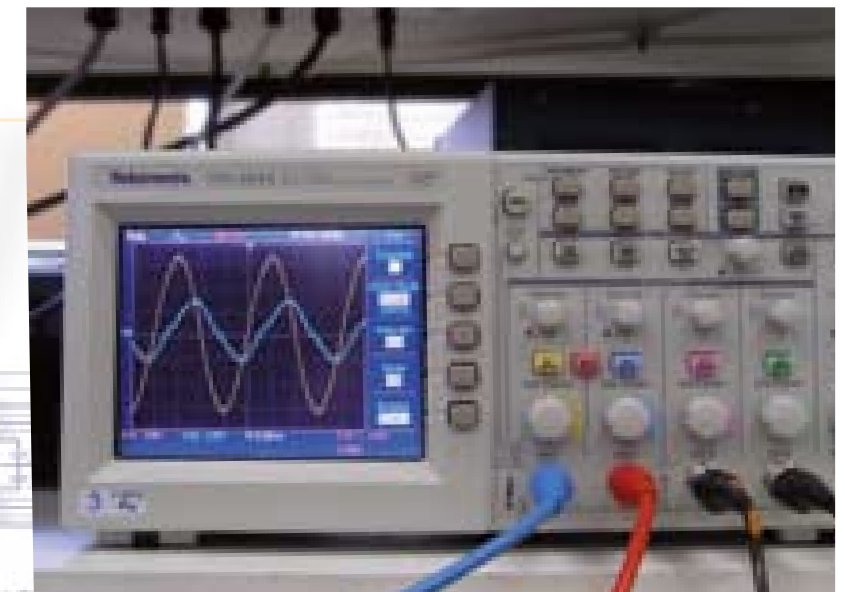
**Comfort and versatility of the products**

In future, this choice for quality and for service will continue to guide our strategic axes.

Beyond the performances, the next inverters will provide more comfort and will offer a greater versatility to their users.

**Closeness to the clients**

From research to industrial implementation, Studer Innotec intends to keep on investing financially and also in human resources, in order to maintain its lead in terms of the offer and of the closeness to the clients. This closeness expresses itself also by a network of partners qualified to service its products. The addresses of these partners, as well as the distributors, will be found on the company's website, under the heading « Distributors ».



Applications in remote areas



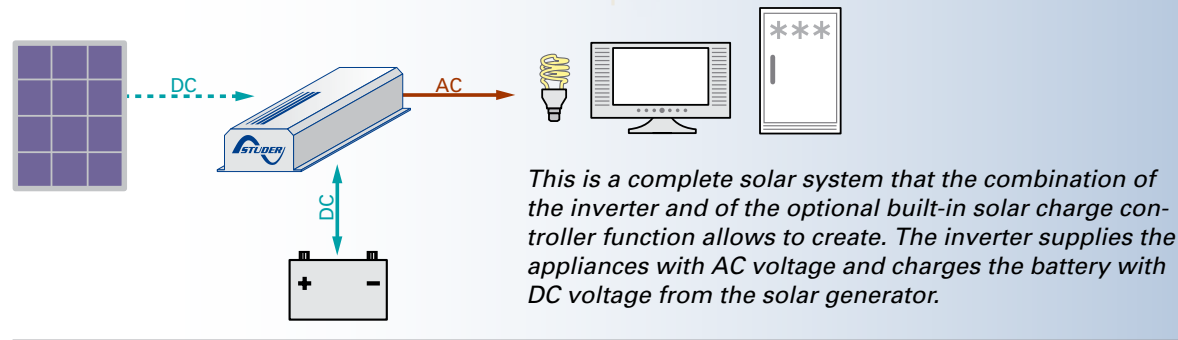
Far from any electrical grid, by choice or by force, security and comfort (lighting, heating, household appliances, leisure electronics, telecoms...) can yet be provided by autonomous energy systems. These systems consist firstly of an energy source, normally a genset, a solar generator, a wind turbine or a combination of them, secondly of a battery storage, and then thirdly of

devices (inverter-charger, battery charger) able to charge the battery from this energy source and to supply the users with AC voltage (inverter, inverter-charger).

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

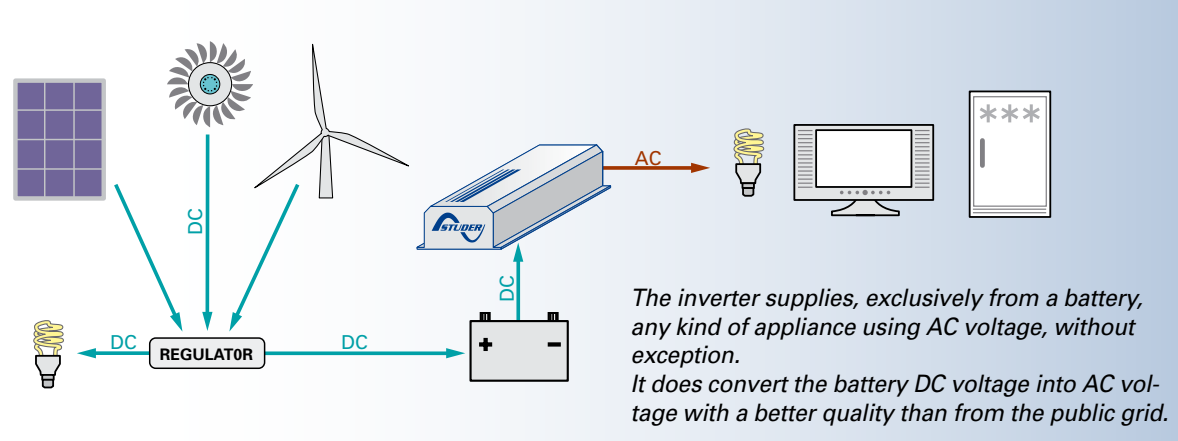


A complete solar system



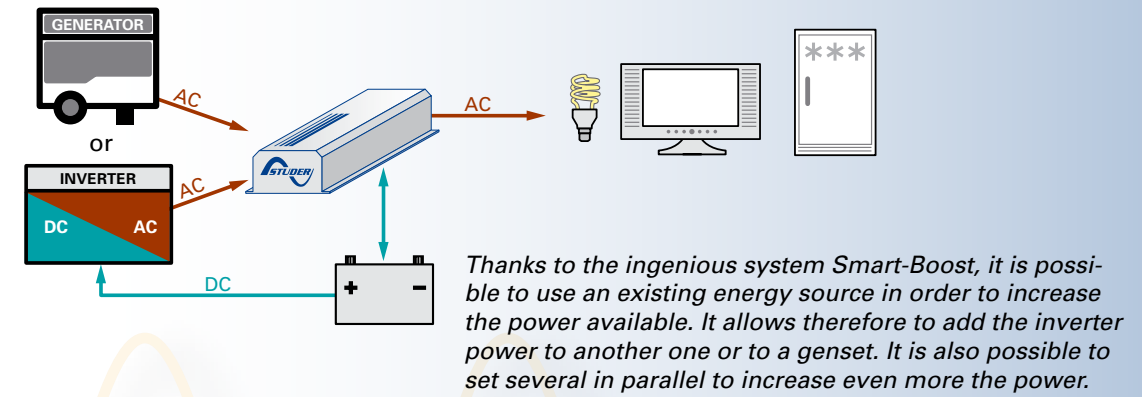
**AJ serie** p. 16  
(200 - 2000 VA)

Quality AC voltage for all electrical appliances



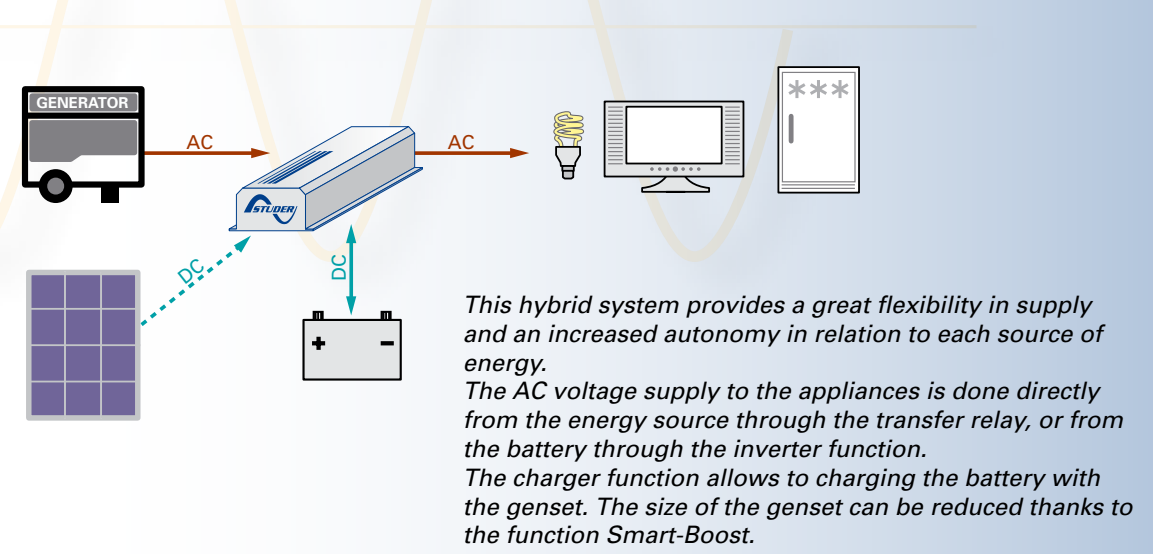
**Xtender serie** p. 12  
(2500 - 63000 VA)  
**Compact serie** p. 14  
(1100 - 7000 VA)  
**AJ serie** p. 16  
(200 - 2000 VA)  
**SI serie** p. 18  
(600 - 10500 VA)

Increase of the power



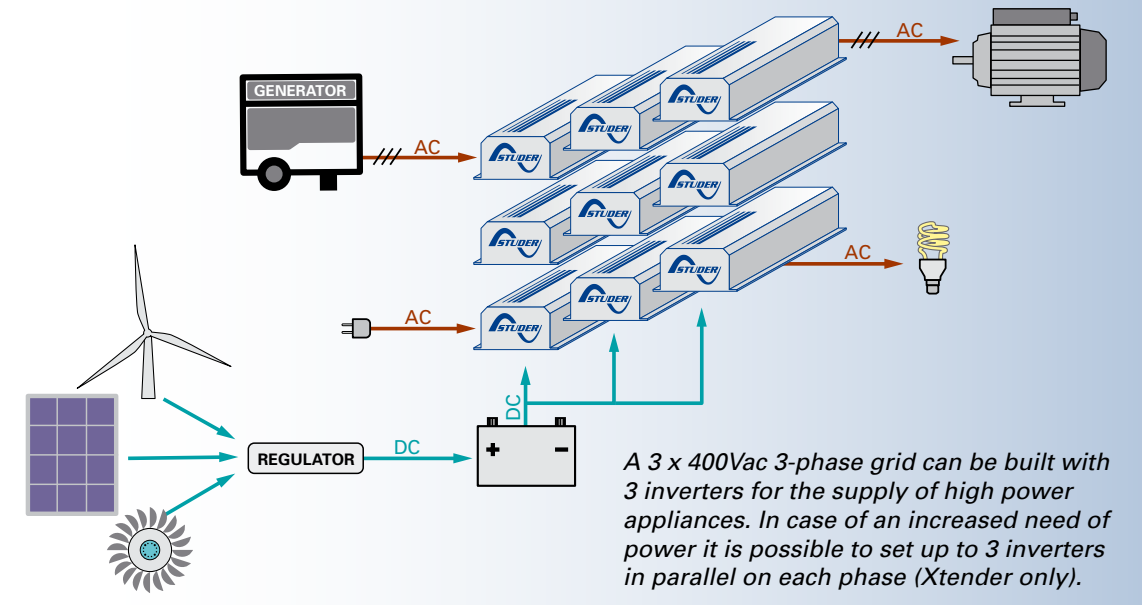
**Xtender serie** p. 12  
(2500 - 63000 VA)

Hybrid system: more autonomy and flexibility



**Xtender serie** p. 12  
(2500 - 63000 VA)  
**Compact serie** p. 14  
(1100 - 7000 VA)

3-phase grid 3 x 400Vac for high power appliances



**Xtender serie** p. 12  
(2500 - 63000 VA)  
**SI serie** p. 18  
(600 - 10500 VA)



Mobile applications



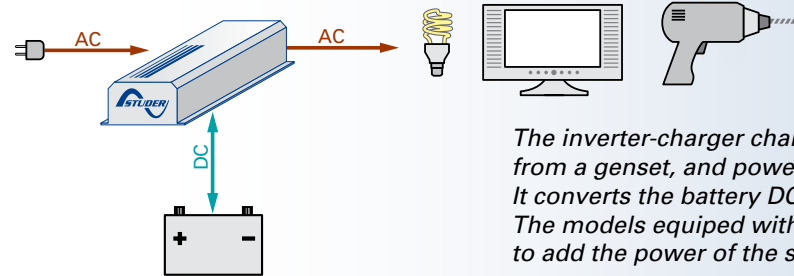
An energy system on-board is often necessary to power the AC voltage users, while the vehicle or the boat is away from the electrical grid (port, garage, camping...). In that case the energy is stored in the battery, which is actually charged by power sources on-board, like genset, solar generator, wind turbine, alternator or a combination of them. Studer Innotec offers the range of products that secure the management and the conversion of

this energy, while securing an optimal supply of the appliances on-board.

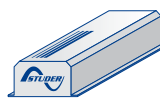

The examples below show our products in some mobile applications.



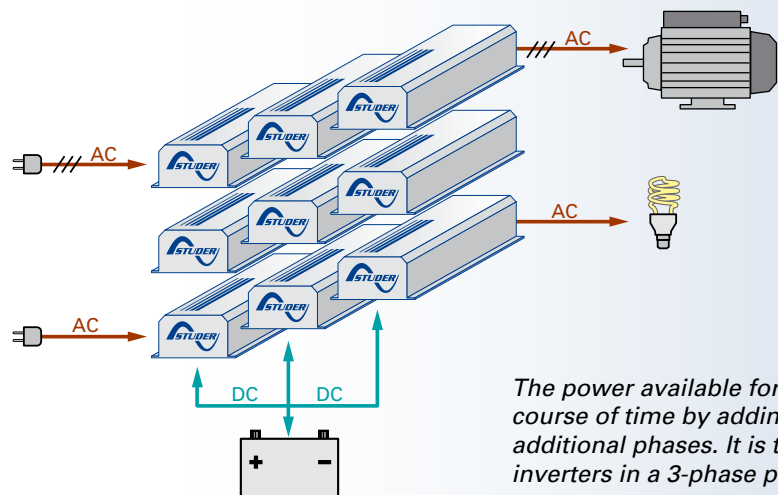
A simple and reliable system on-board



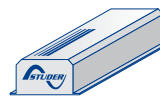
The inverter-charger charges the battery from the grid or from a genset, and powers any kind of electrical appliance. It converts the battery DC voltage to AC voltage. The models equipped with the system Smart-Boost enable to add the power of the source to the inverter one.

-  **Xtender serie** p. 12  
(2500 - 63000 VA)
-  **Compact serie** p. 14  
(1100 - 7000 VA)

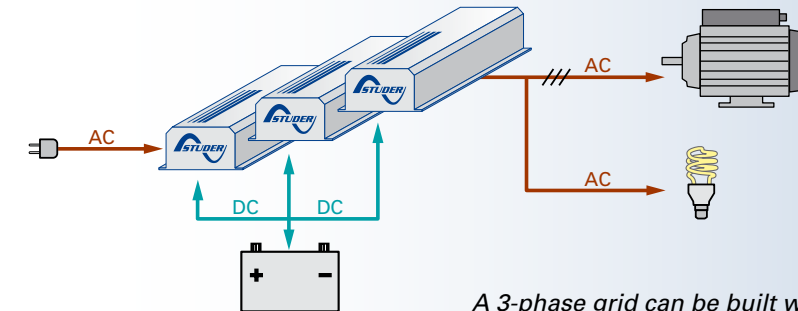
An upgradeable power



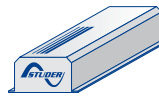
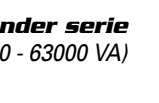
The power available for the users can be adapted in the course of time by adding inverters in parallel or by creating additional phases. It is therefore possible to install up to 9 inverters in a 3-phase power system.

-  **Xtender serie** p. 12  
(2500 - 63000 VA)

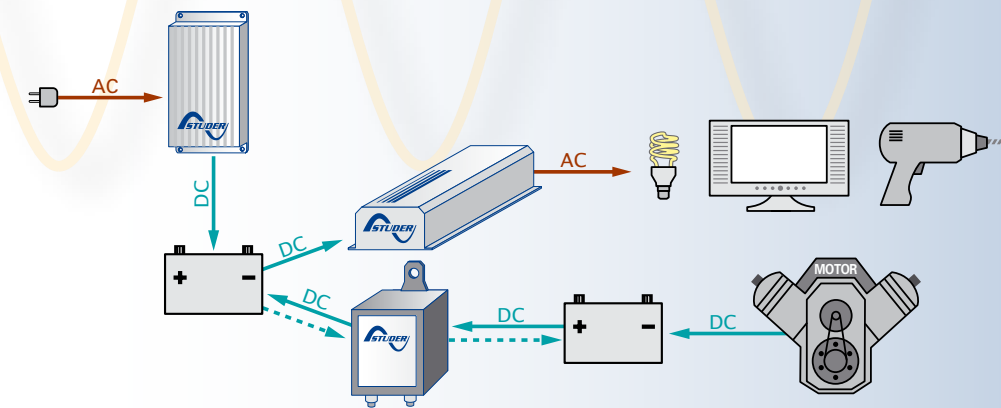
3 x 400Vac 3-phase grid on-board





A 3-phase grid can be built with 3 inverters. The serie Xtender enables to create a 3-phase grid and to charge simultaneously the battery, even if only a single phase is available as a power source

-  **Xtender serie** p. 12  
(2500 - 63000 VA)
-  **SI serie** p. 18  
(600 - 10500 VA)

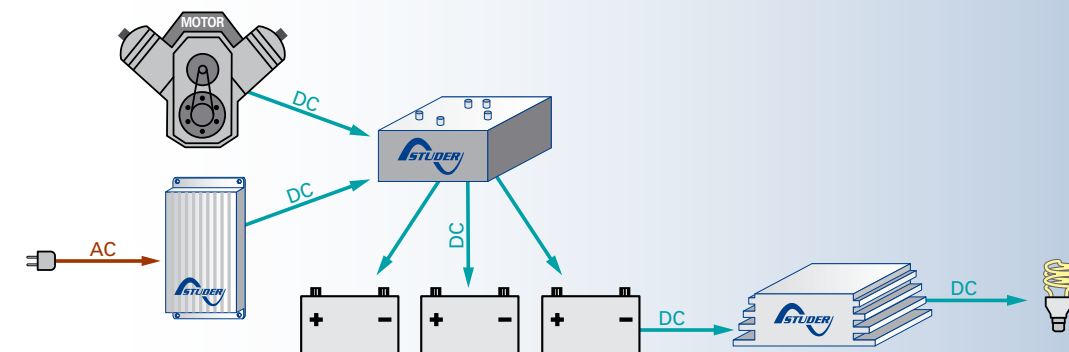
Successive charge of the batteries



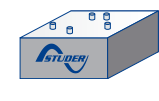


In this system, a battery separator enables the charge of one or several auxiliary batteries once the primary battery is charged.

-  **MBR serie** p. 22
-  **MBC serie** p. 20

Simultaneous charge of batteries



A MOSFET splitter, with almost no voltage losses, enables to split the charge current to and in between several batteries. From the battery pack, a DC/DC converter will step up or step down the voltage according to the voltage of the users, 12, 24 or 48Vdc.

-  **MBI serie** p. 22
-  **MBC serie** p. 20
-  **MDCI-MDC serie** p. 21

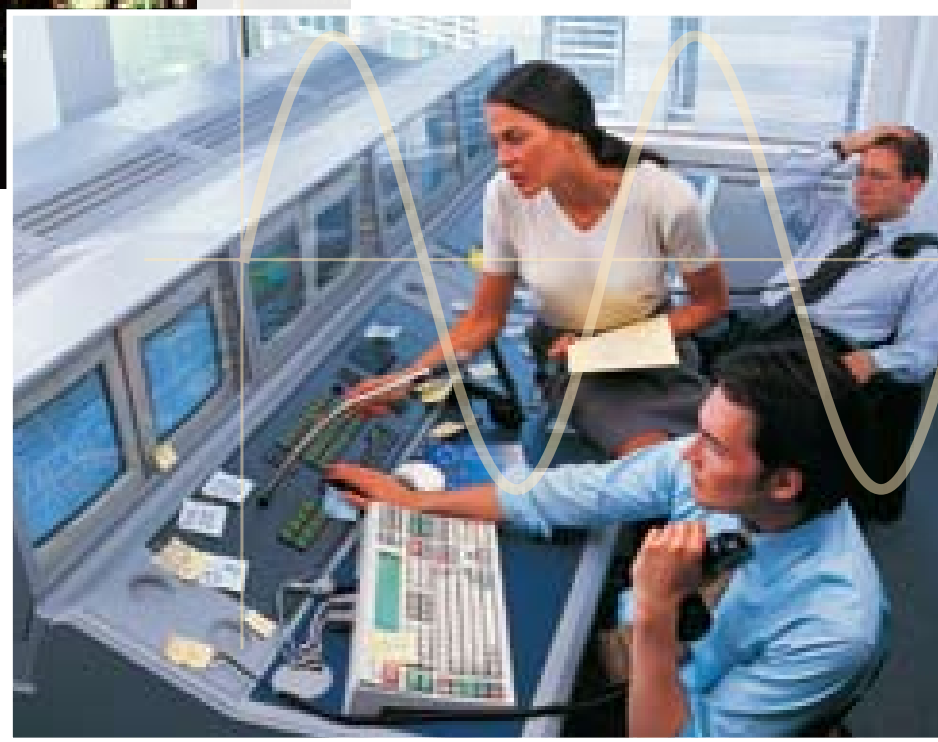
## Backup applications



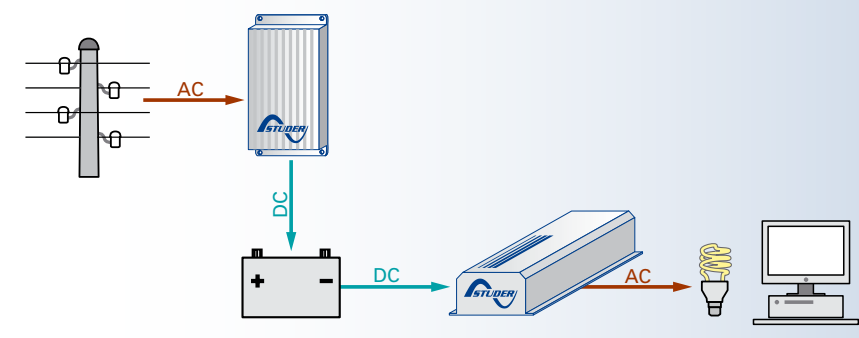
Supplied by the public grid, the users like fridges, PCs, emergency lights, etc. which can not afford any power cut, are electrically securitized. An inverter-charger with transfer relay or a combination of an inverter and a charger guarantees to maintain well the battery and to keep uninterrupted the supply of strategic appliances.

Studer Innotec offers solutions from 200W up to 63kW with a product choice unchallenged on the market.

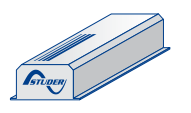
Some examples of backup applications are described below.



### Uninterruptible power supply on-line



In this system, the functions of battery charge and of users supply are separated, with on one side a battery charger, and on the other an inverter. The fluctuations of the grid current have no impact on the users.



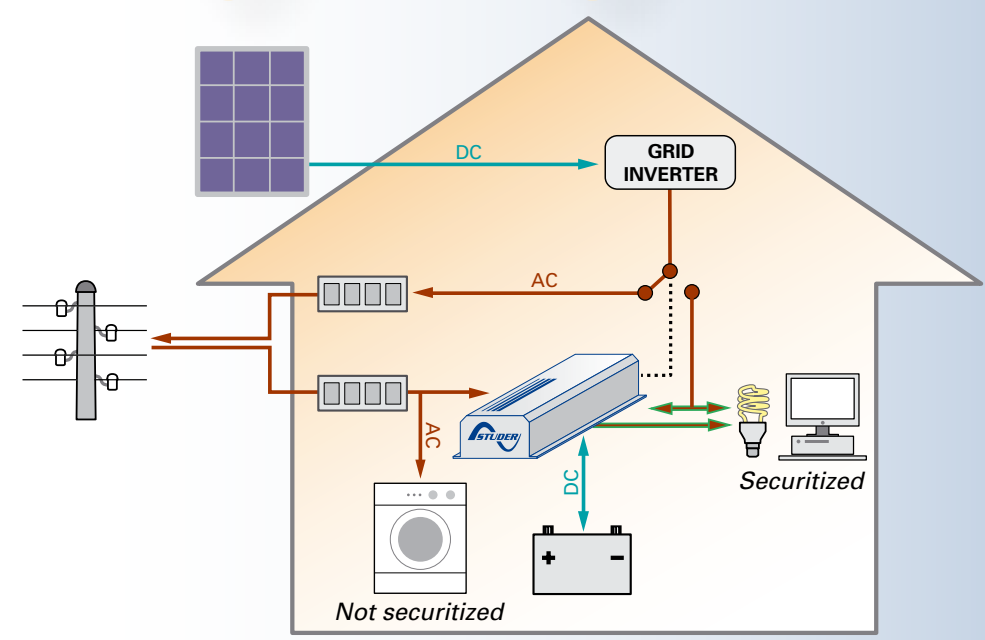
**AJ serie** (200 - 2000 VA) p. 16

**SI serie** (600 - 10500 VA) p. 18

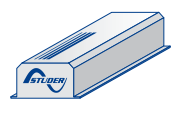


**MBC serie** p. 20

### Solsafe – a backup system for grid connected solar installations

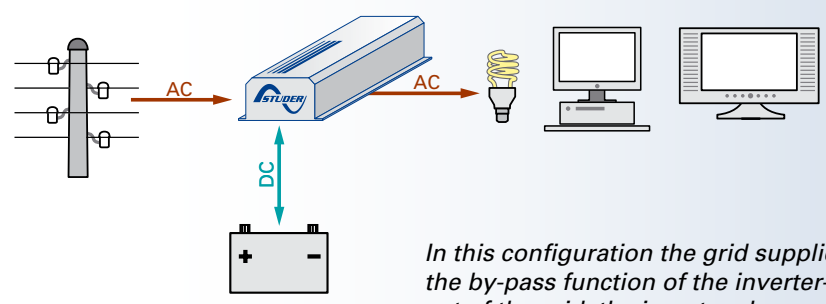


The installation of our solution Solsafe (inverter-charger from the Compact series + module type ARM-01) in a grid connected solar system enables to securitize totally or partially the power supply in case of a power cut, and so to keep on using the solar energy being produced.

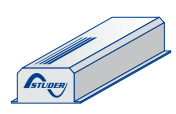


**Compact series** p. 14 (1100 - 7000 VA)

### Uninterruptible power supply off-line



In this configuration the grid supplies directly the users thanks to the by-pass function of the inverter-charger. In case of a drop or a cut of the grid, the inverter-charger guarantees the supply of the users.



**Xtender serie** p. 12 (2500 - 63000 VA)

**Compact series** p. 14 (1100 - 7000 VA)



### Xtender Serie

The Xtender serie provides an unmatched freedom of use thanks to its many functions. In a basic application, it offers together 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 an exceptional comfort and an optimal management of the energy available.

Its programmable auxiliary contacts allow as well the interconnection with existing systems or the implementation of extended functions. Fully programmable by means of its remote control, it enables the update of the software, thus making it an upgradeable product to which new functions may be added further on.

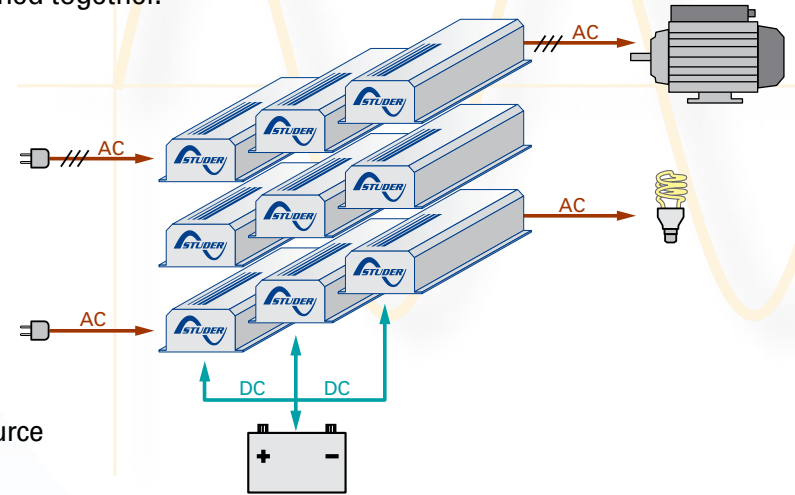
By the implementation of several units, it is possible to create a 3-phase source or to set them in parallel to increase the power available. Up to 9 inverters of the Xtender serie shall therefore be combined together.

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



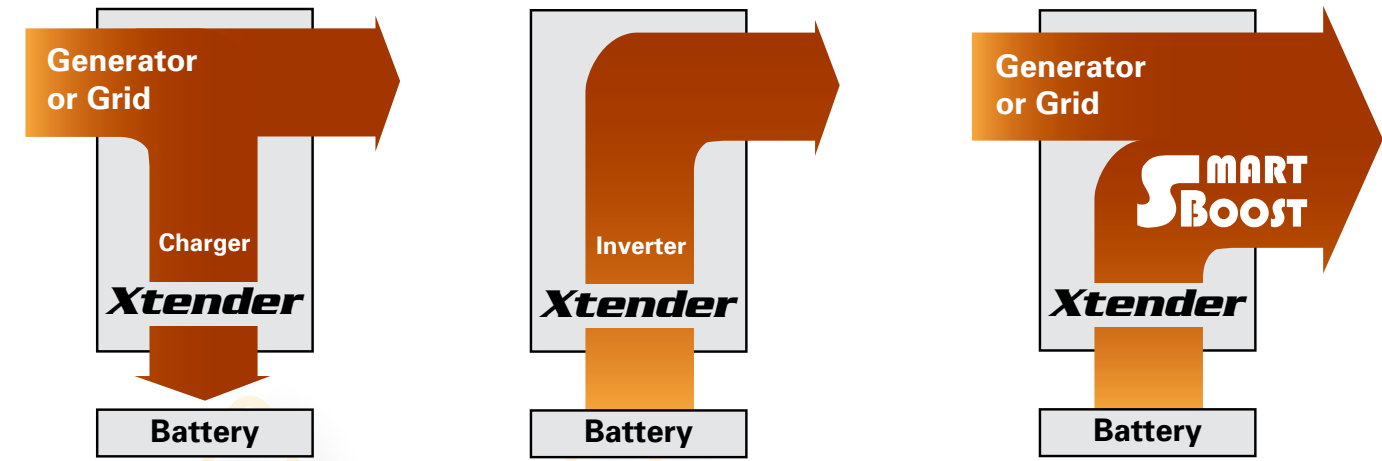
### Features and performances

- True sine wave voltage.
- Reliable and silent with any kind of load.
- Outstanding overload capabilities.
- Function Smart-Boost for assistance to the source even with difficult loads.
- Automatic reduction of peak loads (power shaving).
- Automatic allocation of the power available (power sharing).
- Stand-by level adjustable over a large range and from a very low threshold.
- Multi-stage programmable battery charger with PFC.
- Ultra-fast transfer relay.
- High efficiency.
- Control by digital signal processors (DSP).



### Function Smart-Boost

The function Smart-Boost enables to add the inverter power to another source, like for instance a genset or the shorepower, even in case of asymmetric loads. It is possible to add an Xtender to almost any other existing inverter in order to increase the power available.



### Multifunctional contacts

The potential free contacts can be programmed to provide many supplementary functions. They can react to each event, inside or outside of the inverter (presence of the grid, battery thresholds, alarm signal...). The contacts can also be programmed as time switch or can be disabled during sensitive periods (night, week-end...). They allow therefore the implementation of functions like the automatic start of gensets, the automatic disconnection of second priority users, the alarm signal, the conditional charge of the battery...

### Accessories

	<p><b>Remote control and programming centre RCC-02 or RCC-03</b> Thanks to its graphic display it provides many understandable indications on the state of the system. The remote control memorizes and displays the events that occurred on an installation and so it does anticipate the problems that might appear. It gives access to the many adjustable parameters of the Xtender like the setting of the charge curve of the battery, the programming of the auxiliary relays or even, among others, to a lot of operation options. A place is dedicated to a SD card which will allow the parameters memorizing, the data transfer or the software update. Cables for RCC-02 and RCC-03 : CAB-RJ45-5 (5 m), CAB-RJ45-20 (20 m), CAB-RJ45-50 (50 m)</p>
	<p><b>Battery temperature sensor BTS-01 (3 m)</b> This sensor enables to accurately adapt the charge thresholds to the battery temperature.</p>
<p><b>Communication cable for 3ph and parallel CAB-RJ45-2 (2 m)</b> Allows the setting in parallel or the implementation of a 3-phase system even when only a single-phase source is available.</p>	

Xtender range	Inverter			Charger	Transfer
	Battery voltage	Power P30/Pnom	Power Smart-Boost	Charge current	Maximum current
XTH 3000-12	12V	3000VA / 2500VA	3000VA	160A	50A / 11.5kVA
XTH 5000-24	24V	5000VA / 4500VA	5000VA	140A	50A / 11.5kVA
XTH 6000-48	48V	6000VA / 5000VA	6000VA	100A	50A / 11.5kVA
XTH 8000-48	48V	8000VA / 7000VA	8000VA	120A	50A / 11.5kVA

Complete technical specifications on page 24.



# Sine wave inverters-chargers



## Compact series

The models of the Compact series consist of 3 fully automatic functions : a sine wave inverter, a battery charger and a transfer system. Equipped with a high-end technology, they carry our long experience in the field of electrical supply.

### 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.

**E<sub>24</sub>** 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. This certification is mandatory in the European Union for all electrical equipments on board of vehicles.



### XP COMPACT

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

### COMPACT

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

### HP COMPACT

- HPC 2800-12
- HPC 4400-24
- HPC 6000-48
- HPC 8000-48

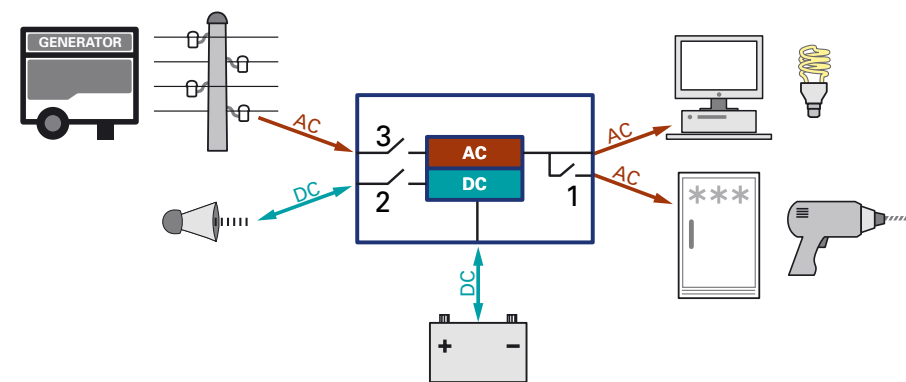
Compact range	Function inverter		Function charger	Transfer relay
	Power 30 min. / continuous at 25°C	Battery voltage	Adjustable charge current	Maximum current
XPC 1400-12	1400VA / 1100VA	12Vdc	0 - 45A	16A/3.7kVA
XPC 2200-24	2200VA / 1600VA	24Vdc	0 - 37A	16A/3.7kVA
XPC 2200-48	2200VA / 1600VA	48Vdc	0 - 20A	16A/3.7kVA
C 1600-12	1600VA / 1300VA	12Vdc	0 - 55A	16A/3.7kVA
C 2600-24	2600VA / 2300VA	24Vdc	0 - 55A	16A/3.7kVA
C 4000-48	4000VA / 3500VA	48Vdc	0 - 50A	16A/3.7kVA
HPC 2800-12	2800VA / 2500VA	12Vdc	0 - 110A	30A/6.9kVA
HPC 4400-24	4400VA / 4000VA	24Vdc	0 - 100A	30A/6.9kVA
HPC 6000-48	6000VA / 5000VA	48Vdc	0 - 70A	30A/6.9kVA
HPC 8000-48	8000VA / 7000VA	48Vdc	0 - 90A	50A/11.5kVA

Complete technical specifications on page 25.

### Multifunctional contact

The 16 A. potential free contact can be programmed according to the user wishes. It can react according to the battery levels as well as to the system status (alarm conditions, presence of the public grid, sunlight's presence...), and it enables for example :

- 1/ Automatic disconnection of second priority users (conditional supply).
- 2/ Alarm signalisation, acoustic signal, MODEM, radio alarm etc.
- 3/ Conditional battery charge.

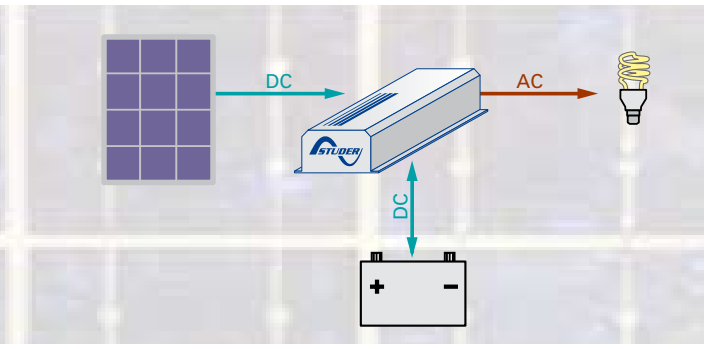


### Accessories

		XP COMPACT	COMPACT	HP COMPACT
	<b>Remote control RCC-01</b> Comprehensive LED display. Also for the programming of the COMPACT series (supplied with 20m cable).	•	•	•
	<b>Temperature sensor CT-35</b> This sensor adapts charge levels to the temperature variations of the battery (supplied with 3m cable).	•	•	•
	<b>Remote control RPS-01</b> The setting of the power sharing can be remotely controlled by means of the remote control supplied with a 20m cable.		•	•
	<b>Auxiliary relay module ARM-01</b> Equipped with 4 programmable relays, this module enables to implement the system Solsafe (see page 11).	•	•	•
	<b>Cover CFC-01</b> This cover provides an additional protection to the connections by means of glands.	•	•	
	<b>Cover C-IP23</b> Cover for a protection against intrusions or projections, installed after the mounting of the device. It extends the protection index from IP 20 to IP 23.	•	•	

### Optional built-in solar charge controller (-S)

The models XP Compact and Compact are available with an optional built-in charge controller (I/U/Uo) making the inverter-charger an « all in one » device for a solar installation.





Sine wave inverters

- Applications
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  - 
  -

**AJ serie**

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

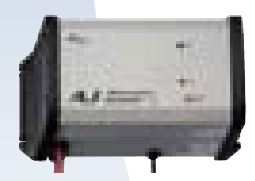
**Features and performances**

- High and steady efficiency.
- Outstanding overload capabilities.
- Digital regulation and control by microprocessor.
- Electrical supply to any kind of appliance.
- Full internal protection.
- Stand-by level adjustable from a very low threshold.

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



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



**AJ serie**  
AJ 1000-12  
AJ 1300-24



**AJ serie**  
AJ 2100-12  
AJ 2400-24

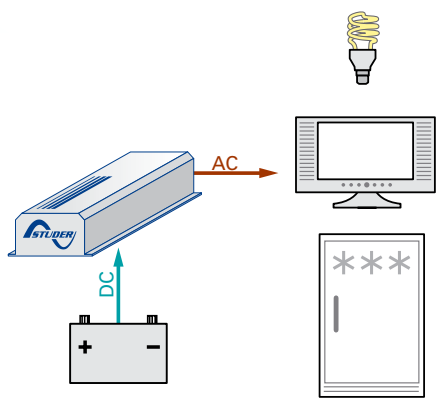


**E<sub>24</sub> Norm E certification**

The AJs in 12 and 24Vdc are certified to the ECE-R 10 norm. This certification is mandatory in the European Union for all electrical equipments on board of vehicles.

AJ range	Power 30 min. / continuous at 25°C	Battery voltage
AJ 275-12	275VA / 200VA	12Vdc
AJ 350-24	350VA / 300VA	24Vdc
AJ 400-48	400VA / 300VA	48Vdc
AJ 500-12	500VA / 400VA	12Vdc
AJ 600-24	600VA / 500VA	24Vdc
AJ 700-48	700VA / 500VA	48Vdc
AJ 1000-12	1000VA / 800VA	12Vdc
AJ 1300-24	1300VA / 1000VA	24Vdc
AJ 2100-12	2100VA / 2000VA	12Vdc
AJ 2400-24	2400VA / 2000VA	24Vdc

Complete technical specifications on pages 26-27.

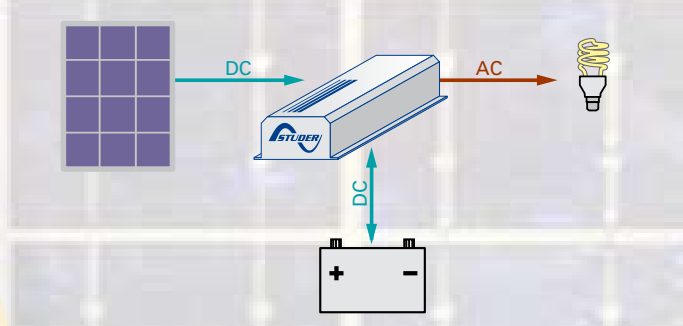


**Options and accessories**

	AJ 275-12, AJ 350-24 AJ 400-48, AJ 500-12 AJ 600-24, AJ 700-48	AJ 1000-12, AJ 1300-12 AJ 2100-12, AJ 2400-24
<b>Remote control JT8</b> Enables to control the inverter remotely (supplied with 10m cable).		•
<b>Plug for remote control RCM :</b> RCM 01 : ON when a contact is closed ; RCM 02 : ON when a voltage is present (key controlled) on the remote control ; RCM 03 : ON when a contact is open.	•	

**Optional built-in solar charge controller (-S)**

An optional 3 STEP charge controller (I/U/Uo) can be supplied built-in making the inverter AJ an « all in one » device for a solar installation.



**Rural electrification (Solar Home System)**

The rural electrification and the inverters of the AJ serie : excellence to the benefit of the development of remote areas and populations. Choosing AC voltage for the rural electrification systems is going for simplicity, reliability and cost saving. Indeed, compared with a DC voltage one, a system with an inverter is often more efficient from 100W of solar power, and is always since 200W.

The AJ serie, due to its overload capability and to its very reliable stand-by system adjustable from 1W, is the most suitable range of inverters to meet the rural electrification technical and economical requirements.



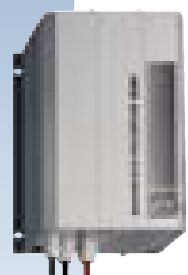


**SI serie**

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

**SI serie**

- SI 612
- SI 624
- SI 648
- SI 812
- SI 824



**SI serie**

- SI 1212
- SI 1224
- SI 1248
- SI 1624
- SI 2324
- SI 2348
- SI 3324
- SI 3548

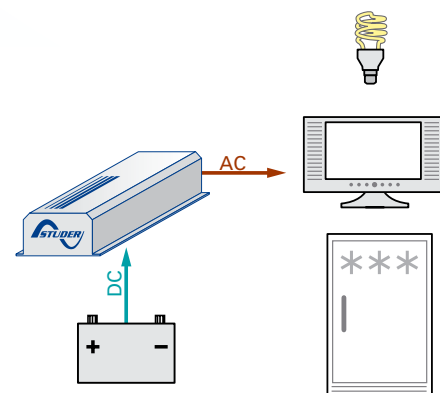


**Features and performances**

- High efficiency.
- Outstanding overload capabilities thanks to the combined use of a toroidal transformer, of an oversized power stage and of an ultra-fast regulation.
- Electrical supply to any kind of appliance.
- Full internal protection.
- Stand-by level adjustable over a large range and from a very low threshold.
- Reliable and silent working with all kind of loads.
- Possibility in option to connect 3 inverters together in an autonomous 3 x 400Vac 3-phase grid.
- Built-in solar charge controller in option for solar systems (only SI 600 and 800).
- A range in 19" rack is also available from 1200 to 3500W (see option SIxxxxIND).

SI range	Continuous power at 25°C	Battery voltage
SI 612	600VA	12Vdc
SI 624	600VA	24Vdc
SI 648	600VA	48Vdc
SI 812	800VA	12Vdc
SI 824	800VA	24Vdc
SI 1212	1200VA	12Vdc
SI 1224	1200VA	24Vdc
SI 1248	1200VA	48Vdc
SI 1624	1600VA	24Vdc
SI 2324	2300VA	24Vdc
SI 2348	2300VA	48Vdc
SI 3324	3300VA	24Vdc
SI 3548	3500VA	48Vdc

Complete technical specifications on page 28.



**Options and accessories**



**Cover C-IP23**  
Cover for a protection against intrusions or projections, installed after the mounting of the device. It extends the protection index from IP 20 to IP 23.

**Option Twinpower SI xxxxTP**, without stand-by, no-load consumption < 0.5W.

**Option 3-phase SI xxxxPE**, for 3 x 400V applications.

**Option 19" SI xxxxIND**, inverter in 19" rack.

**Alarm contact SI xxxxA**, potential free contact 60V/0.5A.

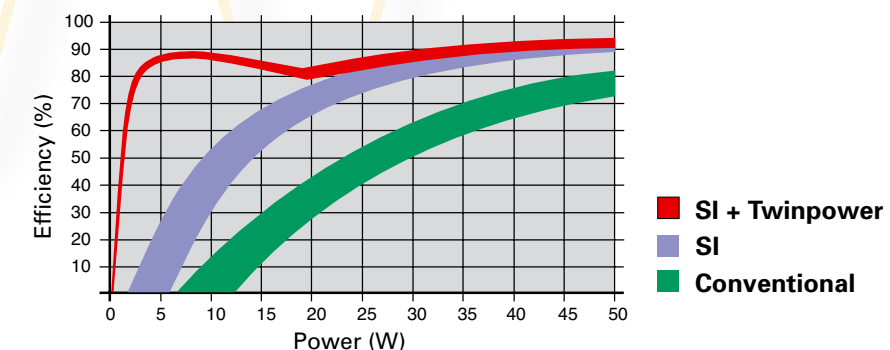
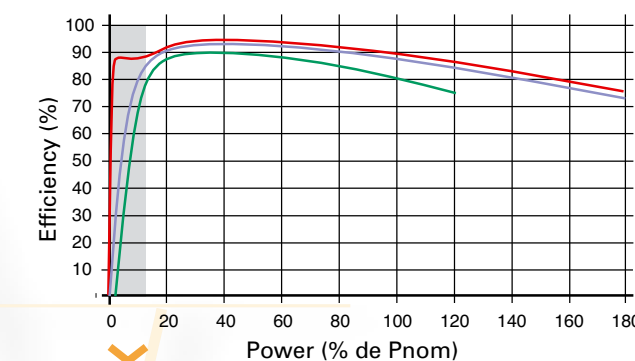
**Solar charge controller SI xxxS**, built in the SI, 16A max. current.

	SI 612 to SI 824	SI 1212 and up
Cover C-IP23	•	•
Option Twinpower SI xxxxTP		•
Option 3-phase SI xxxxPE		•
Option 19" SI xxxxIND		•
Alarm contact SI xxxxA	•	•
Solar charge controller SI xxxS	•	

**Option TWINPOWER**

From 1200W there is a possible choice between a stand-by system (load detection adjustable from 0.3 to 20W) and the unique TWINPOWER option.

The TWINPOWER option enables the permanent use of very small loads (like alarms or security systems) with an outstanding efficiency, 10times higher than any other inverter, and a no-load consumption < 0.5W (see above Options and accessories).

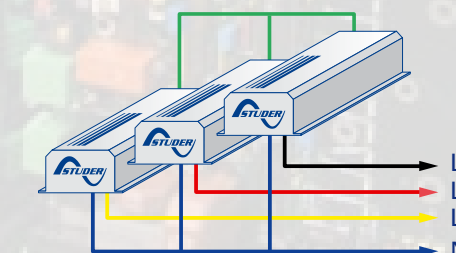


**Industrial casing in 19" rack**

The availability of the inverters in 19" rack, from the SI 1200, is a direct evolution of the sine wave SI series and it meets particularly well the industrial applications (see above Options and accessories).

**3-phase**

With the PE option, and from the SI 1200, it is possible to connect 3 inverters together to build a 3 x 400Vac 3-phase grid. This extends the SI range up to 10500VA (3 x SI 3548 PE). Such a configuration enables to supply motors and other 3-phase equipments, even with asymmetrical powers on the phases (see above Options and accessories).



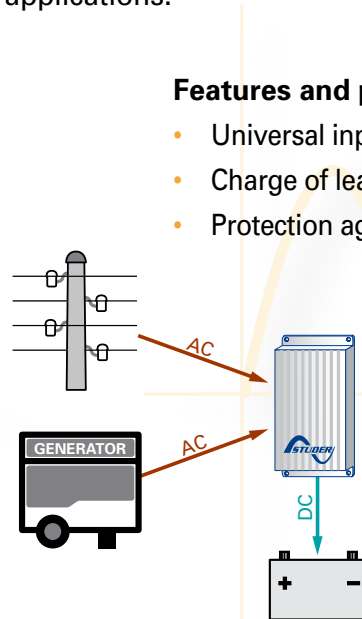
## Battery chargers

### MBC serie

The MBC chargers enable to charge a battery from an AC voltage source of supply (genset, public grid, shore power...). These chargers are also IP65 and therefore especially designed for outdoor applications.

#### Features and performances

- Universal input voltage.
- Charge of lead-acid or GEL batteries.
- Protection against battery overcharge.



MBC range	Battery voltage	Input voltage	Output current	Output
<i>MBC 12-06/1</i>	12 Vdc	100-260 Vac	6 A	1
<i>MBC 12-15/1</i>	12 Vdc	100-260 Vac	15 A	1
<i>MBC 24-03/1</i>	24 Vdc	100-260 Vac	3 A	1
<i>MBC 24-08/1</i>	24 Vdc	100-260 Vac	8 A	1

Complete technical specifications on page 29.



## DC/DC converters

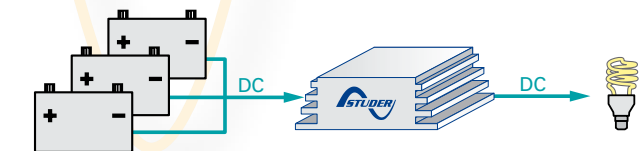
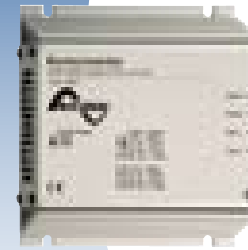
### MDCI and MDC series

The DC/DC converters type MDCI and MDC are used, depending on the model, either to step up or to step down a DC voltage.

The converters of the MDCI range are electrically isolated.

#### Features and performances

- High efficiency.
- Low consumption.
- Protection against short-circuit, overheat, overvoltage and reverse polarity.
- Great stability of the output voltage for a more reliable system.



MDCI range	Power	Input variant	Output variant	Isolated
<i>MDCI 100</i>	100 W	A/B/C/D	12/24 Vdc	Yes
<i>MDCI 200</i>	200 W	A/B/C/D	12/24 Vdc	Yes
<i>MDCI 360</i>	360 W	A/B/C/D	12/24 Vdc	Yes
<i>MDCI 360 A24 Charger</i>	330 W	A	24 Vdc	Yes

A = 9-18 Vdc    B = 20-35 Vdc    C = 30-60 Vdc    D = 60-120 Vdc

MDC range	Current	Input voltage	Output voltage	Isolated
<i>MDC 1224-7</i>	7 A	9-18 Vdc	24 Vdc	No
<i>MDC 2412-5</i>	5 A	18-35 Vdc	13.2 Vdc	No
<i>MDC 2412-8</i>	8 A	18-35 Vdc	13.2 Vdc	No
<i>MDC 2412-12</i>	12 A	20-35 Vdc	13.2 Vdc	No
<i>MDC 2412-20</i>	20 A	20-35 Vdc	13.8 Vdc	No
<i>MDC 2412-30</i>	30 A	20-35 Vdc	13.8 Vdc	No

Complete technical specifications on page 29.

The MDC 2412-20 and 2412-30, as well as the MDCI 360 A24 « Charger » can also be used to charge a battery from a source at their input terminal to a battery at their output terminal.



## MOSFET battery splitters

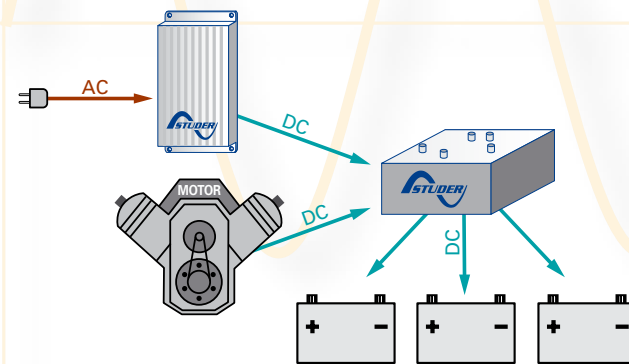


### MBI serie

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

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

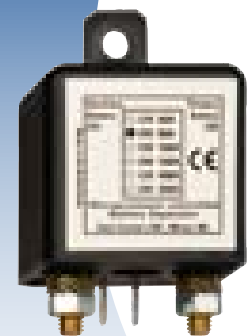
Complete technical specifications on page 30.



#### 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. charge current.
- Suitable for electronic alternators.

## Batteries separators

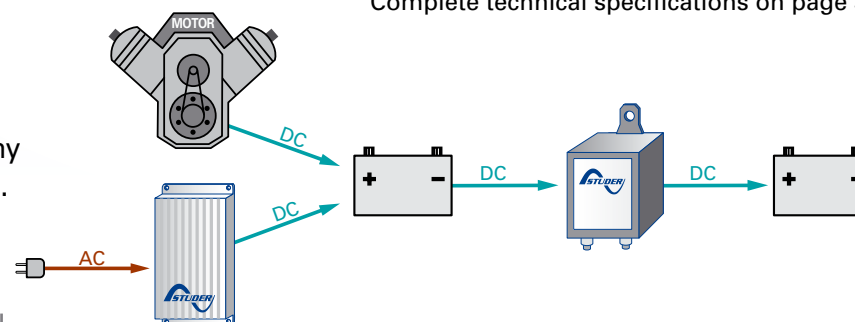


### MBR serie

The batteries separators MBR are microprocessor controlled. They charge first the primary battery, from a charger or an alternator, then the other batteries by connecting them in parallel.

MBR range	Battery voltage	Charge current	Batteries
MBR 12-80	12 Vdc	80 A	2
MBR 24-80	24 Vdc	80 A	2
MBR 12-160	12 Vdc	160 A	2
MBR 24-160	24 Vdc	160 A	2
MBR 12-400	12 Vdc	400 A	2
MBR 24-400	24 Vdc	400 A	2

Complete technical specifications on page 30.



#### Features and performances

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

## Battery protection



### MBW serie

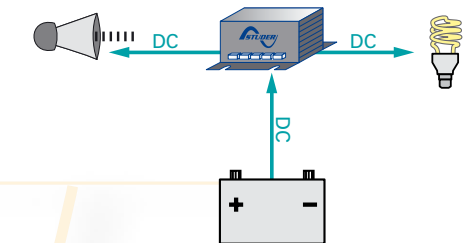
The Battery Watch protects the battery from an excessive discharge and also the users in case of overvoltage.

#### Features and performances

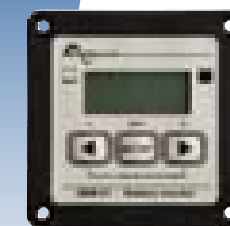
- Programming of the connection and disconnection voltages by jumpers.
- MOSFET switches, therefore no sparks.
- Alarm output to indicate excessive voltage drops.

MBW range	Current maximum/nominal	Operating voltage range (Vdc)
MBW 30	30/25	6-35
MBW 60	60/50	6-35

Complete technical specifications on page 31.



## Battery monitoring



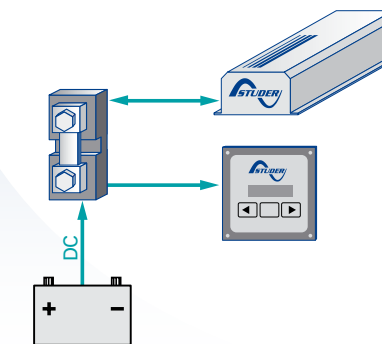
### SBM-01

The SBM-01 is a highly accurate battery monitor with a history data memory. It is supplied together with a 500A/50mV shunt.

This device is designed for 12 and 24V batteries. The voltage pre-scaler SBM-PS-01 in option extends the use of the SBM-01 to 27-175V batteries.

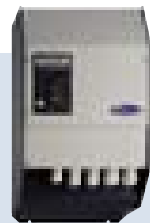
#### Features and performances

- Digital display of the 6 most important parameters of a DC power system :
  1. Battery voltage (V)
  2. Current (A)
  3. Consumed Ampere-hours (Ah)
  4. State-of-charge (%)
  5. Time-to-go (h:m)
  6. Temperature (°C or °F)



#### Optional accessories

- Connection kit, type SBM-CAB-20, including 20m of twisted pair cable (3 x 2 x 0.5mm<sup>2</sup>) and 2 fuseholders.
- Communication kit, type SBM-COM, including RS232 interface box, 1.8m of 9p DSUB serial cable and software.
- Temperature kit, type SBM-TEMP-20, with a temperature sensor and 20 m cable.



**Xtender serie**

Model	XTH 3000-12	XTH 5000-24	XTH 6000-48	XTH 8000-48
<b>Inverter (factory setting/range adjustable with RCC-02 or RCC-03)</b>				
Nominal battery voltage	12V	24V	48V	
Input voltage range	9.5 - 17V	19 - 34V	38 - 68V	38 - 68V
Continuous power @ 25°C	2500VA	4500VA	5000VA	7000VA
Power Smart-Boost	3000VA	5000VA	6000VA	8000VA
Power 30 min. @ 25°C	3000VA	5000VA	6000VA	8000VA
Power 5 sec. @ 25°C	3 x Pnom			
Maximum load	Up to short-circuit			
Maximum asymmetric load	Up to Pcont.			
Load detection (stand-by)	2 to 25 W			
Cos φ	0.1-1			
Maximum efficiency	93%	94%	96%	96%
Consumption OFF/Stand-by/ON	1.7W/2.2W/14W	1.8W/2.5W/20W	2.2W/3W/22W	2.2W/3.8W/34W
Output voltage	Sine wave 230Vac (+0/- 10%) / 190-245Vac			
Output frequency	50 Hz adjustable 45-65Hz +/- 0.05% (crystal controlled)			
Harmonic distortion	<2%			
Dynamic behaviour	0.5 ms (on load change 0 to 100%)			
Overload and short-circuit protection	Automatic disconnection with 3 time restart attempt			
Overheat protection	Warning before shut-off - with automatic restart			
<b>Battery charger 6 step adjustable : I-U-Uo-Equalize-Uo(low)-U(periodic)</b>				
Charging current adjustable	0 - 160A	0 - 140A	0 - 100A	0 - 120A
Input current balance adjustment	1 - 50A			
Maximum input voltage	265Vac			
Input AC voltage range	Adjustable threshold from 150 to 230Vac			
Input frequency	45 - 65Hz			
Power Factor Correction (PFC)	EN 61000-3-2			
Detection of short-circuited battery cell	•	•	•	•
<b>Battery control (factory setting/range adjustable with RCC-02 or RCC-03)</b>				
Absorption end	By duration 4 / 0.25 - 10h or by current - / 4 - 30A			
Absorption voltage	14.4 / 9.5 - 18V	28.8 / 19 - 36V	57.6 / 38 - 72V	57.6 / 38 - 72V
Periodic absorption voltage	- / 9.5 - 18V	- / 19 - 36V	- / 38 - 72V	- / 38 - 72V
Floating voltage	13.6 / 9.5 - 18V	27.2 / 19 - 36V	54.4 / 38 - 72V	54.4 / 38 - 72V
Reduced floating voltage	- / 9.5 - 18V	- / 19 - 36V	- / 38 - 72V	- / 38 - 72V
Equalization	By number of cycles ( - / 1 - 100) or at set interval ( - / 52 weeks)			
Equalization end	By duration 4 / 0.25 - 10h or by current - / 4 - 30A			
Equalization voltage	- / 9.5 - 18V	- / 19 - 36V	- / 38 - 72V	- / 38 - 72V
Deep-discharge protection	10.8 / 9.5 - 18V	21.6 / 19 - 36V	43.2 / 38 - 72V	43.2 / 38 - 72V
Reduced floating time	- / 0 - 32 days			
Periodic absorption time	- / 0 - 10 hours			
Temperature compensation (optional BTS-01)	-5 / 0 to -8mV/°C/Cell			
<b>General data</b>				
Multifunction contact adjustable	2 independent contacts 16A 250Vac (potential free 3 points)			
Max. current on transfer relay	50A / 11.5kVA			
Transfer time	<20ms			
Weight	34kg	40kg	42kg	46kg
Dimension h x l x L [mm]	220x290x500		220x310x500	
Protection index	IP23			
Conformity	EN 61000-6-1, EN 61000-6-3, EN 55014, EN 55022, EN 61000-3-2, Dir. 89/336/EEC, LVD 73/23/EEC			
Operating temperature range	-20 to 55°C			
Ventilation	Forced from 55°C			
Acoustic level	<10dB / <35dB (without/with ventilation)			
Warranty	2 years			
<b>Options</b>				
Remote control and programmation centre RCC-02 or RCC-03	•	•	•	•
Communication cable for 3ph and parallel CAB-RJ45-2 (2 m)	•	•	•	•
Battery temp. Sensor BTS-01 (3 m)	•	•	•	•

Data may change without any notice.



**COMPACT serie**



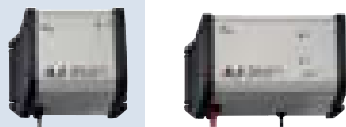
Model	XPC 1400-12	XPC 2200-24	XPC 2200-48	C 1600-12	C 2600-24	C 4000-48	HPC 2800-12	HPC 4400-24	HPC 6000-48	HPC 8000-48
<b>Inverter</b>										
Nominal battery voltage	12V	24V	48V	12V	24V	48V	12V	24V	48V	
Input voltage range	9.5 - 16V	19 - 32V	38 - 64V	9.5 - 16V	19 - 32V	38 - 64V	9.5 - 17V	19 - 34V	38 - 68V	
Continuous power @ 25°C	1100VA	1600VA	1600VA	1300VA	2300VA	3500VA	2500VA	4000VA	5000VA	7000VA
Power 30 min. @ 25°C	1400VA	2200VA	2200VA	1600VA	2600VA	4000VA	2800VA	4400VA	6000VA	8000VA
Power 5 sec. @ 25°C	3 x Pnom									
Maximum power	Up to short-circuit									
Maximum asymmetric load	Up to Pcont.									
Stand-by adjustment	1 to 25W									
Cos φ	0.1 - 1									
Maximum efficiency	94%	95%		94%	95%		93%	94%	96%	
Consumption OFF/Stand-by/ON	0.5/0.6/4W	0.8/0.9/7W	1.2/1.3/7W	0.5/0.6/6W	0.8/0.9/9W	1.2/1.4/12W	1.4/1.8/10W	1.7/2/16W	2/2.5/18W	2/3/30W
Output voltage	Sine wave 230Vac									
Output frequency	50Hz +/- 0.05% (crystal controlled)									
Total harmonic distortion	< 4%		< 2%							
Dynamic behaviour	0.5 ms (on load change 0 to 100%)									
Overload and short-circuit protection	Automatic disconnection with 3 time restart attempt									
Overheat protection	Acoustic warning before shut-off - with automatic restart									
<b>Battery charger (4 STEP) I-U-Uo-Equalize (every 25 cycles)</b>										
Charging current adjustable	0 - 45A	0 - 37A	0 - 20A	0 - 55A	0 - 50A	0 - 110A	0 - 100A	0 - 70A	0 - 90A	
Input current balance adjustment	Not available			1 - 16A			1 - 30A		1 - 50A	
Maximum input voltage	265Vac									
Input AC voltage range	Adjustable threshold from 150 to 230Vac									
Input frequency	45 - 65Hz									
Power Factor Correction (PFC)	EN 61000-3-2									
<b>Optional solar charger (4 stages) I-U-Uo-Equalize (every 25 cycles)</b>										
Maximum PV open circuit voltage (V)	25V	45V	90V	25V	45V	90V	Not available			
Maximum charge current (A)	30A	30A	20A	30A	30A	20A	Not available			
Charging curve	I-U-Uo-Equalize (every 25 cycles) / Not available						Not available			
<b>Battery control (thresholds and times adjustable by the user)</b>										
Absorption time	0-4 h									
End charge cycle voltage*	14.4V	28.8V	57.6V	14.4V	28.8V	57.6V	14.4V	28.8V	57.6V	
Floating voltage	13.6V	27.2V	54.4V	13.6V	27.2V	54.4V	13.6V	27.2V	54.4V	
Equalization time	0-4 h									
Equalization voltage	15.6V	31.2V	62.4V	15.6V	31.2V	62.4V	15.6V	31.2V	62.4V	
Deep-discharge protection	10.8V	21.6V	43.2V	10.8V	21.6V	43.2V	10.8V	21.6V	43.2V	
Temperature compensation (optional CT-35)	-3mV / °C / Cell									
<b>General data</b>										
Multifunction contact programmable	16A - 250Vac (potential free 3 points)									
Max. current on transfer relay	16A/3.7kVA					30A/6.9kVA			50A/11.5kVA	
Transfer time	< 40 ms									
Weight	11.7 kg	12.6 kg	16 kg	17.1 kg	29.4 kg	33 kg	39 kg	41 kg	45 kg	
Dimension h x l x L [mm]	124x215x410			124x215x480		124x215x670		242x288x480		242x288x500
Protection index	IP20 (IP23 with top cover C-IP23)						IP 23			
Certification ECE-R 10 (E24)	•	•	Not available	•	•	Not available				
EC conformity	EN 61000-6-1, EN 61000-6-3, EN 55014, EN 55022, EN 61000-3-2, Dir. 89/336/EEC, LVD 73/23/EEC									
Operating temperature range	-20°C up to +55°C									
Ventilation	From 45°C									
Acoustic level	<10dB / <35dB (without/with ventilation)									
Warranty	2 years									
<b>Options</b>										
Solar charge controller	•	•	•	•	•	•				

\* Factory settings

Data may change without any notice.



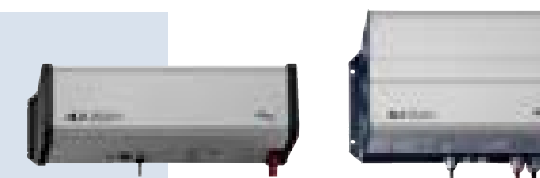
**AJ serie**



Model	AJ 275-12	AJ 350-24	AJ 400-48	AJ 500-12	AJ 600-24	AJ 700-48	
<b>Inverter</b>							
Nominal battery voltage	12V	24V	48V	12V	24V	48V	
Input voltage range	10.5 – 16V (24V max.)	21 – 32V (44V max.)	42 – 64V (64V max.)	10.5 – 16V (24V max.)	21 – 32V (44V max.)	42 – 64V (64V 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 φ 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)	2.3A (4.6A*)	3.2A (6.4A*)	4.6A (9.2A*)	5.2A (10.4A*)	5.7A (11.4A*)	7A (14A*)	
Output voltage	Sine wave 230Vac (115Vac*) 0 / - 10%						
Frequency	50Hz (60Hz*) ± 0.05% (crystal controlled)						
Distortion THD (resistive load)	< 5% (@ Pnom.)						
Consumption Stand-by	0.3W**		0.4W**	0.3W	0.4W	1W	
Consumption «ON» no load	1.9W	3.3W	5W	3.8W	8.5W	10W	
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	Protected by internal fuse						
Major discharge battery protection	Shut off @ 0.87 x Unom - Automatic restart @ Unom						
Cut overpressure	Shut off @ >1.33 x Unom - Automatic restart @ < Umax						
Acoustic alarm	Before low battery or overheating disconnection						
<b>General data</b>							
Weight	2.4 kg	2.6 kg		4.5 kg			
Dimensions	142mm x 163mm x 84mm			142mm x 240mm x 84mm			
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, Dir. 89/336/EEC, LVD 73/23/EEC						
Operating temperature	-20°C up to +50°C						
Ventilation forced	From 45°C ± 5°C						
Noise	< 45 dB (fans)						
Warranty	2 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			
<b>Options</b>							
Solar regulator	Voltage max.	AJ 275-12-S: 25V	AJ 350-24-S: 45V	AJ 400-48-S: 90V	AJ 500-12-S: 25V	AJ 600-24-S: 45V	AJ 700-48-S: 90V
	Current max.	10A		15A			
	Principle	Floating 3 stages (I/U/UO)					
	Absorption voltage	14.4V	28.8V	57.6V	14.4V	28.8V	57.6V
	Floating voltage	13.6V	27.2V	54.4V	13.6V	27.2V	54.4V
Plug for remote control (RCM)	•	•	•	•	•	•	

\* 115Vac/60Hz on request  
\*\* Standby with solar option -S

**AJ serie**

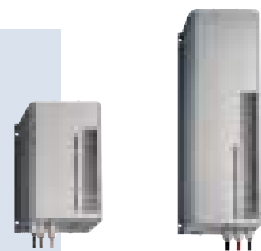


Model	AJ 1000-12	AJ 1300-24	AJ 2100-12	AJ 2400-24	
<b>Inverter</b>					
Nominal battery voltage	12V	24V	12V	24V	
Input voltage range	10.5 – 16V (24V max.)	21–32V (44V max.)	10.5 – 16V (20V max.)	21–32V (40V max.)	
Continuous power @ 25°C	800VA	1000VA	2000VA	2000VA	
Power 30 min. @ 25°C	1000VA	1300VA	2100VA	2400VA	
Power 5 min. @ 25°C	1200VA	2000VA	2450VA	2800VA	
Power 5 sec. @ 25°C	2200VA	2800VA	5000VA	5200VA	
Maximum asymmetric load	500VA	600VA	1000VA	1200VA	
Max. efficiency (%)	93%	94%	92% @ 300VA	94% @ 300VA	
Cos φ max.	0.1 – 1 up to 800VA	0.1 – 1 up to 1000VA	0.1 – 1 up to 2000VA	0.1 – 1 up to 2000VA	
Detection of the load	Adjustable : 1 → 20W				
Current of short-circuit 2 sec. (exit)	10A (20A*)	13A (26A*)	26A (52A*)	30A (60A*)	
Output voltage	Sine wave 230Vac (115Vac*) 0 / - 10%				
Frequency	50 Hz (60Hz*) ± 0.05% (crystal controlled)				
Distortion THD (resistive load)	< 5% (@ Pnom. & Uin nom.)			< 3% (@ Pnom & Uin nom.)	
Consumption Stand-by	0.3W	0.4W	0.5W	0.4W	
Consumption «ON» no load	9.0W	10.0W	13W	18W	
Overheat protection (+/-5°C)	Shut down @ 75°C - Auto-restart @ 70°C				
Short circuit protection	Automatic disconnection with 2 time restart attempt				
Inversion of polarity protection	Protected by internal fuse 125A	Protected by internal fuse 100A	Not protected	Protected by internal fuse 150A	
Major discharge battery protection	Shut off @ 0.87 x Unom - Automatic restart @ Unom				
Cut overpressure	Shut off @ >1.33 x Unom - Automatic restart @ < Umax				
Acoustic alarm	Before low battery or overheating disconnection				
<b>General data</b>					
Weight	8.5 kg		19 kg	18 kg	
Dimensions	142mm x 428mm x 84mm		273mm x 399mm x 117mm		
Protection index IP	IP 30 conforms to DIN 40050		IP 20 conforms to DIN 40050		
Certification ECE-R 10 (E24)	•	•	•	•	
EC conformity	EN 61000-6-1, EN 61000-6-3, EN 55014, EN 55022, Dir. 89/336/EEC, LVD 73/23/EEC				
Operating temperature	-20°C up to +50°C				
Ventilation forced	From 45°C ± 5°C				
Noise	< 45 dB (fans)				
Warranty	2 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)	1.5m / 1m		1.7m / 1m		
<b>Options</b>					
Solar regulator	Voltage max.	AJ 1000-12-S: 25V	AJ 1300-24-S: 45V	AJ 2100-12-S: 25V	AJ 2400-24-S: 45V
	Current max.	25A		30A	
	Principle	Floating 3 stages (I/U/UO)			
	Absorption voltage	14.4V	28.8V	14.4V	28.8V
	Floating voltage	13.6V	27.2V	13.6V	27.2V

\* 115Vac/60Hz on request



**SI serie**



Model	SI 612, 624, 648	SI 812, 824	SI 1212, 1224, 1248	SI 1624	SI 2324, 2348	SI 3324	SI 3548
<b>Inverter</b>							
Voltage input (Unom) [V]	12/24/48	12/24	12/24/48	24	24V/48	24	48
Input voltage range	Min. - Max. : < Unom x 0.95 to Unom x 1.33						
Dynamic correction of Umin.	- 10% @ Pnom						
Nominal power [VA]	600	800	1200	1600	2300	3300	3500
Maximum power 15 min.	1.3 - 1.6 x Pnom / 25°C						
Maximum power 3 min.	1.6 - 2 x Pnom / 25°C						
Peak power 5 sec.	3.5 x Pnom						
Asymmetric load	Up to 2 x Pnom						
Load detection (stand-by)	Adjustable : 0.3 → 20W						
Cos φ	0.1 - 1						
Maximum Efficiency [%]	91	92	93 - 95	93 - 95	95	95	95
«Stand-by» current [mA]	25/21/10	25/21	25/21/12	21	25/17	25	30
Power «ON» no load [W]	2.6	2.8	4.8	5.8	9	13	17
Power «ON» no load [W] TWINPOWER system			< 0.5	< 0.5	< 0.6	< 0.7	< 0.8
Output voltage	Sine wave 230 Vac ± 3%						
Frequency	50 Hz ± 0.01% (crystal controlled)						
Distortion	< 2% (at Pnom)						
Dynamic behaviour	From 0% to 100% load change. Normalization : 0.5 ms						
Protections	Overload/Overheat/Short-circuit/Reverse polarity by internal fuse						
Overheating protection	75°C ± 3°C						
<b>General data</b>							
Weight	6.9	10.4	13.2	15.2	27	30	38
Length L x 124 (H) x 215 (W) [mm]	276		391		591		636
IP protection index	IP 20 complies with DIN 40050 / IP 23 with top cover C-IP23						
EC conformity	EN 61000-6-1, EN 61000-6-3, EN 55014, EN 55022, Dir. 89/336/EEC, LVD 73/23/EEC						
Forced ventilation	From 45°C ± 3°C						
Acoustic level	With ventilation : < 10 dB			Without : < 35 dB			
<b>Options</b>							
3-phase system (per unit) (-PE)			•	•	•	•	•
TwinPower system (-TP)			•	•	•	•	•
Top cover IP 23 (C-IP23)	•	•	•	•	•	•	•
Potential free alarm contact (60V/0.5A) (-A)	•	•	•	•	•	•	•
Solar charge controller 16A/12-24V (-S)	•	•					
Industrial casing in 19" rack - 3U x 400 mm (-IND)			•	•	•	•	•

Other output specifications on request (Ex: 115V/60Hz)

Data may change without any notice.



**MBC serie**



Model	MBC 12-06/1	MBC 12-15/1	MBC 24-03/1	MBC 24-08/1
Battery voltage (Vdc)	12	12	24	24
Input voltage (Vac)	100-260 (40 - 60 Hz)			
Charge voltage (boost) (Vdc)	14.4	14.4	28.8	28.8
Charge voltage (float) (Vdc)	13.8	13.8	27.6	27.6
Output (A)	6	15	3	8
Cooling	Heat sink			
Outputs	1			
Efficiency	> 85 %			
Ambient temp. range	-25 to 50°C			
Dimensions l x w x h (mm)	155x80x36	195x100x47	155x80x36	195x100x46
Weight (kg)	0.9	1.8	0.9	1.8
Recommended batt. capacity (Ah)	18-60	45-150	9-30	24-80
Switch to Floating mode (A)	0.2	0.8	0.2	0.4
Secondary fuse (A)	7.5	20	7.5	15
Input wired	•	•	•	•
Output wired	•	•	•	•
Warranty	2 years			

**MDCI and MDC series**



**MDCI - DC/DC converter, switch-mode, isolated**

Model	MDCI 100	MDCI 200	MDCI 360	MDCI 360 Charger
Power (W)	100	200	360	330
Input variants (Vdc)	A-B-C-D	A-B-C-D	A-B-C-D	A
Output variants (Vdc/A) +- 2	12.5/8-24/4	12.5/16-24/8	12.5/30-24/15	27,6/12
Galvanic isolation	•	•	•	•
Isolation voltage (V)	400			
Efficiency @ full load (%)	± 85			
Off-load current (mA)	< 25			
Operating temperature	-20 / +45°C			
Ambiant temp. (20°) increase after 30 min. @ full load	25°C		30°C	
Cooling	Convection		Fan	
Dimensions HxWxD (mm)	49x88x152	49x88x182	64x163x160	
Weight (gr)	500	600	1400	

\* A = 9-18 Vdc    B = 20-35 Vdc    C = 30-60 Vdc    D = 60-120 Vdc

**MDC - DC/DC converter, switch-mode, not-isolated**

Model	MDC 1224-7	MDC 2412-5	MDC 2412-8	MDC 2412-12	MDC 2412-20	MDC 2412-30
Current (A)	7	5.5	8	12	20	30
Input (Vdc)	9-18	18-35		20-35		
Output (Vdc)	24	13.2		13.8		
Efficiency @ full load (%)	90					
Off-load current (mA)	< 15	< 5		25		
Operating temperature	-20 / +40°C					
Ambiant temp. (20°) increase after 30 min. @ full load	30°C		20°C	30°C	33°C	
Cooling	Convection					Fan
Dimensions HxWxD (mm)	49x88x98	49x88x68	49x98x88		49x88x126	49x88x151
Weight (gr)	300	170	250	260	480	600

Data may change without any notice.

Common features MDCI & MDC		
Paralleling	Max. 2 converters	
Humidity	Max. 95% non condensing	
Protection	Overload	
	Overheating	Up to short-circuit
	Overvoltage	Output voltage reduction
Protection	Reverse polarity	Transient protection by Varistor
		Fuse
Casework	Anodized aluminium	
Connections	6.3 mm Faston	
Warranty	2 years	
Norms	EN 50081-1 (emission) EN 50082-1 (immunity) 95/45/EC (automotive directive)	



**MBI serie**



**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)	0.0 / 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)					

**MBW serie**



**MBW – Battery watch**

Model	MBW 30	MBW 60
Nominal voltage (Vdc) depends on jumpers	12/24	
Nominal current (Amp)	25	50
Max. continuous current 5' (Amp)	30	60
Peak current (Amp)	40	70
Operating voltage range (Vdc)	6-35	
Consumption (mA)	< 7	
Alarm output delay	15 seconds	
Alarm output max. current (mA)	500	
Load disconnect delay	1 minute	
Voltage level accuracy	0.2V	2%
Casework	Anodized aluminium, black	
Weight (gr)	200	
Dimensions HxDxL (mm)	49x88x68	80x60x40
Battery protection	Against excessive discharge	
Users protection	Against overvoltages 16 / 32 Vdc	
MOSFET switches	No sparks	
Norms	EN 50081-1 (emission) EN 50082-1 (immunity) Automotive Directive 95/54/CE	

Jumper selectable voltage	
Disengage (V)	Engage (V)
10	11.5
10.5	12
11	13
11.5	13.8
21.5	24.5
22	25
22.5	25.5
23	26.5

**MBR serie**



**MBR – Microprocessor controlled battery separator**

Model	MBR 12-80	MBR 24-80	MBR 12-160	MBR 24-160	MBR 12-400	MBR 24-400
Nominal voltage (Vdc)	12	24	12	24	12	24
Charge current max. (Amp)	80		160		400	
Connection threshold (Vdc)	13.2	26.4	13.2	26.4	13.2	26.4
Disconnection threshold (Vdc)	12.8	25.6	12.8	25.6	12.8	25.6
Battery banks	2					
Alternator start	•	•	•	•	•	•
Start contact for batteries paralleling			•	•	•	•
Micro switch for remote status indication					•	•
Dimensions LxHxD (mm)	46x46x80		46x93x96		78x102x110	
Weight (gr)	110		300		900	
Consumption	< 5mA					
Voltage stability	± 2%					
Protection of the auxiliary battery against overvoltage	16 / 32Vdc					
Connection on the battery side	M6					
Other connections	6.3 mm Faston					
Warranty	2 years					
Norms	EN 50081-1 (emission) EN 50082-1 (immunity) Automotive Directive 95/54/CE					

**SBM-01**



**SBM-01 – Battery monitor 12 and 24Vdc**

Model	SBM-01	
Supply voltage range	9-35 Vdc	
Supply current @ 12Vdc, without BL	8 mA	
Supply current @ 24Vdc, without BL	6 mA	
Input voltage range	0-35 Vdc	
Input current range	-500...+500 A	
Battery capacity range	20...2000 Ah	
Operating temperature range	0...50°C	
Dimensions	Front panel	65 mm x 65 mm
	Body diameter	Ø 52 mm
	Total depth	72 mm

Standart equipment SBM-01
Potential free alarm contact
500A/50mV current shunt
Optional accessories
SBM-PS-01-Voltage pre-scaler (adapting the SBM-01 to input voltage 27-175Vdc)
Connection kit, type SBM-CAB-20, including 20m of twisted pair cable (3x2x0.5mm <sup>2</sup> ) and 2 fuseholders
Communication kit, type SBM-COM, including RS232 interface box, 1.8m of 9p DSUB serial cable and a software
Temperature kit, type SBM;-TEMP-20, with 20 m cable



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**STUDER**

**STUDER INNOTEC**  
Rue des Casernes 57  
1950 Sion - Switzerland  
Tél : +41 (0) 27 205 60 80  
Fax : +41 (0) 27 205 60 88  
info@studer-innotec.com  
www.studer-innotec.com

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