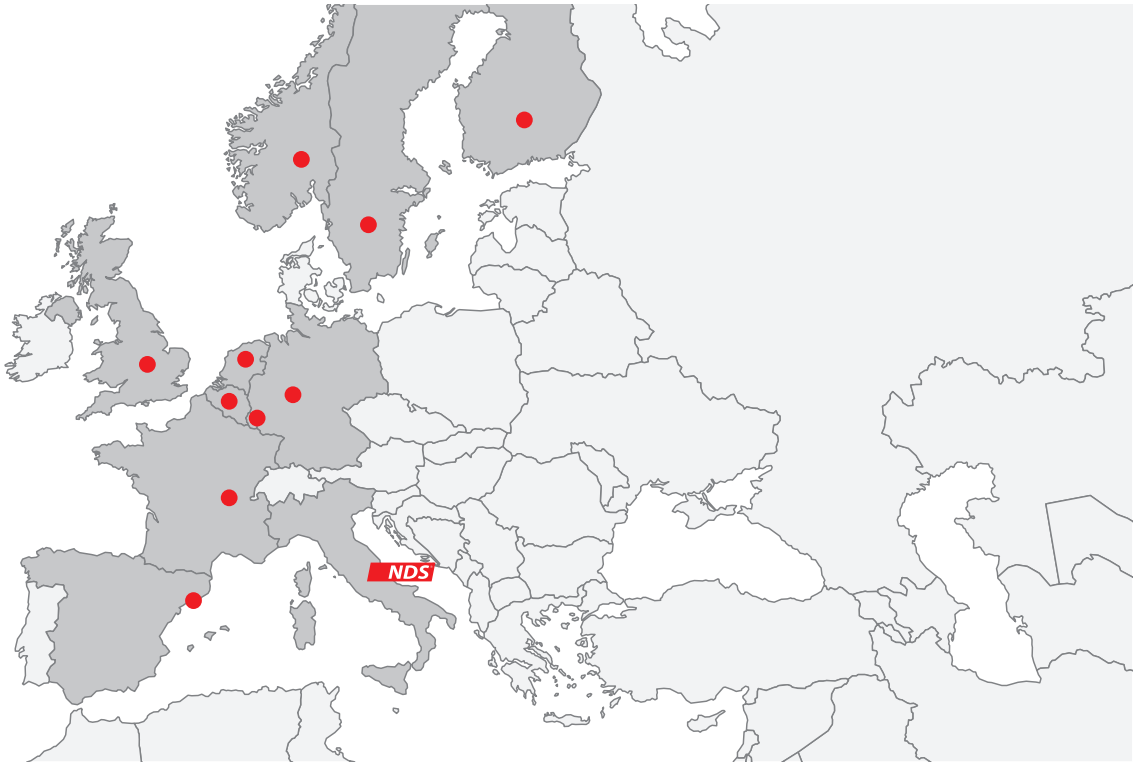
ALL THE ENERGY YOU NEED

TUTTA L'ENERGIA CHE TI SERVE



Since the '70s, energy has been a matter of family: we have always been interested in batteries and charging systems for electricity accumulators. The goal of meeting all sorts of energy needs in mobility has made our company an important European reference point in many areas, including: Automotive, Camper, Boating, Cleaning, Military and Special Vehicles.

Today, we are tapping the line that separates energy and action by creating new ways to use energy.
The R & D department, with a team of technicians and highly specialized engineers, creates technologically advanced proprietary solutions, characterized by simplicity of use and sustainability.

Our strength and our future are in the heart: starting from our Indoor Laboratories, where we daily assemble and test finished products, guaranteeing maximum quality and safety. In the end our Customer Service, responsive and ready to meet every needs it's another point of reference you can always count on.

With **NDS**, **ENERGY IS AT YOUR SERVICE!**

NDS

ALL THE ENERGY YOU NEED

TUTTA L'ENERGIA CHE TI SERVE

POWERSERVICE

+50% DI CARICA

POWERSERVICE RECHARGES **40 AMPERE**
PER EACH HOUR OF TRAVEL,
TO CHARGE SERVICE BATTERIES **100%**, SOONER.

CONVERTER

DC - DC

AC - DC

GOLD PLUS BASIC

POWERSERVICE is the special electronic battery charger designed, manufactured and patented by **NDS** for the Optimal charging of your service batteries.

POWERSERVICE, depending on the version, **BASIC**, **PLUS** and **GOLD**, is able to fully charge the service batteries installed on campers, boats, ambulances and special vehicles, and also operate as a charging regulator for solar panels and network chargers 230V.

The system, controlled by a microprocessor, guarantees a complete recharge in half time with respect to the one alone Alternator, giving you more autonomy during your stops. The optimization of the specific charge curves contributes to the final output of the battery: a switch that protects against accidental shocks allows you to choose the battery type between Gel, AGM, Free Acid and Lithium.
Each curve consists of 5 phases, including Desulfatation, which, in addition to ensuring perfect refill, improves the overall battery performance by helping to restore efficiency after prolonged stretching, stretching its waist.

WHY CHOOSING POWERSERVICE:

- EXTEND YOUR BATTERY LIFE WITH SPECIFIC CURVES FOR ALL BATTERY TECHNOLOGIES.
- MAXIMUM CHARGE IN LESS TIME, FOR MAXIMUM AUTONOMY DURING YOUR STOPS.

Service batteries installed on campers, caravans, boats etc, are subject to cyclic use: they are downloaded and recharged continuously, while the starter batteries are always charged. Just for constructive differences and different use, these two types of batteries needs different charging methods.

The **START BATTERIES** are kept charged by the alternator that is not a charger but a current generator (Ampere) when the vehicle needs it.

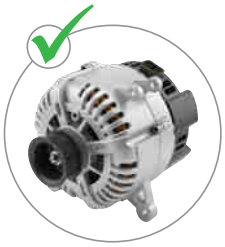
SERVICE BATTERIES needs a charge parameter other than the starter battery, which the alternator does not run properly, that's why a charger is the best solution!

REMEMBER: THE ALTERNATOR IS NOT A BATTERY CHARGER, THEREFORE IT IS NOT ENOUGH TO PROPERLY RECHARGE YOUR SERVICE BATTERY!

POWERSERVICE

BASIC

CONVERTER
DC - DC



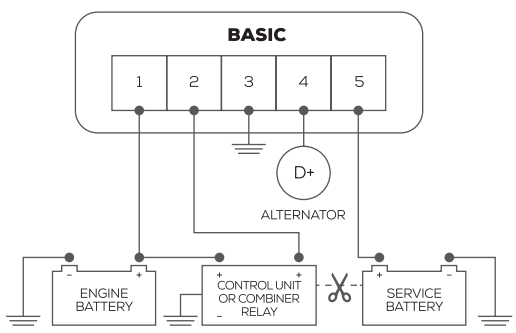
Powered by:
ALTERNATOR

MAIN FEATURES:

- Ideal for any type of battery
- Microprocessor charge management
- Impulse charge with desulfation
- Up to 35 Ampère recharge each travel hour

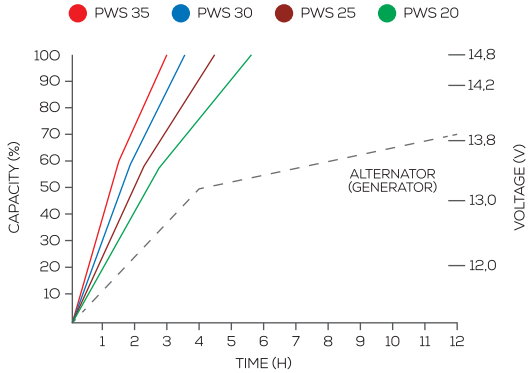
TECHNICAL SPECIFICATIONS		MODELS				
		PWS 4-25	PWS 4-30	PWS 4-35	PWS 12-24	PWS 24-15
INPUT SUPPLY	ALTERNATOR	MIN. POWER 70 A / 12V	MIN. POWER 90 A / 12V	MIN. POWER 110 A / 12V	MIN. POWER 90 A / 12V	MIN. POWER 45 A / 24V
	SOLAR PANEL	N/A	N/A	N/A	N/A	N/A
	230 V POWER GRID	N/A	N/A	N/A	N/A	N/A
CHARGING CURRENT	BY ALTERNATOR	MAX 25A ± 5%	MAX 30A ± 5%	MAX 35A ± 5%	MAX 15A ± 5%	MAX 15A ± 5%
	BY SOLAR PANEL	N/A	N/A	N/A	N/A	N/A
	BY POWER GRID	N/A	N/A	N/A	N/A	N/A
CHARGING VOLTAGE		14,5-14,8 V MAX	14,5-14,8 V MAX	14,5-14,8 V MAX	28,0 - 29,2 V MAX	28,0 - 29,2 V MAX
SWITCH ON		D+ OF THE GENERATOR ≃ 14 V				D+ OF THE GENERATOR ≃ 28 V
OUTPUT		93%				
SIZE (MM)		198 X 170 X 68 H				
WEIGHT		1,5 KG				

INSTALLATION SCHEME



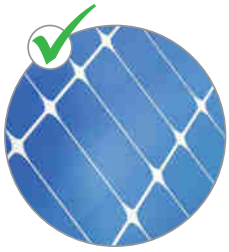
FOR POWER CONNECTIONS USE CABLES WITH A MINIMUN SECTION OF 6/10 MM^2

CHARGING CURVE

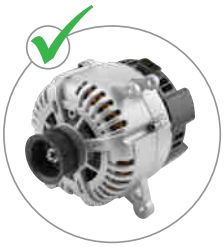


POWERSERVICE

PLUS



Powered by:
SOLAR PANEL



Powered by:
ALTERNATOR

CONVERTER

DC - DC

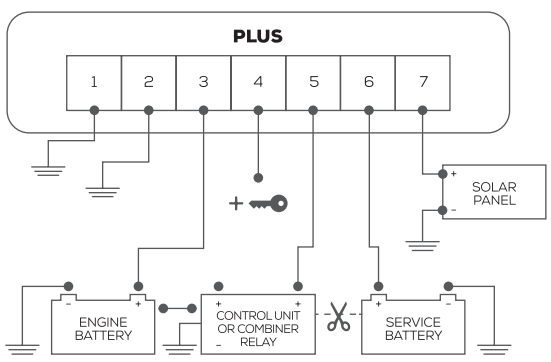
EURO 6 COMPATIBLE

MAIN FEATURES:

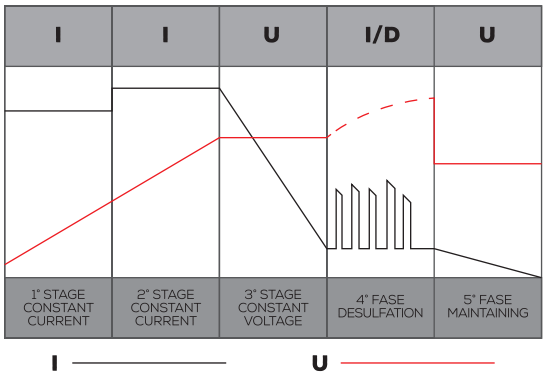
- Two different supply sources
- Microprocessor charge management
- 5 stage charge with desulfation
- AGM, Gel, Flooded Acid, Lithium battery switch
- Up to 40 Ampère recharge each travel hour

TECHNICAL SPECIFICATIONS		MODELS					
		PLUS 25	PLUS 30	PLUS 40	PLUS 40/L	PLUS 12-24/20	PLUS 24-24/20
INPUT SUPPLY	ALTERNATOR	MIN POWER 70 A/12V	MIN POWER 90 A/12V	MIN POWER 110 A/12V	MIN POWER 110 A/12V	MIN POWER 110 A/12V	MIN POWER 55 A/24V
	SOLAR PANEL	MAX 250 W	MAX 250 W	MAX 250 W	MAX 250 W	MAX 250 W	MAX 250 W
	P. GRID 230V	ND	ND	ND	ND	ND	ND
CHARGING CURRENT	ALTERNATOR	MAX 25 A ± 3%	MAX 30 A ± 3%	MAX 40 A ± 3%	MAX 40 A ± 3%	MAX 20 A ± 3%	MAX 20 A ± 3%
	SOLAR PANEL	MAX 20 A	MAX 20 A	MAX 20 A	MAX 20 A	MAX 10 A	MAX 10 A
	P. GRID 230V	ND	ND	ND	ND	ND	ND
CHARGING VOLTAGE		12 V	12 V	12 V	12 V	24 V	24 V
CHARGING CURVES		AGM / GEL / L. ACID	AGM / GEL / L. ACID	AGM / GEL / L. ACID	LITHIUM	AGM / GEL / L. ACID	AGM / GEL / L. ACID
SWITCH ON		AUTOMATIC					
OUTPUT		95%					
SIZE (MM)		288 X 135 X 50					
WEIGHT		1,5 KG					

INSTALLATION SCHEME

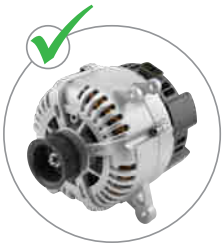


CHARGING CURVE



Powered by:
POWER GRID

Powered by:
SOLAR PANEL



Powered by:
ALTERNATOR

POWERSERVICE

GOLD

CONVERTER

DC - DC

AC - DC

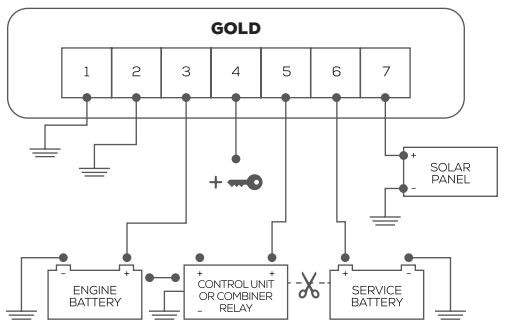
EURO 6 COMPATIBLE

MAIN FEATURES:

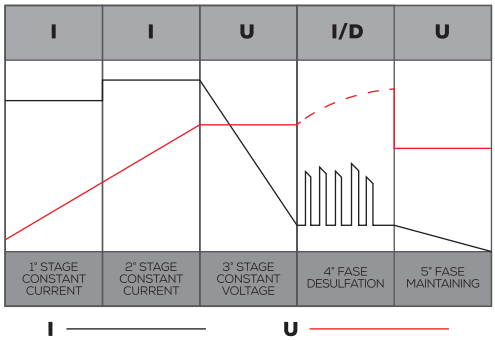
- Three different supply sources
- Microprocessor charge management
- 5 stage charge with desulfation
- AGM, Gel, Flooded Acid battery, Lithium switch
- Up to 40 Ampère recharge each travel hour

TECHNICAL SPECIFICATION		MODELS					
		GOLD 25	GOLD 30-M	GOLD 40-M	GOLD 40-M/L	GOLD 12-24-M	GOLD 24-24-M
INPUT SUPPLY	ALTERNATOR	MIN. POWER 70 A/12V	MIN. POWER 90 A/12V	MIN. POWER 110 A/12V	MIN. POWER 110 A/12V	MIN. POWER 110 A/12V	MIN. POWER 55 A/24V
	SOLAR PANEL	MAX 250 W	MAX 250 W	MAX 250 W	MAX 250 W	MAX 250 W	MAX 250 W
	P. GRID 230V	115/230 VAC 50/60 HZ	115/230 VAC 50/60 HZ	115/230 VAC 50/60 HZ	115/230 VAC 50/60 HZ	115/230 VAC 50/60 HZ	115/230 VAC 50/60 HZ
CHARGING CURRENT	ALTERNATOR	MAX 25 A ± 3%	MAX 30 A ± 3%	MAX 40 A ± 3%	MAX 40 A ± 3%	MAX 20 A ± 3%	MAX 20 A ± 3%
	SOLAR PANEL	MAX 20 A	MAX 20 A	MAX 20 A	MAX 20 A	MAX 10 A	MAX 10 A
	P. GRID 230V	MAX 20 A	MAX 20 A	MAX 20 A	MAX 20 A	MAX 10 A	MAX 10 A
CHARGING VOLTAGE		12 V	12 V	12 V	12 V	24 V	24 V
CHARGING CURVES		AGM / GEL / L. ACID	AGM / GEL / L. ACID.	AGM / GEL / L. ACID.	LITHIUM	AGM / GEL / L. ACID	AGM / GEL / L. ACID
SWITCH ON		AUTOMATIC					
OUTPUT		95%					
SIZE (MM)		288 X 135 X 50					
WEIGHT		1,7 KG					

INSTALLATION SCHEME



CHARGING CURVE



POWERCHARGER

FULL CHARGE FOR YOUR BATTERIES

EASY CHARGER

Optional:
CGP

POWERCHARGER, **NDS** chargers, designed for charging and maintaining Lead acid, gel and agm batteries, for electric bikes, motorcycles, scooters, cars, golf cars, electric vehicles etc.
Available at different voltages, they can charge batteries from 2 Ah to 250 Ah.

POWERCHARGER allows full charge up to 100% and is ideal for battery maintenance during standby periods, avoiding possible leakage due to self-discharge and/or sulphation.

MAIN FEATURES:

- Plug and Play
- Compact design
- Wide range available

MODEL	SPECS	INPUT VOLTAGE (V)	INPUT FREQUENCY (HZ)	OUTPUT VOLTAGE VBOOST-VFLOAT (V)	OUTPUT CURRENT IBOOST (A)	SIZE MM.	PREDISPOSITION FOR CGP ADAPTER
PC 12-23	12V - 2,3A	100-240VAC	50-60HZ	14.8VDC - 13.8VDC	2.3A	115 X 58 X 37	YES
PC 12-40	12V - 4A	100-240VAC	50-60HZ	14.8VDC - 13.8VDC	4.0A	115 X 58 X 37	YES
PC 12-100	12V - 10A	180-240VAC	50-60HZ	14.8VDC- 13.8VDC	10.0A	150 X 70 X 42	YES
PC 12-160	12V - 16A	200-260VAC	50-60HZ	14.8VDC- 13.8VDC	16.0A	210 X 106 X 55	NO
PC 12-200	12V - 20A	200-260VAC	50-60HZ	14.8VDC- 13.8VDC	20.0A	210 X 106 X 55	NO

SMARTCHARGER

UP TO **8 STEPS** OF CHARGE

HIGH FREQUENCY

SMART PRODUCT

MAIN FEATURES:

- Plug and Play
- Smart Charge
- Up to 8-steps of charge
- IP65 Protection

SMARTCHARGER is a line of advanced charger, equipped with advanced microprocessor to meet the daily needs for applications such as boating, motorcycles, cars, etc.

According to the model, it performs up to 8-steps of charge; steps include the diagnosis, to check whether the battery is able to accept and maintain the charge, the desulfation which helps maintain the plates clean from sulfate and extend the life of batteries, the maintenance (last generation) that keeps the battery to the 95-100% of the capacity, supplying the current when the battery starts to discharge, in order to not “stress” it during long periods of charge. (Ex. Maintenance of a motorcycle battery during the winter).

EASY TO USE, THIS LINE IS THE BEST SOLUTION FOR ALL USERS!

MODELS		SC6-1	SC12-2	SC12-5
SPECIFICATION		6V 1A	12V 2A	12V 5A
CHARGING VOLTAGE		6.2 V	NORMAL-14.4V AGM-14.7V RECOND-15.8V	
ACTIVATED VOLTAGE		2.5 V	2.5 V	2.5 V
CHARGING CURRENT		MAX 1.0A	MAX 2.0A	MAX 5.0A
AC INPUT CURRENT	AC 110 V	MAX 0.4A	MAX 0.8A	MAX 1.8A
	AC 220 V	MAX 0.2A	MAX 0.4A	MAX 0.9A
BACK CURRENT DRAIN		‹ 5MA		
CHARGER TYPE		6 STEPS, FULL-AUTOMATIC CHARGING CYCLE		8 STEPS, FULL-AUTOMATIC CHARGING CYCLE
BATTERY TYPE		12V LEAD-ACID BATTERY /NORMAL, MAINTENANCE-FREE, CA-CA, AGM AND GEL BATTERY		
BATTERY CAPACITY		2-40AH, MAINTENANCE CHARGE TO 100AH	4-60AH, MAINTENANCE CHARGE TO 120AH	10-120AH, MAINTENANCE CHARGE TO 200AH
INSULATION CLASS		IP65	IP65	IP65

POWERCHARGERPRO

THE PROFESSIONAL ENERGY

The **NDS** chargers at high frequency, line **POWERCHARGERPRO**, are designed both for traditional and on-board use. The efficiency rate of 91% and the high reliability result from a careful development of the PCBs with components of the highest quality, for a professional use.

The microprocessor automatically manages up to 5 steps of charge, optimizing them to have always correct charges and preserving the battery life.
The technical staff ensures a complete and quick assistance to solve any issues, besides the possibility to customize the charger according to the type of application.

MAIN FEATURES:

- High frequency system
- Circuit with PFC
- Charge curves selector AGM / gel / acid / lithium
- High efficiency up to 91%
- Compact design
- 5 steps charge
- Protection over temperature, short circuit and anomalies
- State of charge indicator

CODE		OUTPUT	DIMENSIONS MM.			WEIGHT KG	BATTERY TYPE SELECTOR
			LENGHT	WIDTH	HEIGHT		
12 VOLT	PFC0150-12CH10S	12V 10A	106	128	56	0,95	YES
	PFC0300-12CH15S	12V 15A	145	128	56	1,4	YES
	PFC0600-12CH20S	12V 20A	223	128	56	2,1	YES
	PFC0600-12CH25S	12V 25A	223	128	56	2,1	YES
24 VOLT	PFC0300-24CH10S	24V 10A	145	128	56	1,4	YES
	PFC0360-24CH12S	24V 12A	208	111	56	1,6	YES
	PFC0600-24CH15S	24V 15A	223	128	56	2,1	YES
	PFC0600-24CH20S	24V 20A	223	128	56	2,1	YES
	PFC1200-24CH30S	24V 30A	280	134	77	3,5	YES


WE USE
ALL THE POWER
OF THE NATURE

SOLENERGY

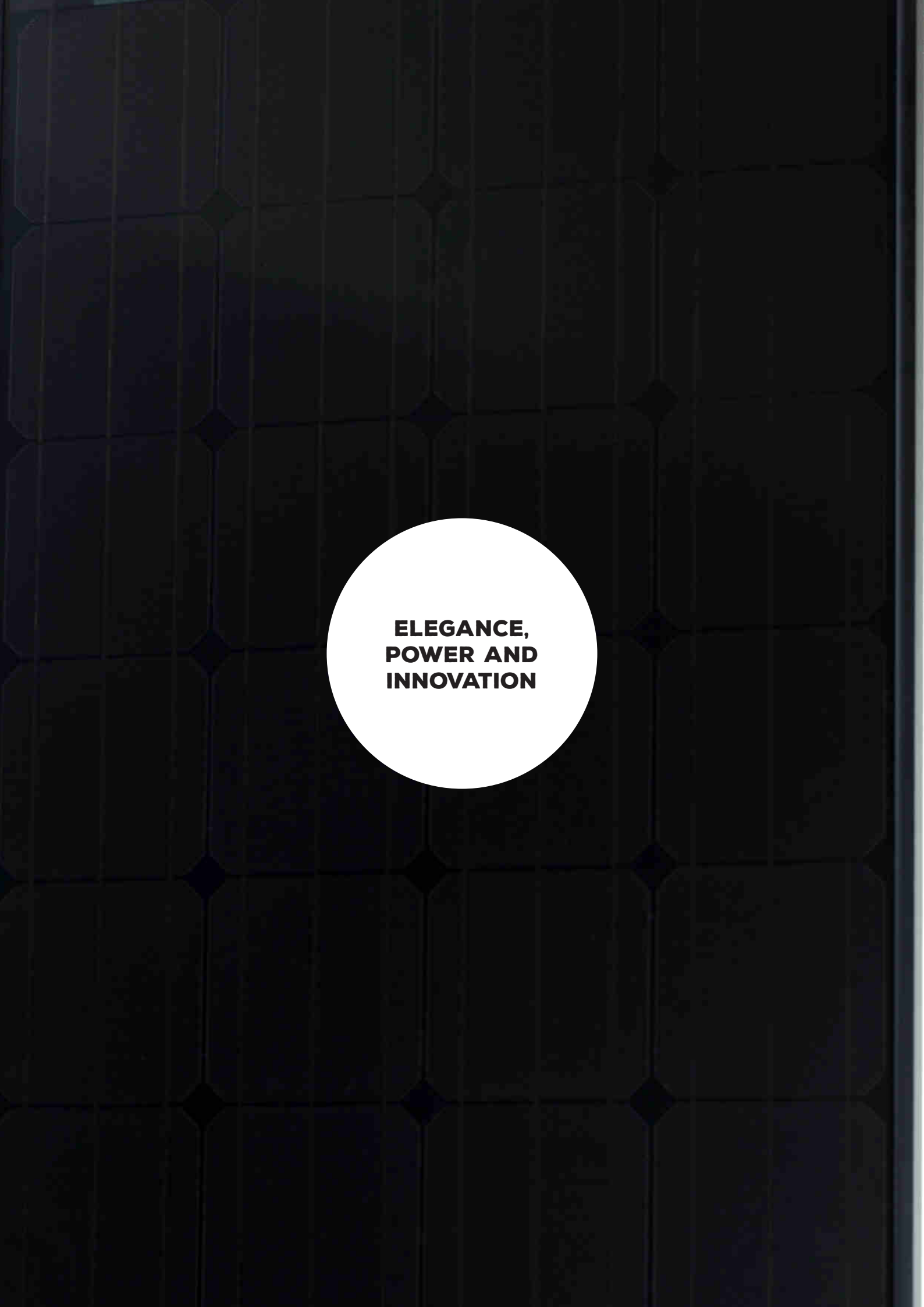
THE GREEN ENERGY AT YOUR SERVICE

INTEGRATED MOUNTING BRACKETS

The new **SOLENERGY** photovoltaic modules, with integrated mounting brackets designed by nds, are built according to the most modern production technologies to provide maximum energy efficiency.
The paneled bracket integrated in the panel guarantees superior steadiness and sturdiness, allowing the panel to be kept at the correct distance from the vehicle body by facilitating ventilation and avoiding any leakage.
Each module is made of monocrystalline silicon cells protected by a Tedlar sheet and textured tempered glass, characterized by high transparency, low iron content and an anti-reflective coating that increases its efficiency up to 17.25%, all enclosed vacuum Between two sheets of EVA (Ethylene Vinyl Acetate).

Solar modules **SOLENERGY** are conform to the most stringent IEC61215, IEC61730, and ISO9001 / ISO14000 certification. They resist the most difficult environmental and pollution conditions.
They are equipped with by-pass diodes to protect over-voltage cells and minimize the loss of power due to shadowed areas.

TECHNICAL SPECIFICATION					
MODELS	**PSM 80WP**	**PSM 100WP**	**PSM 100WPS**	**PSM 120WP**	**PSM 140WP**
NUMBER OF CELLS	36	36	36	40	32
TYPE OF CELLS	MONO	MONO	MONO	MONO	MONO
RATED VOLTAGE	12V	12V	12V	12V	12V
MAXIMUM POWER	80W	100W	100W	120W	140W
TOLLERANCE	± 3%	± 3%	± 3%	± 3%	± 3%
OPEN CIRCUIT VOLTAGE	22,2V	22,74V	22,74V	25,5V	20,4V
VOLTAGE AT MAXIMUM POWER	17,9V	18,94V	18,94V	21,51V	16,7V
SHORT CIRCUIT CURRENT	4,95A	5,66A	5,66A	5,94A	8,94A
CURRENT AT MAXIMUM POWER	4,47A	5,28A	5,28A	5,58A	8,39A
CABLE	6 METRES	6 METRES	6 METRES	6 METRES	6 METRES
SIZE (MM)	1250 X 541 X 60	1345 X 541 X 60	1727 X 416 X 60	1475 X 541 X 60	1475 X 676 X 60
WEIGHT	9,5 KG	10 KG	10,3 KG	11 KG	13 KG


ELEGANCE,
POWER AND
INNOVATION

BLACKSOLAR

CLEAN ENERGY AT YOUR SERVICE

MOUNTING BRACKETS

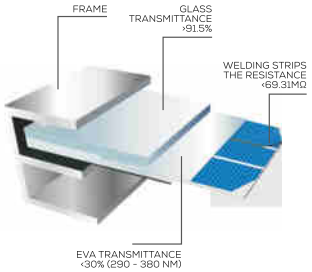
INTEGRATED

The new line of **NDS BLACKSOLAR** solar panels is a step forward in solar technology. Totally black, they capture a greater amount of solar energy and, with light even grazing, as during sunrise and sunset, allow a production of electricity exceeding the standard modules.

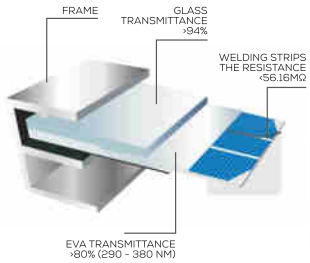
The **NDS BLACKSOLAR** modules are manufactured with high efficiency monocrystalline cells and raw materials appropriate to this special design, optimizing at the most the performance and reaching a 18.5% of efficiency rate.

MORE POWER IN LESS SPACE.

STANDARD PANELS



BLACKSOLAR PANELS



- High-quality welding strips to prevent the panel from overheating
- Cutting edge EVA film for better light transmission
- New generation reflective glass for better thermal reaction even at high temperatures.

In addition, the modules are equipped with special mounting brackets designed by **NDS** for a quick and safe installation. The **BLACKSOLAR** modules comply with the most stringent quality and safety standards, ensuring a long term reliability even in difficult climatic conditions.

TECHNICAL SPECIFICATIONS		
MODELS	**BS 110WP**	**BS 160WP**
NUMBER OF CELLS	36	36
TYPE OF CELLS	MONO	MONO
RATED VOLTAGE	12V	12V
MAXIMUM POWER	110W	160W
TOLERANCE	± 3%	± 3%
OPEN CIRCUIT VOLTAGE	23,43V	23,01V
VOLTAGE AT MAXIMUM POWER	19,65V	19,01V
SHORT CIRCUIT CURRENT	5,98A	8,97A
CURRENT AT MAXIMUM POWER	5,60A	8,42A
CABLE	6 METRES	6 METRES
SIZE (MM)	1345 X 541 X 60	1625 X 676 X 60
WEIGHT	10,2 KG	14,6 KG

SOLARFLEX

ENERGY IS MORE FLEXIBLE NOW!

MAIN FEATURES:

- **SUNPOWER** cells: superior quality
- 30% flexibility rate
- High efficiency, up to 22%
- Thin and ultra light

Adapts to nonlinear surfaces thanks to a high degree of flexibility, provides maximum performance with the minimum possible footprint: all this is **SOLARFLEX**.
This series is suitable for all applications where space for installation is contained, non-flat surfaces, but the need for energy is increasingly pressing.

SOLARFLEX is the ideal choice in the Nautical and Camper sectors where the yield is optimal.
To ensure the best results in the smallest possible space, the **SOLARFLEX** range is built with quality cells Of the **SUNPOWER** with high efficiency, up to 22% and equipped with **Back Contact technology**.

TECHNICAL SPECIFICATION			
MODELS	**SF 55WP**	**SF 110WP**	**SF 140WP**
MAXIMUM POWER	55W	110W	140W
VOLTAGE AT MAXIMUM POWER	18,56V	18,56V	21,20V
OPEN CIRCUIT VOLTAGE	21,9V	21,6V	24,94V
CURRENT AT MAXIMUM POWER ISC	3,16A	6,32A	6,6A
SIZE (MM)	580 X 540 X 3	1070 X 540 X 3	1330 X 540 X 3
WEIGHT	1,1 KG	2,1 KG	2,5 KG

MAKE THE MOST OF EVERY SUN RAY GENERATING MAXIMUM ENERGY FOR YOUR VEHICLE!

MATCH **SUNCONTROL** TO YOUR SOLAR PANEL TO GET UP TO 25% EXTRA YIELD!
FOR THE BEST PERFORMANCE CHOOSE: **POWERSERVICE, PLUS** AND GOLD **SERIES**.

SUNCONTROL

REGULATE YOUR SOLAR ENERGY

SUNCONTROL is the charge controller that can maximize performances for your photovoltaic modules.

Designed by **NDS**, **SUNCONTROL** (depending on the model) is capable of handling up to 300W in input, with a maximum charge of 20A. The microprocessor is capable of up to four charge phases, including the important phase of desulfatation, which guarantees longer life to your batteries. There are two versions of suncontrol: the SC15-240 model with **PWM technology** and the SC300M model with **MPPT technology**, which maximizes the potential of the solar panel, improving its yield by up to 25%.

MAIN FEATURES:

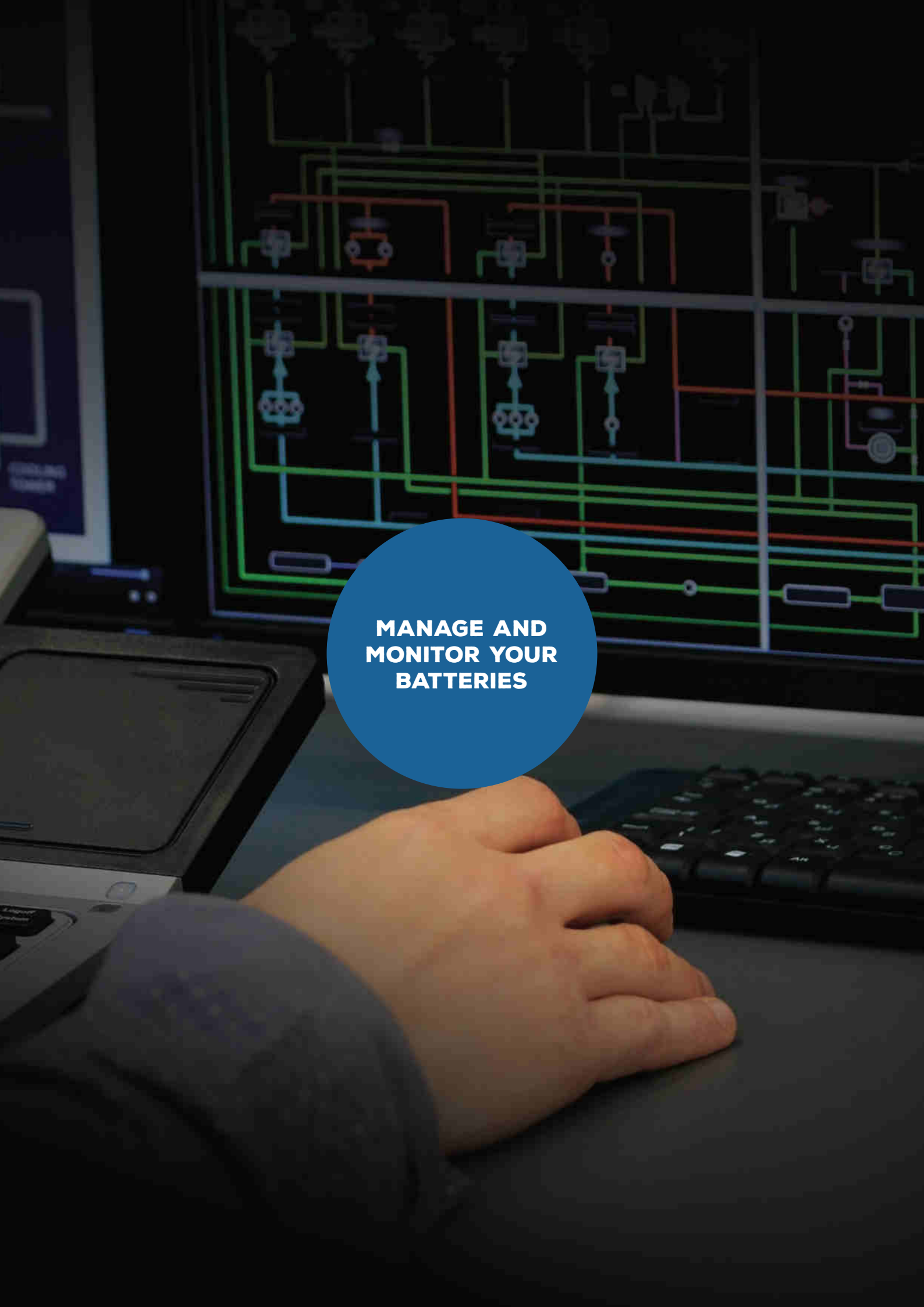
- 4-step charging curves
- Integrated desulfator
- Dedicated output for engine battery
- PWM technology
- Acid-lead, Gel and Agm battery selector
- Input for two photovoltaic modules
- Led charge indicator
- Input power up to 300 W

TECHNICAL SPECIFICATIONS	
CODE	SC 15-240
RATED VOLTAGE	12V
MODULES MAX POWER	240W
MAXIMUM CHARGE POWER	15A
MPPT SYSTEM	NO
INTERNAL SAFETY FUSE	25A
SIZE (MM)	103X86X50H
SERIAL CONTROL USING MISFIT	YES
SCHOTTKY BLOCKING DIODE	YES
SCI SHORT CIRCUIT PROTECTION	YES

MAIN FEATURES:

- 4-step charging curves
- Integrated desulfator
- Dedicated output for engine battery
- MPPT technology
- Acid-lead, Gel and Agm, Lithium battery selector
- Input for two photovoltaic modules
- Led charge indicator
- Input power up to 300 W
- Display optional

TECHNICAL SPECIFICATIONS	
CODE	SC 300 M
RATED VOLTAGE	12V
MODULES MAX POWER	300W
MAXIMUM CHARGE POWER	20 A
MPPT SYSTEM	SI
INTERNAL SAFETY FUSE	25A
SIZE (MM)	103X86X50H
SERIAL CONTROL USING MISFIT	YES
SCHOTTKY BLOCKING DIODE	YES
SCI SHORT CIRCUIT PROTECTION	YES


MANAGE AND
MONITOR YOUR
BATTERIES

BATTERYSAVER

THE AUTOMATIC BATTERY SWITCH-OFF

CODE:
BS 12 - 100

BATTERYSAVER, is an automatic battery switch-off which constantly monitors the battery voltage, disconnecting it from any utility in case it goes below the critical 11V threshold.

It thus protects the battery against any efficiency loss or fatal damage due to deep discharges.
It also has a "Manual" mode button which allows to disconnect all the utilities in any moment. Therefore, manual restart is possible or automatic reset through a charging source (e.g.: alternator, 230V charger or solar panel).
REMEMBER: EACH TIME YOUR BATTERY GOES BELOW THE CRITICAL 11V THRESHOLD, ITS LIFE WILL DRASTICALLY REDUCE!

TECHNICAL SPECIFICATION	
SUPPLY VOLTAGE	+10V / +20V
MAX CURRENT	± 100A
AVERAGE CURRENT DRAW	5mA
TECHNOLOGY	MICROCONTROLLER UNIT WITH BISTABLE RELAY
OPERATING TEMPERATURE	-5°C / +60° C
STATUS INDICATOR	GREEN LED INDICATING DEVICE "ON" AND PUSH OF BUTTON

ENERGYMETER

INFORMATION ABOUT YOUR BATTERIES

CODE:
EM 12 - 100

OPERATIONS:

- Displays the battery voltage
- Displays the input and output current
- Displays the operating time during charge or discharge
- Calculates the total amount of charged and withdrawn current

The universal display designed and produced by **NDS** allows the user to be always informed on the battery status.
ENERGYMETER is a current and voltage meter composed by two modules that may be installed on any vehicle. The main module, which is installed close to the battery, is connected wirelessly with a display, and constantly detects the current and voltage values (0-100A range).
The processed data are read by a remote display (or more displays simultaneously) which shall allow the user to monitor in real time the energy balance of the battery.

TECHNICAL SPECIFICATION	
METER	
SUPPLY VOLTAGE	+10V / +20V
MAX CURRENT	± 100A
DATA TRANSMISSION FREQUENCY	ASK 433.92 MHZ
STAND-BY CURRENT DRAW	9mA
DISPLAY	
SUPPLY VOLTAGE	+10V / +20V
STAND-BY CURRENT DRAW	3mA
WIRELESS MODULE	
TRANSMISSION DISTANCE	MAX 6 METRES

iMANAGER

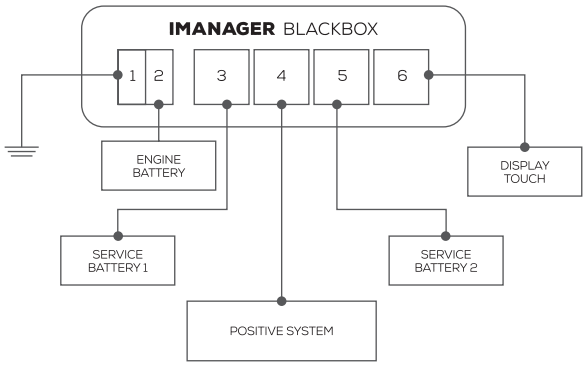
TO MANAGE ALL YOUR ENERGY

The continuous research and the expertise accrued with the Power Switch and Energy Meter led to the **IMANAGER** totally designed and developed by **NDS IMANAGER** is the innovative system that manages all the on -board batteries and energy needs. It mainly allows to avoid the connection in “permanently parallel” of leisure batteries.

IMANAGER manages, simultaneously or separately, up to three batteries with different technologies and amperage.
It improves their efficiency and preserves their duration, thanks to the automatic battery cut-off. The **IMANAGER** touch screen displays any available information on both the accumulators charge level and the possible uses, and it allows you to manually activate or deactivate batteries by one touch, for a more customised management.

WIRELESS VERSION OPTIONAL

CONNECTION SYSTEM



IMANAGER constantly monitors the voltage of its two batteries keeping into account the charge and discharge currents, decides and automatically selects the battery to be used, and aims at keeping the same level of charge to improve their performances.

Among its multiple features, one of the most noteworthy is the automatic battery switch-off, which is activated under three different circumstances:

- When the voltage of one or both batteries is below the critical limit of 10,5V.
- When the voltage of one or both batteries stays below 11V for more than 15 minutes .
- When the temperature measured on one or both batteries is above the limit of 70°.

In this way decreased efficiency and fatal damages are avoided.

IMANAGER also has a specific engine battery output; when the system detects a charging source (mains charger or solar panel) on service batteries and they are full charged at 100%, it delivers to the engine battery a max. 4A current in order to keep it charged, avoiding unpleasant surprises after long stops. It is possible to interact with the device via Display, by monitoring several information such as the state of charge of the accumulators.

Examples of Automatic and/or Manual feature screens

MAIN FEATURES:

- Automatic or manual management of one or two service batteries, even of different technology and amperage.
- Specific engine battery output, when service batteries are 100% charged (e.g.: storage).
- It shows the status of charge of accumulators.
- It shows charge and discharge Ampere and tension.
- Battery switch-off automatic (below 11V) or manual, through the touch screen.
- It shows information and recommendations on the batteries management and maintenance.
- Date and time visualization.
- Temperature monitoring during charge/discharge, for an improved security.
- BlackBox/Display connection available through cable (cod. iM 12-150) and wireless (cod. iM 12-150W).

BLACKBOX		
CODE	IM 12-150	IM 12-150W
ACTIVE BATTERIES CONSUMPTION	8mA	22mA
DISCONNECTED BATT. CONSUMPTION	4mA	4,2mA
OPERATING MODE	AUTOMATIC AND MANUAL	
RELAYS MAX CURRENT	100A + 100A	
OPERATING VOLTAGE	12V (9V - 18V)	
OPERATING TEMPERATURE	-15°C / +65°C	
BATTERY DISCONNECTION THRESHOLD	VOLTAGE: 10,5V TEMPERATURE: 70°C	

TOUCH SCREEN		
CODE	IM 12-150	IM 12-150W
MAX LIGHTNESS CONSUMPTION	60mA	86mA
OFF DISPLAY CONSUMPTION	8mA	34mA
DISCONNECTED BATT. CONSUMPTION	8mA	34mA
TYPE OF CONNECTION	7 M CABLE WITH LOW CONSUMPTION	WIRELESS
OPERATING MODE	NORMAL AND LOW CONSUMPTION	
TYPE OF DISPLAY	TFT2,83" / 262 K COLOR / TOUCHSCREEN	
OPERATING TEMPERATURE	-10°C / +70°C	

POWERSWITCH

BATTERY SWITCH-OFF. WHEN YOU INSTALL A SECOND BATTERY, THE POWER SWITCH MANAGES IT

CODE:

PS 12 - 100

POWERSWITCH is an automatic switch which allows to manage two service batteries separately.
Since electric consumption in Camper increases, you need greater quantities of energy available. A second service battery can meet this need, as it ensures a broader range although it cannot be connected in parallel in case they are not "twins" (which means identical in terms of technology, amperage, brand and production lot).

OPERATION:

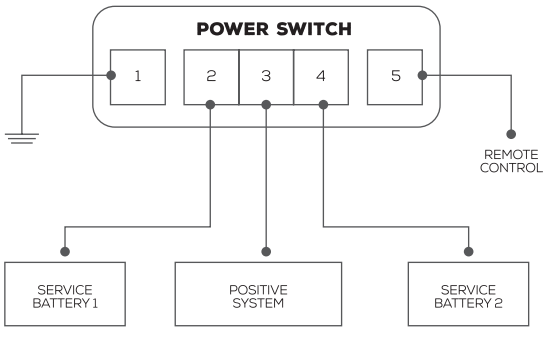
POWERSWITCH, allows to rationally manage two batteries, even of different type and capacity, improving their global efficiency and preserving their integrity.
The device has a microcontroller which constantly detects the status of the batteries and input and output tension and current values. Based on an algorithm especially studied to enhance the system energy yield, **POWERSWITCH** can establish which bistable relay shall be activated so that the two batteries work alternatively or together.
POWERSWITCH is also a smart battery saver since it avoids excessive discharge by activating a system that deactivates batteries before they are lower than the allowed limit. Furthermore, the system has a remote control to manage batteries automatically or manually, depending on the user's needs and to disconnect them from the system during the storage period.

MAIN FEATURES:

- Automatic management of two batteries, also of a different technology and capacity.
- Automatic (below 11V) or manual battery switch-off.
- Up to 2000W management both input and output.
- Batteries temperature control by built-in sensors.
- Remote control provided.

TECHNICAL SPECIFICATION	
RATED OPERATING VOLTAGE	12V
MAX RELAY CURRENT	100
MINIMUM AUTOMATIC OPERATING VOLTAGE	11V
MINIMUM MANUAL OPERATING VOLTAGE	8V
CONNECTION TERMINAL	6 A 25 MM^2
SELF-CURRENT DRAW	6 mA
OPERATION TEMPERATURE	-15° C / +60° C
DIMENSIONS	110 X 120 X 50 MM.
WEIGHT	300 GR.
REMOTE VIEW	2 LEDS + BUTTON
REMOTE CONTROL CABLE LENGHT	3 METRES

CONNECTION SCHEME



REMEMBER THAT WITHOUT POWERSWITCH TWO BATTERIES CAN NEVER BE CONNECTED IN PARALLEL UNLESS THEY ARE IDENTICAL IN TERMS OF TECHNOLOGY, AMPERAGE AND BRAND.

BATTERYMANAGER

A SMS INFORMS YOU THE AUTOMATIC MANAGEMENT, SIMPLY ON THE STATUS OF YOUR BATTERY

FEATURES:

- SMS notifying low depleted battery
- Automatic (below 11V) or manual battery switch-off
- Displays the battery voltage
- Displays the input and output current
- Displays the operating time during charge or discharge
- Calculates the total amount of charged and withdrawn current

BATTERYMANAGER constantly monitors the service battery and prevents it from excessive depletion. The built-in GSM module sends a message to your mobile phone informing you on the status of your battery. The system detects the voltage and current values, the battery input and output quantity, and displays such information on the wireless screen.

BATTERYMANAGER automatically switches off the battery when its value is below the maximum threshold allowed, when it detects microabsorptions, or manually, through a button or via sms.

CODE: BM 12 - 100

TECHNICAL SPECIFICATIONS	
METER	
SUPPLY VOLTAGE	+10V / +20V
MAX CURRENT	± 100A
DATA TRANSMISSION FREQUENCY	ASK 433.92 MHZ
GSM MODULE	GSM-GPRS QUADRIBAND
SIM CARD	1,8V - 3,3V (GSM)
STAND-BY CURRENT	9mA
DISPLAY	
SUPPLY VOLTAGE	+10V / +20V
STAND-BY CURRENT DRAW	3 mA
WIRELESS MODULE	
TRANSMISSION DISTANCE	MAX 6 METRES

SMARTSEPARATOR

THE AUTOMATIC MANAGEMENT, SIMPLY

CODE: SS 12 - 100

SMARTSEPARATOR is an automatic system that allows the on-board management of a start battery and a service battery. Thanks to the microprocessor it will be able to constantly monitor the voltages of the accumulators connected and, in a completely automatic operation, it will handle the main function to connect in parallel the start battery and the service battery only if the first one is in a state of charge, so for example with the engine and alternator running. This function allows to recharge the service battery in vehicles such as campers, boats, ambulances etc. with a quick and easy installation without having to use a parallel relay controlled by an ignition or D+. Another important function is the battery cut-o switch, manual or automatic, which avoids deep discharges. When the voltage of the service battery falls below the critical threshold of 10.5V (11V for more than 10 minutes) the system fully disconnect all loads connected to the device. The system will be automatically reactivated, as soon as a source of recharge will be present, such as generator, charger, solar modules.

INPUT VOLTAGE (V)	FREQUENCY	PARALLELING DEVICE ON VOLTAGE	PARALLELING DEVICE OFF VOLTAGE	MAXIMUM CHARGE/ DISCHARGE CURRENT	BATTERY CUT-OFF SWITCH ON VOLTAGE	BATTERY CUT-OFF SWITCH OFF VOLTAGE	SIZE L-H-W (MM.)	WEIGHT
10V - 15V	DC	>13,3V	<12,7V	100A	<10,6V	>12V	123 X 108 X 50	400 GR


HIGH
PERFORMANCES,
EFFICIENCY AND
RELIABILITY

SMART-IN

SUPERIOR QUALITY
MODIFIED AND PURE SINE WAVE INVERTERS

Optional
Remote control **RC 02**

SMART-IN are the inverters designed and developed by **NDS**, which jump out for its design and quality. Designed to provide high performances, maximum safety, reliability and, above all, silent operation, important for those who install the inverter inside the passenger compartment. Thanks to the NDS advanced engineering solutions, **SMART-IN** inverters are also suitable for professional use.
The **SMART-IN** family consists of two lines: Modified and Pure distinguished by the output waveform. The two product lines cover a variety of powers from 400W to 3000W, with the possibility (for some models) to have 24V input voltage. Complete your **SMART-IN** with our handy accessories.

MAIN FEATURES:

- High efficiency up to 93%
- Low self-consumption
- Input with professional connectors
- Predisosition for remote control ON/OFF
- Input and output completely isolated

PROTECTIONS:

- Soft Start
- Protection against overload and shortcircuit
- Low battery alarm
- Protection against polarity inversion
- Over-temperature protection

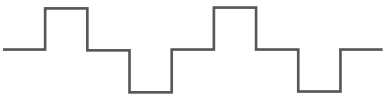
DISTINCTIVE FEATURES:

- The input and output are completely isolated, to avoid that any anomalies from the equipment connected to the output may damage that connected to the input and vice-versa, thus ensuring a high degree of safety.
- Professional connectors which, as opposed to the standard cheaper inverters on the market inverters normally sold, are directly integrated into the board, thus allowing substantial reduction of voltage drop on the connection between the device and the battery. This improves its performance and, at the same power absorbed by 230V equipment (e.g. TVs), the battery consumption is lower than with the traditional inverters.

Thanks to the innovative technical solutions adopted, the efficiency can get to very high levels:
- 93% for the modified wave **SMART-IN** series, suitable for TVs, computers, battery chargers and so on.
- 91% for the pure wave **SMART-IN SP** series, recommended for all uses as all the devices are designed and tested to work with pure sine wave voltage.

For some equipment, such as engines, refrigerators, Hi-Fis, “dimmer” lamps and air conditioning systems, using a pure sine wave inverter is compulsory in order to avoid any damage. **SMART-IN** inverters can boast the lowest self-consumption on the market and considering that very often an inverter remains in stand-by mode, thus keeping consuming current, to mimimize the absorption is essential and of great benefit to the user that does not discharge the battery unnecessarily.

SMART-INMODIFIED



MODIFIED SINE WAVE

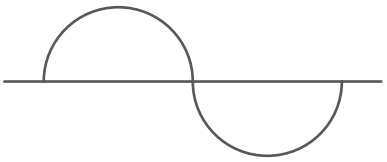
12V

CODE	INPUT VOLTAGE	CONTINUOUS POWER	PEAK OUTPUT POWER	OUTPUT VOLTAGE	USB OUTPUTS	SIZE (MM)	CABLE INCLUDED
SM 400	12V	400W	800W	230VAC	5V 2,1A	184 X 140 X 71H	6MM2 LENGHT 80CM
SM 600	12V	600W	1200W	230VAC	5V 2,1A	214 X 140 X 71H	10MM2 LENGHT 80CM
SM 1000	12V	1000W	2000W	230VAC	5V 2,1A	262 X 270 X 121H	16MM2 LENGHT 80CM
SM 1500	12V	1500W	3000W	230VAC	5V 2,1A	262 X 270 X 107,5H	25MM2 LENGHT 80CM

24V

SM 600-24	24V	600W	1200W	230VAC	5V 2,1A	214 X 140 X 71H	10MM2 LENGHT 80CM

SMART-INPURE



PURE SINE WAVE

12V

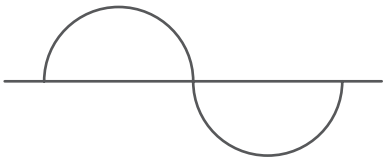
CODE	INPUT VOLTAGE	CONTINUOUS POWER	PEAK OUTPUT POWER	OUTPUT VOLTAGE	USB OUTPUTS	SIZE (MM)	CABLE INCLUDED
SP 400	12V	400W	1000W	230VAC	5V 2,1A	214,5 X 140 X 71H	6MM2 LUNG. 80CM
SP 600	12V	600W	1500W	230VAC	5V 2,1A	244,5 X 140 X 71H	10MM2 LUNG. 80CM
SP 1000	12V	1000W	3000W	230VAC	5V 2,1A	262,4 X 270 X 107,5H	16MM2 LUNG. 80CM
SP 1500	12V	1500W	4000W	230VAC	5V 2,1A	322,4 X 270 X 107,5H	25MM2 LUNG. 80CM
SP 3000	12V	3000W	8000W	230VAC	5V 2,1A	412 X 270 X 107,5H	35MM2 LUNG. 80CM

24V

SP 600-24	24V	600W	1500W	230VAC	5V 2,1A	244,5 X 140 X 71H	10MM2 LUNG. 80CM
SP 1500-24	24V	1500W	4000W	230VAC	5V 2,1A	322,4 X 270 X 107,5H	25MM2 LUNG. 80CM
SP 3000-24	24V	3000W	8000W	230VAC	5V 2,1A	412 X 270 X 107,5H	35MM2 LUNG. 80CM

SMART-INPURE

PURE SINE WAVE WITH IVT FUNCTION



PURE SINE WAVE

INTEGRATED

BY-PASS

SMART-INPURE with **IVT** function is a line of inverters with an integrated system of priority (Priority Switch type). This special **IVT** function, through the two input and output 230V sockets, allows the management of the voltage that comes out from the inverter connected to the battery and to the external grid.

When the main is connected to the external grid, it will have the priority in order to preserve the battery; when the grid is disconnected, the inverter will supply the 230V output socket and the entire system.

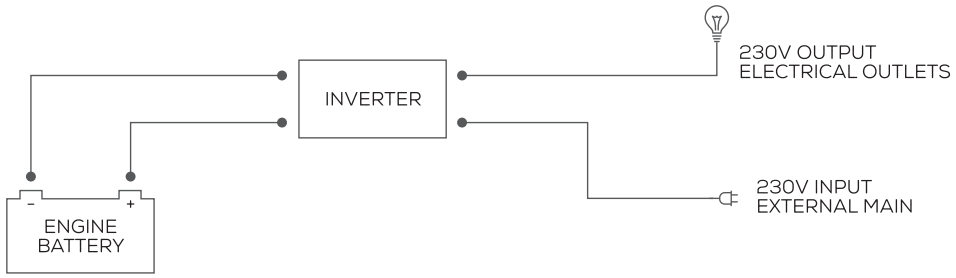
12V

CODE	INPUT VOLTAGE	CONTINUOUS POWER	PEAK OUTPUT POWER	OUTPUT VOLTAGE	USB OUTPUTS	SIZE (MM)	CABLE INCLUDED
SP 1000-I	12V	1000W	3000W	230VAC	5V 2,1A	262,4 X 270 X 121H	16MM2 LENGHT 80CM
SP 1500-I	12V	1500W	4000W	230VAC	5V 2,1A	322,4 X 270 X 121H	25MM2 LENGHT 80CM
SP 2000-I	12V	2000W	6000W	230VAC	5V 2,1A	385 X 270 X 107,5H	35MM2 LENGHT 80CM

DISTINCTIVE FEATURES:

- By-pass integrated function
- Relay time change from inverter 230 VAC to external grid = 20 ms
- Relay time change from 230 VAC external grid to inverter = 100 ms

INSTALLATION SCHEME



REMOTECONTROL

REMOTE CONTROL FOR INVERTER,
FOR REMOTE ON-OFF

CODE: RC 02

FUNCTIONALCONNECTOR

ADAPTER FOR ON / OFF CONTROL OF THE INVERTER,
CONNECTION TO ANY SWITCH

CODE: FC 01

4MM²/6MM²CABLES

4MM² CABLE WITH BATTERY CLAMPS, LENGTH 60 CM
6MM² CABLE WITH BATTERY CLAMPS, LENGTH 60 CM

CODE: BVR4 / BVR6

CARLIGHTADAPTER

CABLES 2,5MM² WITH ADAPTER, LEGHT 50CM

CODE: CLB01

PRIORITYSWITCH

YOUR PRIMARY LINE

CODE: SP 230

PRIORITYSWITCH is an intelligent system that allows the use of the inverter and batteries only when it is really necessary. It is a management system of the 230V, useful when the plant has two power sources: power grid and an inverter connected to the battery.
By connecting the two power sources to the input of the **PRIORITYSWITCH**, the external grid will always have the priority.
There are two outputs, the first one to connect all loads to be used only when main network is present, such as air conditioners, refrigerators and other big loads; the second output, instead, is dedicated to all the accessories that can be powered either by the inverter than from the main, for example, the 230V sockets of the vehicle or vessel.

MODEL	MAX POWER INVERTER	INPUT VOLTAGE	OUTPUT VOLTAGE	OPERATION FREQUENCY	MAXIMUM OUTPUT POWER	FUSE	SIZE (MM.)
SP 230	2300W	230V AC	230V AC	50/60 HZ	10A	10A	145 X 100,2 X 41,2

POWERNEGATIVE

VOLTAGE REDUCER

The DC-DC voltage converters **NDS** line are electronic devices that can reduce a voltage of 17 ~ 32VDC in a constant of 14V ± 10%.
Three different versions are available, with output power of 10A, 30A, 60A depending on the model.
The devices appear to be very useful in all those situations where it is necessary to supply utilities with 12V rated voltage but the vehicle or the power source has a voltage of 24V.

MODEL	PN2412-10	PN2412-30	PN2412-60
INPUT VOLTAGE	13V - 40V	13V - 40V	13V - 40V
OUTPUT VOLTAGE	14V ± 10%	14V ± 10%	14V ± 10%
EFFICIENCY	› 95%	› 95%	› 95%
RATED POWER	120W	360W	720W
MAXIMUM POWER	140W	400W	800W
MAXIMUM OUTPUT POWER	10A	30A	60A
SIZE (MM.)	127 X 91 X 47	187 X 91 X 47	265 X 205 X 47
WEIGHT	0,40 KG	0,50 KG	2,4 KG


TECHNOLOGY
AND POWER
WITHIN REACH

ENERGYSERVICE

FLOODED ACID

ENERGYSERVICE are semi-traction batteries specific for services, built with thicker plates with radial geometry and microporous glass mat separator glass mat, which ensure a high performance.

FEATURES AND PLUS:

- Designed for deep cycles
- Vibration resistant
- Corrosion resistant thanks to a perfect contact with the active material
- Longer battery "life"

MODEL	VOLTAGE	CAPACITY AH			DIMENSIONS MM.		
	VOLT	20H	10H	5H	LENGHT	WIDTH	HEIGHT
ES 80	12	80	74	66	270	175	190
ES 100B	12	100	96	85	353	175	190
ES 100	12	100	96	85	323	175	223

STARTPOWER

FLOODED ACID

FEATURES AND PLUS:

- Designed for starter
- Vibration resistant
- Low water consumption

STARTPOWER are high performance batteries, built with high afficiency lead/calcium alloy plates. The high crancking power **Premium** line has lids **Magic Eye** charge battery indicator.

MODEL	BOX	AH	A (EN)	DIMENSION		
				LENGHT	WIDTH	HEIGHT
STANDARD						
578.038.072	L3	78	720	278	175	190
595.035.085	L4	95	850	315	175	190
600.038.085	L5	100	850	353	175	190
600.115.072	D31	100	720	308	175	223
610.042.095	L6	110	950	393	175	190
610.110.072	CB	110	720	345	175	230
PREMIUM						
580.121.072	L3/B	80	720	278	175	175
590.122.080	L4/B	90	800	315	175	175
600.044.085	L5	100	850	353	175	190

GREENPOWER

THE HIGH PERFORMANCE SERVICE BATTERY

AGM TECHNOLOGY

ONLY FOR CAMPERS, ALWAYS

Non-stop research led **NDS** technicians to create in 2000 the **GREENPOWER**, an **AGM** (**Absorbent Glass Mat**) battery for gas (**VRLA**) recombination for specific use in services or leisure vehicles.
GREENPOWER The **LONG LIFE** oxygen-recombination service battery with slow discharge.

THE BEST FOR LEISURE VEHICLES!

PLUS:

- Autonomy, 40% more than a conventional battery
- Battery life, 4-7 years up to 1200 cycles (average duration)
- Safety, completely hermetic, no exhalations nor acid leaks
- Use, placeble in any position and maintenance-free

GREENPOWER is built with special high- density lead-calcium alloy plates, which raise charge retention for a low self-discharge (Fig.1) and a high number of cycles (Fig.2).

The electrolyte liquid is absorbed by its special glass mat separators, which prevent any leaks and allow to place batteries in any position and/or inclination, keeping constant effieciency.
The reinforced grids of the separators ensure a higher resistance against vibrations.

CHARGE RETENTION

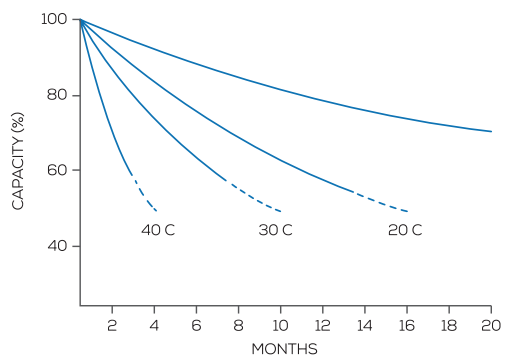


Fig. 1

CICLY LIFE

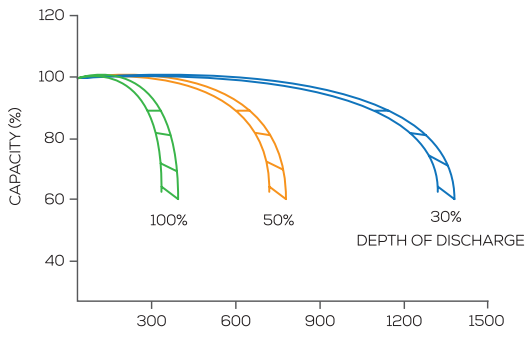


Fig. 2

The **GREENPOWER** VRLA (**Valve Regulated Lead-acid**) system can recombine the gasses generated during charge and discharge, making **Green Power** a totally hermetic and safe battery, free of any kind of maintenance. The case is **ABS** flame retardant (**UL 94-VO**), the rust-proof terminals resist corrosion and the cover includes the **VRLA** safety pressure valves.

The battery **life** can be affected by several factors.
The Depth of discharge: avoid discharging the battery beyond the maximum 11V level;
The duration of discharge: do not leave the battery discharged after use;
The charging method: provide the best and most appropriate level of charge.

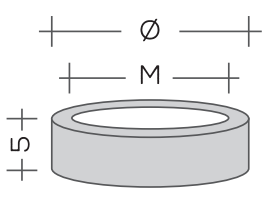
GREENPOWER batteries can be charged by an alter- nator, electronic charger and solar panels, com-plying with the recommended parameters (Fig. 3).

CHARGING PARAMETERS								
CONTROL USE	CHARGING METHOD	CHARGING VOLTAGE AT 20° C (V/EL.)		TEMPERATURE COEFFICIENT FOR CHARGING VOLTAGE (MV/°C/EL.)	MAX CHARGING CURRENT (CA 100%)	CHARGING TIME AT 0,1 CA TEMP. 20° C (IN HOURS)		CHARGING TEMPERATURE (°C)
		12V	6V			FLAT	50% FLAT	
STAND-BY	CONSTANT VOLTAGE CONSTANT CURRENT (WITH CONTROL ON CHARGE)	13,5 - 13,8	6,75 - 6,90	-3,0MV °C/EL	0,3 C FOR FM	24	20	-10°C A 60°C
CYCLIC		14,4 - 14,9	7,20 - 7,45	-5MV °C/EL	0,3 C FOR FM	16	10	

Tabella 3

MODEL	VOLTAGE	CAPACITY AH			DIMENSIONS MM.			TERMINALS
	VOLT	20H	10H	5H	LENGHT	WIDTH	HEIGHT	
GP 60	12	60	58	54	250	160	200	F11
GP 80	12	80	74	66	350	167	179	F11
GP 80S	12	80	74	66	258	166	215	F11
GP 90	12	90	85	75	306	169	215	F11
GP 100	12	100	96	85	330	171	220	F12
GP 100B	12	100	93	82	350	175	190	F12
GP 120	12	120	115	92	330	171	220	F12
GP 130	12	130	120	105	409	176	225	F12
GP 140	12	140	130	119	341	172	287	F12
GP 150	12	150	142	135	485	172	240	F12
GP 200	12	200	192	170	530	209	235	F12
GP 210	12	210	198	183	522	242	240	F12
GP 250	12	250	236	210	522	268	240	F12
GP 6-235	6	235	220	198	243	187	276	F12

TERMINALS		
TYPE	M	Ø
F11	6	14
F12	8	16
F13	5	12
F14	6	18
F15	8	19



TECHNICAL SPECIFICATIONS			
HERMETIC	TEMPERATURE	CONSTRUCTION TECHNOLOGY	STANDARD
WITHOUT EXHALATIONS AND ACID LEAKAGE FREE OF MAINTENANCE **DO NOT OPEN** INCLINATION MAX 90°	STATED CAPACITY AT 25°C +/- 3° C OPERATING RANGE FROM -25°C ~ 55°C	LEAD/CALCIUM ALLOY GLASS MAT SEPARATORS ABS CASE (UL 94-VO)	COMPLIANCE WITH THE REGULATIONS IEC, JIS, EN CLASSIFIED AS NON-HAZARDOUS

3LION SYSTEM

ENERGIA FROM THE FUTURE

BMS Manager

Display

NEW LITHIUM ENERGY

3LION IS NDS $LiFePO_4$ BATTERY WITH INCREDIBLE PERFORMANCES, IDEAL FOR SERVICES USE. THE MOST ADVANCED ENGINEERING TECHNOLOGIES, THE BEST RAW MATERIALS IN A COMPLETE AND EASY TO INSTALL SYSTEM, WITHOUT ALTERING OR STRESSING THE ORIGINAL ELECTRICAL CIRCUIT.

MAIN FEATURES:

- Fast Charging, up to 75A for each hour of travel
- Long lifetime, over 2500 cycles
- Very high power density and energy
- Weight -60% than a traditional battery
- Super secure and reliable
- Exempt from sulfation and maintenance
- Low discharge (less then 3%/month)

"3LION SYSTEM" INCLUDES:

- 3LION - LiFePO4 - Battery with integrated BMS
- 3LINK - advanced BMS manager
- Display - Controll the whole 3Lion System

3LION BATTERY: THE HEART OF "3LION SYSTEM". Safe, Powerful, Innovative.
The synergy between evolving security systems, complex interior architecture and high purity raw materials, guarantees battery life an unrivaled level of security and reliability.
The special cell architecture and a series of valves minimize the risks of overheating. Reinforced conducting plates allow to maintain the conformance of the internal structure by mechanical agents.
Lithium iron phosphate (LiFePO4), precious electrolyte, makes the 3LION extremely safe and reliable over time, unlike the Li-Ion or LiPO models...

3LINK, THE BRAIN OF THE "3LION SYSTEM"
The advanced BMS manager 3LINK manages battery charging while traveling, ensuring maximum battery-powered current, reducing charging time, maximizing autonomy during stops, without altering the internal structure of the system and not overloading it.

DISPLAY
The brilliant display allows you to a easely check the status of charging and recharging the 3LION battery effectively and accurately, by continuously measuring and calculating the battery.

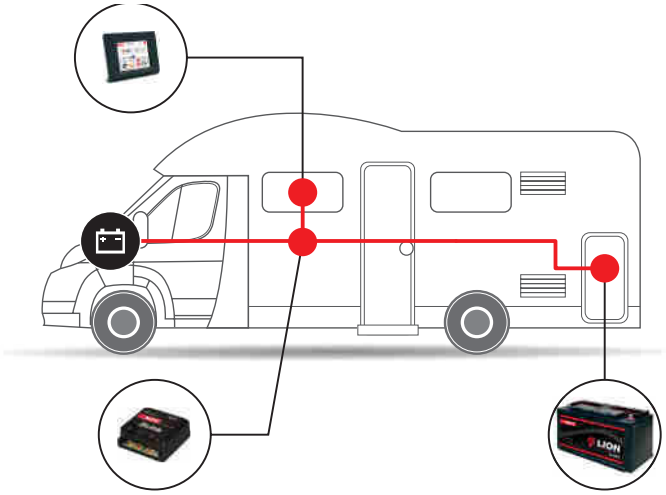
BATTERY MANAGEMENT

3Lion batteries can be recharged with AGM / GEL battery chargers, ensuring that the maximum voltage supplied does not exceed 14.5V. **The use of LiFePo4 lithium battery-specific battery chargers is recommended. However, it is not advisable to use lead battery chargers if they exceed the 14.5V free acid charge voltage, since even if they can fully charge 3LION, they reduce their life.**

INSTALLING THE SYSTEM

Regardless of the location of the service battery installing the 3Lion system is very simple since 3Lion System, managed by the 3Link, does not modify the native electric circuit of the camper; It will be enough to connect: utilities, starter battery and 3Lion battery to the BMS 3Link to make the system fully operational.

The 3LION + 3LINK synergy are able to take advantage of high charging currents without overcharging the camper's internal circuit, thus providing full recharging at very short time.



MODEL	3L-100	3L-100B	3L-100-P	3L-150-P
NOMINAL VOLTAGE	12,8V DC	12,8V DC	12,8V DC	12,8V DC
CAPACITY AT 25°C	100AH	100AH	100AH	150AH
MAX DISCHARGE CURRENT	100A	100A	150A	150A
ESTIMATED CYCLES NUMBER 80% DOD	2500	2500	2500	2500
SELF DISCHARGE	<3%/MONTH	<3%/MONTH	<3%/MONTH	<3%/MONTH
TERMINAL	M8	M8	M8	M8
WEIGHT	13,8KG	13,3KG	13,8KG	20,7KG
SIZE (MM)	327X172H227MM	337X175H190MM	327X172H227MM	485X172H241MM

ACCESSORIES

POWERCHARGER BATTERY

RECOVER YOUR BATTERIES

NDS after a careful research and experience on accumulators sulfatation has designed and produced a special electronic charger.

The **POWERCHARGER BATTERY** has a built-in system that canmanually allowing an up to 72-hour intensive desulfation process. This lets the battery recover its efficiency lost due to sulfate crystals on plates.
Lab tests prove that more than 80% of low yield batteries are 100% recovered (if sulfation is not irreversible).

CODE: PCB 12-20

POWERTEST BATTERY

TEST YOUR BATTERIES' EFFICIENCY

POWERTEST BATTERY lets you measure how many Ampére a battery can deliver out accurately, therefore establishing its actual capacity.
This is useful to know the efficiency status of service batteries.

CODE: PTB 12-20

ELECTRONICSWITCH

THE AUTOMATIC D+

ELECTRONICSWITCH is an electronic device that can be used instead of the alternator's D+ .
According to the engine battery voltage variation, it enables or disables with an hysteresis of about 500mV.
The **ELECTRONICSWITCH** lets the **Power Service** to switch on and can also be used to commute any 12V relay.

CODE: INT 12

DIGITALCLAMPMETER

PROFESSIONAL EQUIPMENT

Digital amperometric clamp with digital multimeter.
LCD 31/2 Digit (3200 counts) display with 33-item bar graph.
Auto/manual indication of functions and symbols.
Jaw-spread fit for 50 mm cable section.
Case and leads supplied.

CODICE: MTA 101

BATTERYPOLES

Pair of poles for modification ø 6 and ø 8 mm hole.

CODE:
CPL 06
CPL 08

DENSIMETER

The densimeter is an ideal tool to determine the state of charge of a conventional lead acid battery.
It measures the specific weight of the electrolyte with a high precision scale in degrees Baume and specific weight with colored sections for rapid reading.

CODE:
DEN 100

NDS

TUTTA L'ENERGIA CHE TI SERVE

ALL THE ENERGY YOU NEED