MICRO PLUS
Germany

www.microplusgermany.com

Solar solutions for storage, lighting, and connectivity with the latest Lithium ($LiFePO_4$) technologies

2024 *V.52* SEPTEMBER - 2024

MADE IN EUROPE

MOBILITY

LITHIUM RACK

VICTRON COMPACT KIT

ARV

Solar Tree


MADE IN
EUROPE
MADE IN

PRODUCING
THE ENERGY OF THE FUTURE

We develop the most extensive range of solar solutions, including streetlights and compact kits for residential and industrial use, with Lithium ($LiFePO_4$) batteries, offering the best solutions as an alternative technology to the existing ones.

Factory

The **MicroPlus Germany** group, with manufacturing in Spain and Portugal, presents its latest innovations in the field of **renewable energy** and energy saving: **SMART CAPSULE** and **SOLAR CHARGING STATIONS**; adding to the extensive list of products already in production, such as solar **streetlights**, **lithium energy storage systems**, and the full range of luminaires with **Microled Plus** technology.

Manufactured under the strictest international certification standards: *ISO/IQNET* certifications, granted by the Spanish Association for Standardization and Certification (*AENOR*), as well as prestigious and demanding German and international certifications including *TÜV*, *ENAC*, *BUREAU VERITAS*, *RETILAP*, *IPAC*, SPANISH ORIGIN CERTIFICATE, and *NOM*.

A Global Company

20
companies
around the world

+ 5.000
projects around
the world

OUR INTERNATIONAL PRESENCE
allows us to **serve** our clients **better**,
wherever they may be.

EUROPE
- MicroPlus Germany GmbH
  I+D+I· -Regensburg [Deutschland]
- MicroPlus Germany of Spain
  Fabricación central de luminarias
- MicroPlus Germany of Portugal
  Fabricación y procesos de aluminio Fundiviana Ltda..
- MicroPlus Germany of Ireland

AFRICA
- MicroPlus Germany of Morocco
- MicroPlus Germany of Tunisia
- MicroPlus Germany of Cameroon
  Energie Renouvelable Du Cameroun
- MicroPlus Germany of San Tome and Principe
- MicroPlus Germany R.D. Congo
- MicroPlus Germany of Togo
- MicroPlus Germany of Angola

AMERICAS
- MicroPlus Germany of México
- MicroPlus Germany of Colombia SAS
- MicroPlus Germany of Peru
- MicroPlus Germany of Chile
- MicroPlus Germany of Argentina
- MicroPlus Germany of Uruguay
- MicroPlus Germany of Brasil
- MicroPlus Germany of Bolivia
- Solar Energy Panama

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INTRODUCTION TO SOLAR STREETLIGHT

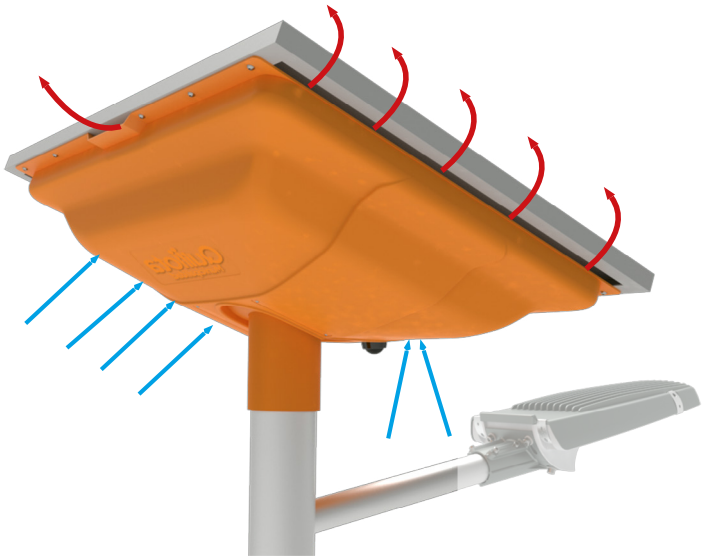
Solar streetlights are portable or fixed units mounted on poles anchored to the ground by concrete or screws secured by impact machinery. These streetlights utilize the daily solar energy through a photovoltaic panel, converting the electromagnetic waves produced by the sun into direct current. In the case of **MICROPLUS GERMANY** solar streetlights, this energy is stored in Lithium Iron Phosphate (**LiFePO4**) batteries, housed in a patented ABS-designed support. A special controller manages the storage of energy in these batteries so that at night, the stored energy can be used to produce light through the chosen luminaire. With a performance of 200 lumens per watt and a glass lens, these form an optical system patented by **MICROPLUS GERMANY**.

This **ABS** support (*with an air chamber*) where the batteries and controller are housed includes a cavity for an optional presence detector. This detector would activate when detecting a person during the night, causing the system to provide maximum illumination. It can also be supplied in any color of the client's choice, and even with their name or slogan engraved.

NATURAL CONVECTION COOLING

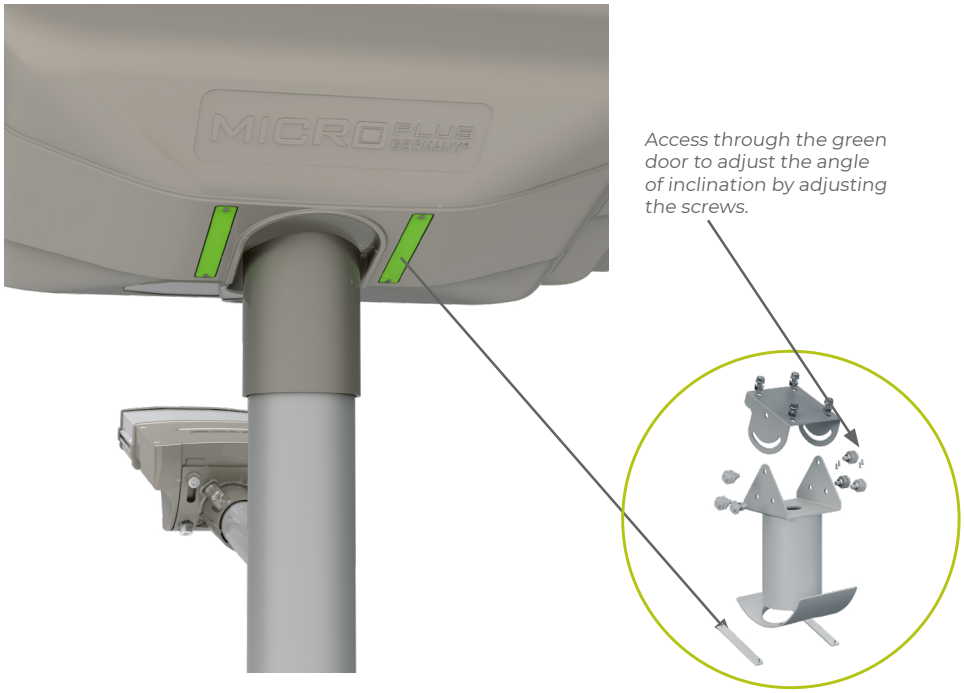
The main difference compared to competitors is significant. First, our photovoltaic module is not fully enclosed with the batteries.

Instead, air can naturally circulate underneath it, which helps prevent the batteries from overheating and thus extends their lifespan.



INTRODUCTION TO SOLAR STREETLIGHT

This streetlight system can be used anywhere in the world because the photovoltaic module can be adjusted to any angle required by the geographic location, and the luminaire can be rotated and adapted to any working position.



Access through the green door to adjust the angle of inclination by adjusting the screws.

Our streetlights store energy in lithium phosphate batteries (**page 132**) with 32,700 cells and 8,000 cycles. They come with an ABS enclosure, IP68 connectors, and a BMS for balanced charging..

The poles can be galvanized and also painted with high-durability polyester powder coating baked at 250 degrees.

They can be manufactured according to the patterns in the catalog or any other design required by the project.

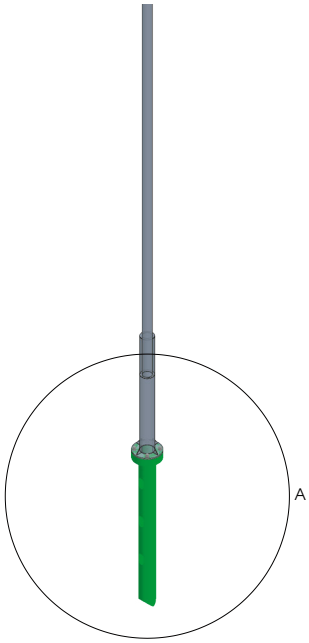
INTRODUCTION TO SOLAR STREETLIGHT

New assembly lines have been added in Bragança (*Portugal*) with new factories, allowing us to tackle major international challenges competitively. Leveraging our extensive experience, we are positioned as one of the leading and reference companies in the market.

INTRODUCTION TO SOLAR STREETLIGHT

Galvanized screw with a flange at the top, inserted into the ground by machine at a depth of 1.5 meters (*variable depending on the height*) for the attachment of the solar streetlight, thus avoiding excavation and concrete.

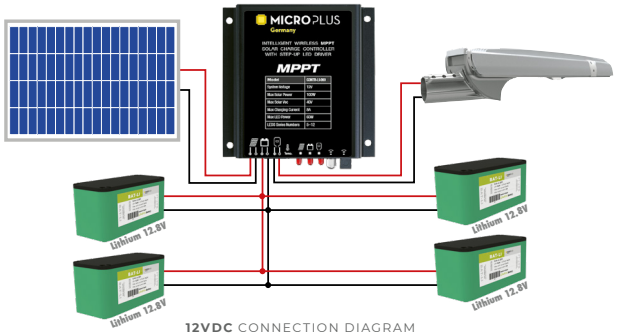
For the installation of a minimum of 25 streetlights within the national territory, rental of this machine can be provided.



DETAIL
SCALE 1:7

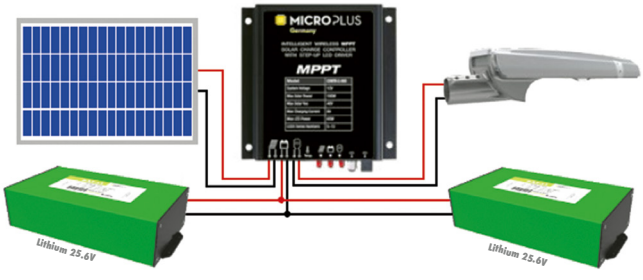
Our solar streetlights are delivered pre-wired, except for transportation or safety reasons. If they are supplied unwired, we provide a connection diagram for 12Vdc or 24Vdc.

12Vdc Connection Diagrams



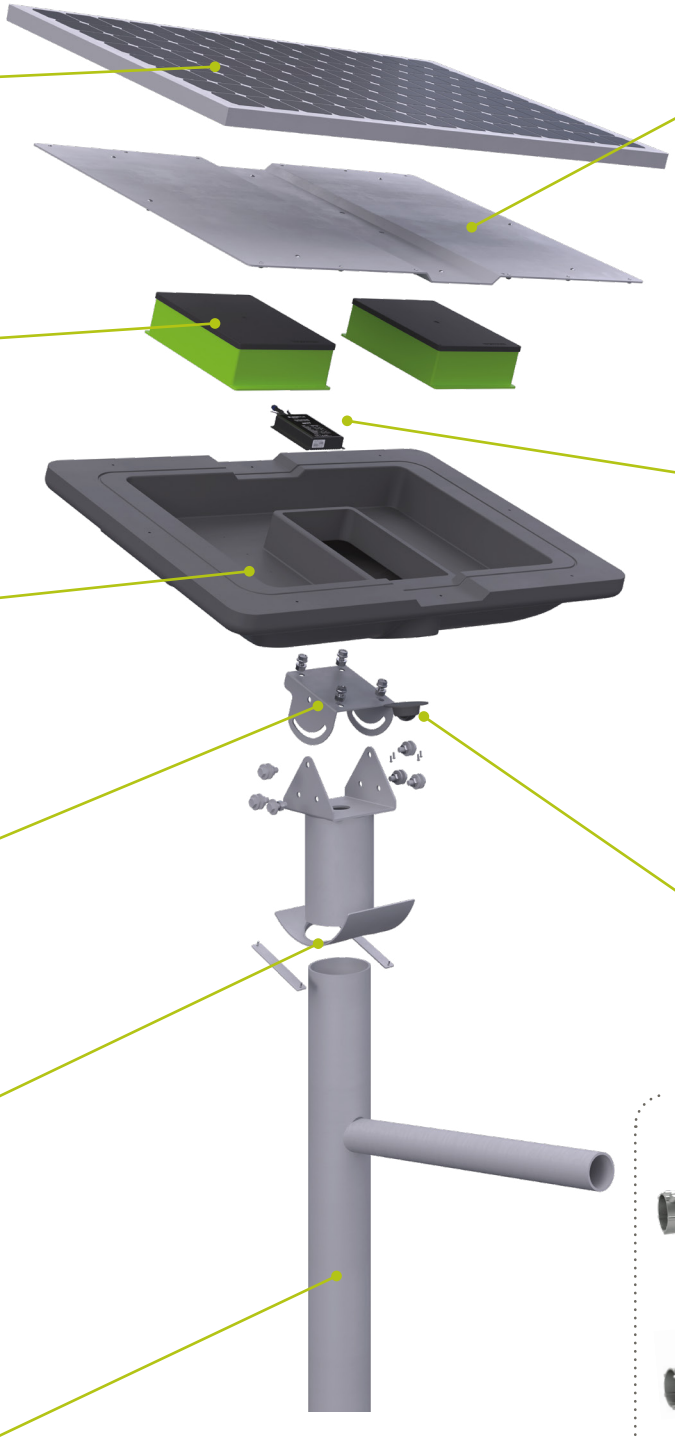
12VDC CONNECTION DIAGRAM

24Vdc Connection Diagrams



24VDC CONNECTION DIAGRAM

Structure of Solar Lamps



PHOTOVOLTAIC PANEL
INFO page 268

GALVANIZED PANEL SUPPORT PLATE

$LiFePO_4$ LITHIUM BATTERIES
INFO page 132

CHARGE CONTROLLER

ABS BOX BATTERY SUPPORT

ANGLE ADJUSTMENT BRACKET

MICROWAVE SENSOR (optional)

INCLINATION SYSTEM COVER

GALVANIZED POLE (or high-durability polyester painted

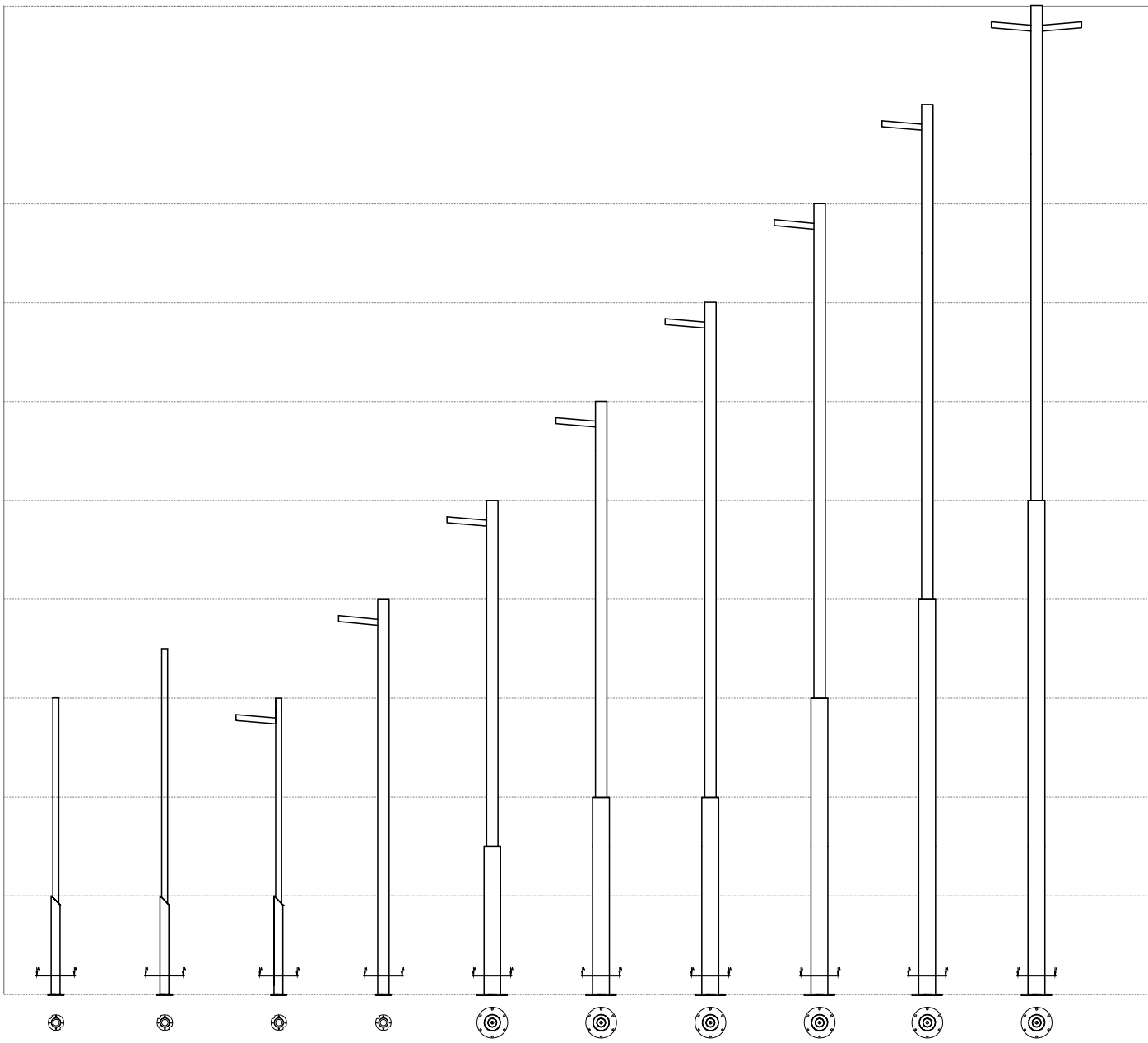
MODELS

MPG-1N

MPG-1E

MPG-2

Solar Poles



Ø TOP	Ø TOP	Ø TOP	Ø TOP	Ø TOP	Ø TOP	Ø TOP	Ø TOP	Ø TOP	Ø TOP
63 mm	63 mm	63 mm	114 mm	114 mm	114 mm	114 mm	114 mm	114 mm	114 mm
Ø LOWER	Ø LOWER	Ø LOWER	Ø LOWER	Ø LOWER	Ø LOWER	Ø LOWER	Ø LOWER	Ø LOWER	Ø LOWER
90 mm	90 mm	90 mm	114 mm	168 mm	168 mm	168 mm	168 mm	168 mm	168 mm
HEIGHT	HEIGHT	HEIGHT	HEIGHT	HEIGHT	HEIGHT	HEIGHT	HEIGHT	HEIGHT	HEIGHT
2 m	2,5 m	3 m	4 m	5 m	6 m	7 m	8 m	9 m	10 m
MODEL	MODEL	MODEL	MODEL	MODEL	MODEL	MODEL	MODEL	MODEL	MODEL
B-S3	**B-S3.5**	**B-03**	**B-04**	**B-05**	**B-06 BD-06**	**B-07 BD-07**	**B-08 BD-08**	**B-09 BD-09**	**B-10 BD-10**

OFF-GRID LIVING


MICRO PLUS
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SL-OCELLUM

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***IT DOES NOT** cast a shadow*

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SL-OCELLUM

IT DOES NOT cast a shadow

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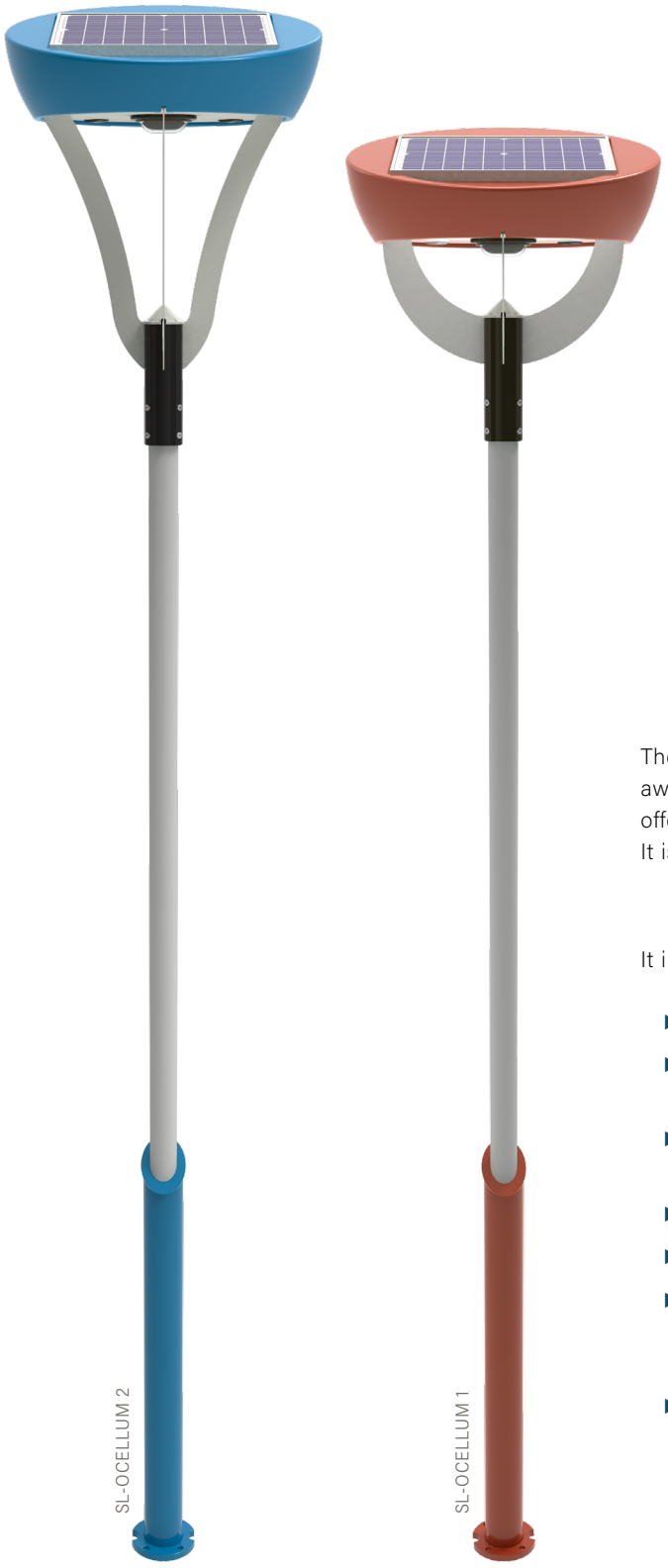
SL-OCELLUM

▶ 10W [12Vdc]

UTILITY MODEL U201530907 U201500465 U201530820 Efiten MICRO PLUS Germany

Solar streetlight, does not cast shadow.



General information

10 YEARS GUARANTEE · 200Lm/W · IP65 · IK08 · LIFE TIME 100.000 H · EN 62471 · 100% energetic · 12v LITHIUM · 25 YEARS PANEL 80% R.S. · PP Preset

Options

OPTION COLORS · MOTION SENSOR

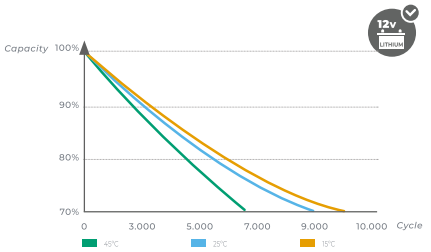
OPTION HYBRIDIZED *CONSULT*

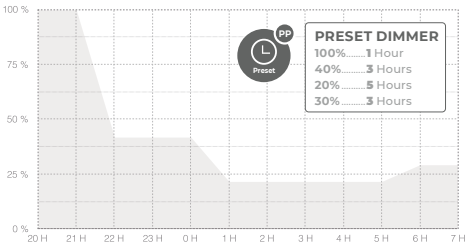
The **SL-OCELLUM 1-2** **10W SOLAR STREETLIGHT** breaks away from the traditional image of **SOLAR STREETLIGHTS**, offering reduced wind resistance (*for maritime or mountainous areas*). It is intended for gardens, small installations, or chalets.

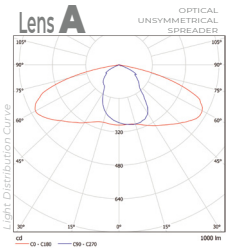
It integrates:

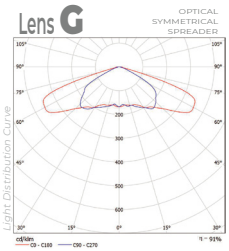
- Glass lens or next-generation multiled
- 3mm galvanized and painted sheets to prevent shadow projection
- Dome made of UV-resistant polymer in various colors
- MPPT **CONTROLLER** (*IP68*)
- 20Wp **SOLAR PANEL** (*18V*)
- $LiFePO_4$ **LITHIUM BATTERIES** — *12.8V / 12Ah* with over 3,500 cycles (*80% discharge*) and 8,000 cycles (*30% discharge*).
- 3.5-meter **GALVANIZED POLE** (*optional high-durability epoxy painted*).

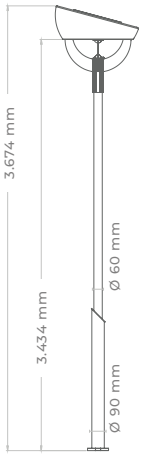
A minimum of 3 hours of sunlight per day is required for the proper functioning of the system.



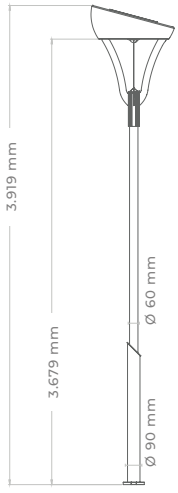








SL-OCELLUM1



SL-OCELLUM2

MODEL	OPTIONS					CHARACTERISTICS OF THE SOLAR LAMP									
						LIGHTING MODEL **S-OCELLUM1 / 2**				BATTERY				STREETLIGHT	
							PROGRAMMING			COMPONENTS					
	CONTROL	NOMINAL POWER	VOLTAGE	TEMPERATURE	LENS TYPE	POWER	%	HOURS	FLUX LUMINOUS	DAYS OF RESERVE	UNITS	AMP/ HOURS	CHARGER CONTROLLER	SOLAR PANEL (WP)	WEIGHT
SL-OCELLUM1 **SL-OCELLUM2**	/PP /PSM	/010	/VDC	/1.8 /2.4 /3.0 /4.0 /4.5 /5.5	/A /G	10W	100 % 40 % 20 % 30 %	1 H 3 H 5 H 3 H	1.500 Lm 600 Lm 300 Lm 450 Lm	3 days	1	LP012 012A/B	DM060-W (10A - 12V)	20 WP	23,5 kg

/1.8: Amber color temperature of **1,800k**, for astronomical observation areas.
/2.4: Amber color temperature of **2,400k**, for astronomical observation areas.

WORKING TEMPERATURE: -20°C +60°C

MICRO PLUS Germany

S-OCELLUM1M

▶ 10W [12Vdc]

UTILITY MODEL U201530907 U201500465 U201530820 Efiten MICRO PLUS Germany

Solar streetlight, does not cast shadow.

/verde - green

General information

10 YEARS GUARANTEE · 200Lm/W · IP65 · IK08 · LIFE TIME 100.000 H · EN62471 · 100% energetic · 12v LITHIUM · 25 YEARS PANEL 80% R.S. · PP Preset

Options

OPTION COLORS · MOTION SENSOR

OPTION HYBRIDIZED *CONSULT*

/violeta - violet

The **S-OCELLUM1M** **10W** *luminaire* features a next-generation glass lens, 3mm galvanized and painted sheets that do not cast shadows, and a dome made from UV-resistant polymer available in various colors, all integrated into a single structure.

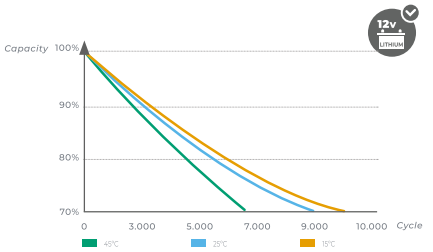
This **SOLAR STREETLIGHT** with an angled arm is suitable for house facades, industrial buildings, and various public roads.

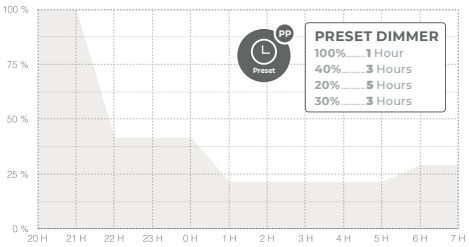
It offers easy installation, great aesthetics, and does not rely on electrical power, making it a fundamental product.

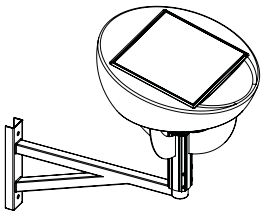
An optional microwave motion sensor is available.

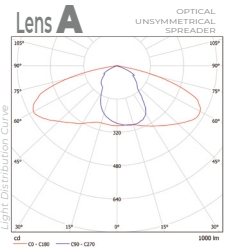
- MPPT **CONTROLLER** (*IP68*),
- 20Wp **SOLAR PANEL** (*18V*),
- $LiFePO_4$ **LITHIUM BATTERIES** — *12.8V / 12Ah* with over 3,500 cycles (*80% discharge*) and 8,000 cycles (*30% discharge*).

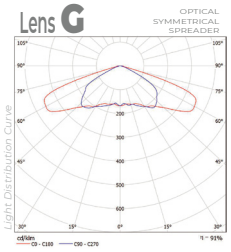
> *A minimum of 3 hours of sunlight per day is required for the proper functioning of the system.*

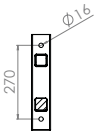


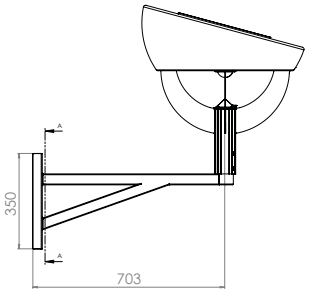


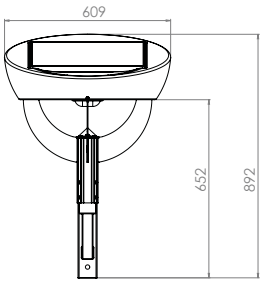












WORKING TEMPERATURE: -20°C +60°C

MODEL	OPTIONS					CHARACTERISTICS OF THE SOLAR LAMP									
						LIGHTING MODEL **OCELLUM1**				BATTERY				STREETLIGHT	
							PROGRAMMING			COMPONENTS					
	CONTROL	NOMINAL POWER	VOLTAGE	TEMPERATURE	LENS TYPE	POWER	%	HOURS	FLUX LUMINOUS	DAYS OF RESERVE	UNITS	AMP/ HOURS	CHARGER CONTROLLER	SOLAR PANEL (WP)	WEIGHT
S-OCELLUM1M	**/PP** **/PSM**	**/010**	**/VDC**	**/1.8** **/2.4** **/3.0** **/4.0** **/4.5** **/5.5**	**/A** **/G**	**10**W	100 % 40 % 20 % 30 %	1 H 3 H 5 H 3 H	1.500 Lm 600 Lm 300 Lm 450 Lm	3 days	1	LP012 012A/B	DM060-W (10A - 12V)	20 WP	13,5 kg

/1.8: Amber color temperature of **1,800k**, for astronomical observation areas.
/2.4: Amber color temperature of **2,400k**, for astronomical observation areas.

WORKING TEMPERATURE: -20°C +60°C

MICRO PLUS Germany

SLH-OCE2

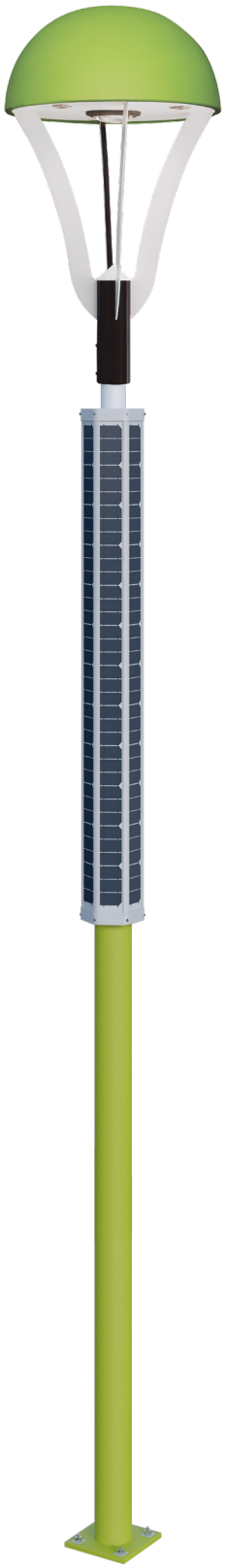
▶ 15 - 20W [12Vdc]

UTILITY MODEL
U201530907
U201500465
U201530820

Efiten®

MICRO PLUS Germany

Solar streetlight with a hexagonal solar panel integrated into the pole. Does not cast shadow.



General information

10 YEARS GUARANTEE · 200Lm/W · IP65 · IK08 · LIFE TIME 100.000 H · PHOTOBIOLOGICAL SAFETY EN62471 · 100% energetic · 12v LITHIUM · 25 YEARS PANEL 80% R.S. · PP Preset

Options

OPTION COLORS · MOTION SENSOR

OPTION HYBRIDIZED
CONSULT

The **SLH-OCE2** **SOLAR STREETLIGHT** features 1 **OCELLUM3** *luminaire* (*15 - 20W*) with a next-generation glass lens.

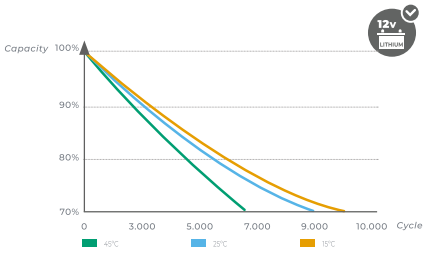
With these **HEXAGONAL SOLAR PANEL**s, we achieve improved visual aesthetics and reduced wind resistance.

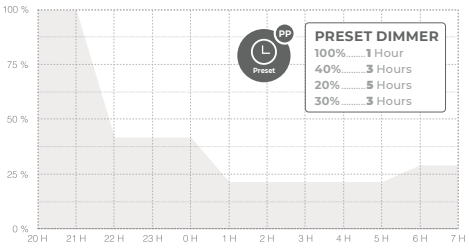
The integration is straightforward as it is supplied in two 180° halves that connect easily by sliding one half over the other.

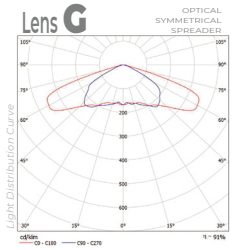
- MPPT **CONTROLLER** (*IP68*).
- 140Wp **HEXAGONAL PFH SOLAR PANEL**
- $LiFePO_4$ **LITHIUM BATTERIES** — *12.8V* with over 3,500 cycles (*80% discharge*) and 8,000 cycles (*30% discharge*)
- 3.5-meter **GALVANIZED IRON POLE** (*optional high-durability polyester painted*).

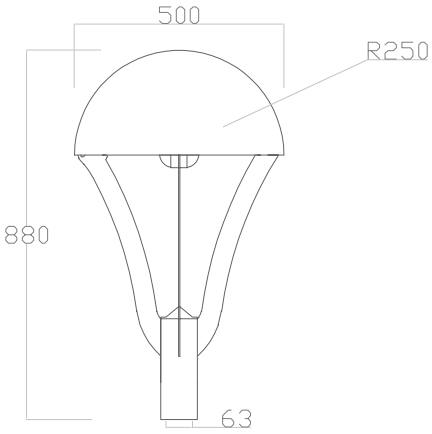
> *A minimum of 3 hours of sunlight per day is required for the proper functioning of the system. Not recommended for equatorial regions.*

MADE IN EUROPE









MODEL	OPTIONS					CHARACTERISTICS OF THE SOLAR LAMP									
						LIGHTING MODEL **OCELLUM2**					BATTERY				PV
						PROGRAMMING					COMPONENTS				
	CONTROL	NOMINAL POWER	TEMPERATURE	LENS TYPE	HEIGHT (M)	POWER	%	WATTS	HOURS	FLUX LUMINOUS	RESERVATION DAYS	UNITS	MODEL	CHARGER CONTROLLER	SOLAR PANEL
SLH-OCE2	/PP	/015 /020	/1.8 /2.4 /3.0 /4.0 /4.5 /5.5	/G	/3,5	**15**W	100 %	15 W	2 H	2.250 Lm	3 days	2	LP012 012A/B	DM060-W (10A - 12V)	PFH140 (1 unit) HEXAGON 140W
							80 %	12 W	2 H	1.800 Lm					
							40 %	6 W	5 H	900 Lm					
							50 %	7,5 W	3 H	1.125 Lm					
						20W	100 %	20 W	2 H	3.000 Lm		3			
							80 %	16 W	2 H	2.400 Lm					
							40 %	8 W	5 H	1.200 Lm					
							50 %	10 W	3 H	1.500 Lm					

/1.8: Amber color temperature of **1,800k**, for astronomical observation areas.
/2.4: Amber color temperature of **2,400k**, for astronomical observation areas.

WORKING TEMPERATURE: -20°C +60°C

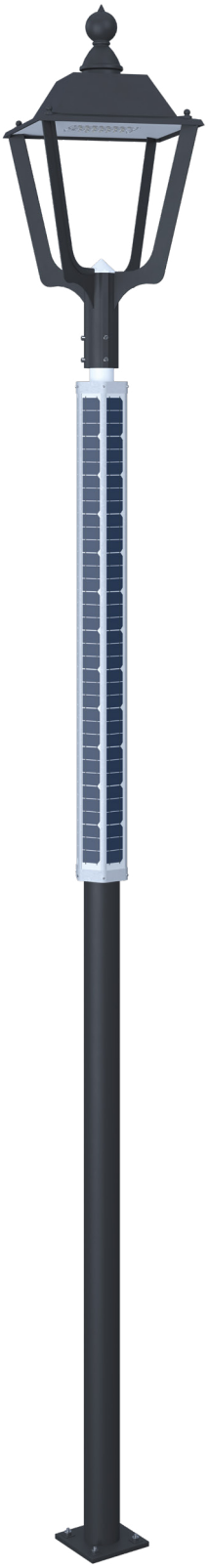
MICRO PLUS Germany

SLH-VILLA-LRD

▶ 15 - 20W [12Vdc]

UTILITY MODEL Efiten®
U201530907
U201500465
U201530820
MICRO PLUS Germany

Solar streetlight with a hexagonal solar panel integrated into the pole. Does not cast shadow.



General information

10 YEARS GUARANTEE · 200Lm/W · IP65 · IK08 · LIFE TIME 100.000 H · PHOTOBIOLOGICAL SAFETY EN62471 · 100% energetic · 12V LITHIUM · 25 YEARS PANEL 80% R.S. · PP Preset

Options

OPTION COLORS · MOTION SENSOR

OPTION HYBRIDIZED
CONSULT

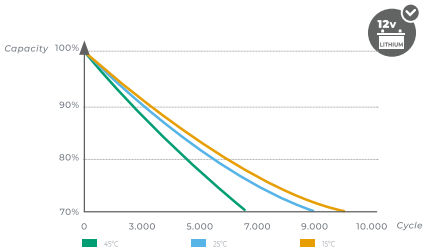
The **SLH-VILLA-LRD SOLAR STREETLIGHT** features 1 **VILLA-LRD** *luminaire* (*15 - 20W*) with a next-generation glass lens.

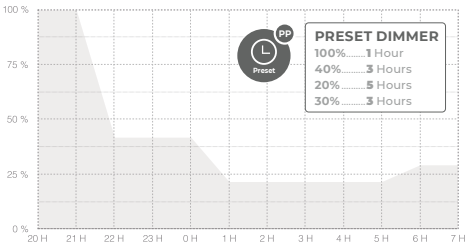
The **HEXAGONAL SOLAR PANEL**s enhance visual aesthetics and reduce wind resistance.

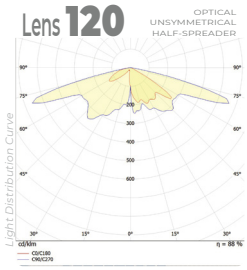
The system is easy to integrate as it is supplied in two 180° halves, which connect effortlessly by sliding one half over the other.

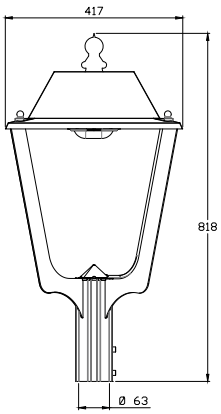
- MPPT **CONTROLLER** (*IP68*).
- 140Wp **HEXAGONAL PFH SOLAR PANEL**
- $LiFePO_4$ **LITHIUM BATTERIES** — *12.8V* with over 3,500 cycles (*80% discharge*) and 8,000 cycles (*30% discharge*).
- 3.5-meter **GALVANIZED IRON POLE** (*optional high-durability polyester painted*).

> *A minimum of 3 hours of sunlight per day is required for the proper functioning of the system. Not recommended for equatorial regions.*









MODEL	OPTIONS					CHARACTERISTICS OF THE SOLAR LAMP									
						LIGHTING MODEL **VILLA-LRD**					BATTERY				PV
						PROGRAMMING					COMPONENTS				
	CONTROL	NOMINAL POWER	TEMPERATURE	LENS TYPE	HEIGHT (M)	POWER	%	WATTS	HOURS	FLUX LUMINOUS	RESERVA-TION DAYS	UNITS	MODEL	CHARGER CONTROLLER	SOLAR PANEL
SLH-VILLA-LRD	/PP	/015 /020	/3.0 /4.0 /4.5	/120	/3,5	**15**W	100 %	15 W	2 H	2.250 Lm	3 days	2	LP012 012A/B	DM060-W *(10A - 12V)*	PFH140 *(1 unit)* HEXAGON 140W
							80 %	12 W	2 H	1.800 Lm					
							40 %	6 W	5 H	900 Lm					
							50 %	7,5 W	3 H	1.125 Lm					
						20W	100 %	20 W	2 H	3.000 Lm		3			
							80 %	16 W	2 H	2.400 Lm					
							40 %	8 W	5 H	1.200 Lm					
							50 %	10 W	3 H	1.500 Lm					

WORKING TEMPERATURE: -20°C +60°C

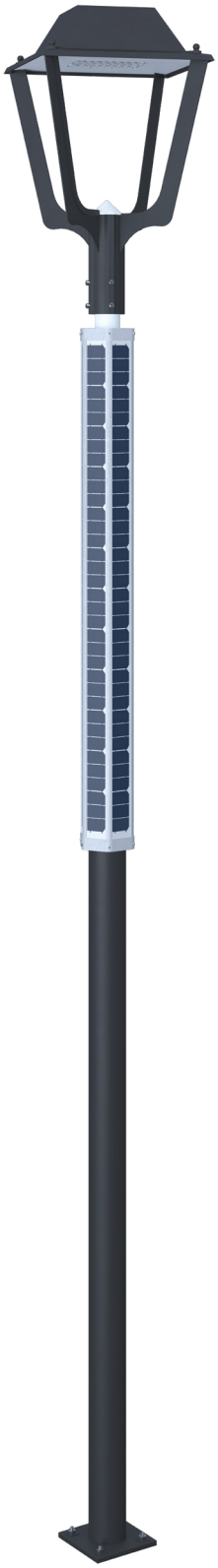
MICRO PLUS Germany

SLH-VILLA-LD

▶ 15 - 20W [12Vdc]

UTILITY MODEL U201530907 U201500465 U201530820 Efiten MICRO PLUS Germany

Solar streetlight with a hexagonal solar panel integrated into the pole. Does not cast shadow.



General information

10 YEARS GUARANTEE · 200Lm/W · IP65 · IK08 · LIFE TIME 100.000 H · EN62471 · 100% energetic · 12v LITHIUM · 25 YEARS PANEL 80% R.S. · PP Preset

Options

OPTION COLORS · MOTION SENSOR

OPTION HYBRIDIZED *CONSULT*

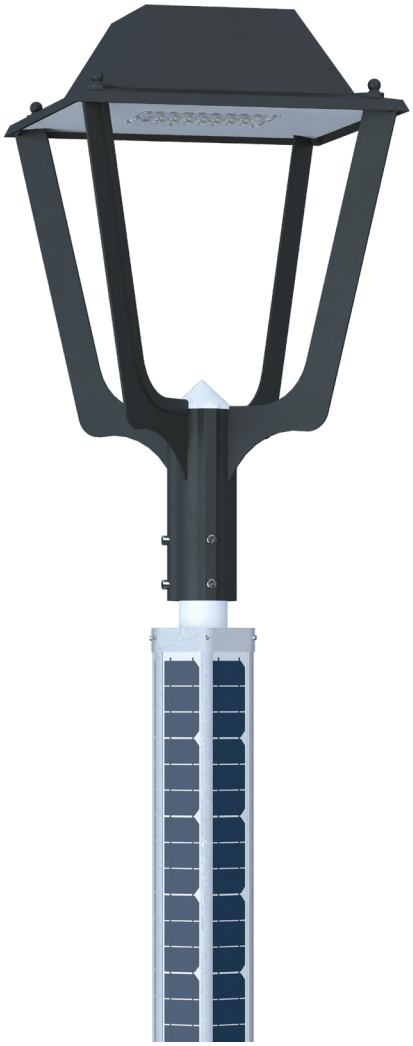
The **SLH-VILLA-LD SOLAR STREETLIGHT** features 1 **VILLA-LD** *luminaire* (*15 - 20W*) with a next-generation glass lens.

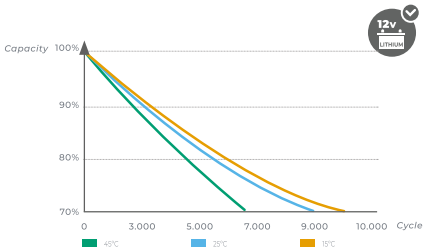
The **HEXAGONAL SOLAR PANEL**s enhance visual aesthetics and reduce wind resistance.

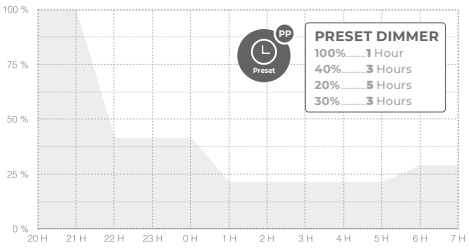
Integration is straightforward as the system is supplied in two 180° halves, which connect easily by sliding one half over the other.

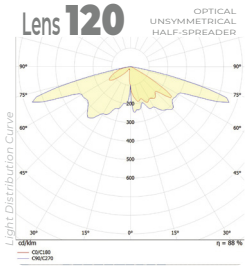
- MPPT **CONTROLLER** (*IP68*).
- 140Wp **HEXAGONAL PFH SOLAR PANEL**
- $LiFePO_4$ **LITHIUM BATTERIES** — *12.8V* with over 3,500 cycles (*80% discharge*) and 8,000 cycles (*30% discharge*).
- 3.5-meter **GALVANIZED IRON POLE** (*optional high-durability polyester painted*).

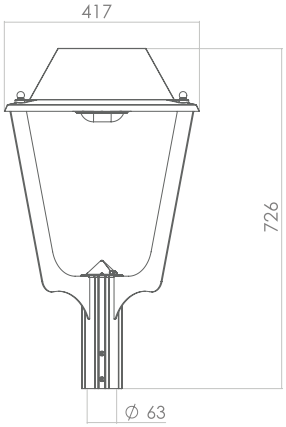
> *A minimum of 3 hours of sunlight per day is required for the proper functioning of the system. Not recommended for equatorial regions.*











MODEL	OPTIONS					CHARACTERISTICS OF THE SOLAR LAMP									
						LIGHTING MODEL **VILLA-LD**					BATTERY				PV
						PROGRAMMING					COMPONENTS				
	CONTROL	NOMINAL POWER	TEMPERATURE	LENS TYPE	HEIGHT (M)	POWER	%	WATTS	HOURS	FLUX LUMINOUS	RESERVA-TION DAYS	UNITS	MODEL	CHARGER CONTROLLER	SOLAR PANEL
SLH-VILLA-LD	/PP	/015 /020	/3.0 /4.0 /4.5	/120	/3,5	**15**W	100 %	15 W	2 H	2.250 Lm	3 days	2	LP012 012A/B	DM060-W *(10A - 12V)*	PFH140 *(1 unit)* HEXAGON 140W
							80 %	12 W	2 H	1.800 Lm					
							40 %	6 W	5 H	900 Lm					
							50 %	7,5 W	3 H	1.125 Lm					
						20W	100 %	20 W	2 H	3.000 Lm		3			
							80 %	16 W	2 H	2.400 Lm					
							40 %	8 W	5 H	1.200 Lm					
							50 %	10 W	3 H	1.500 Lm					

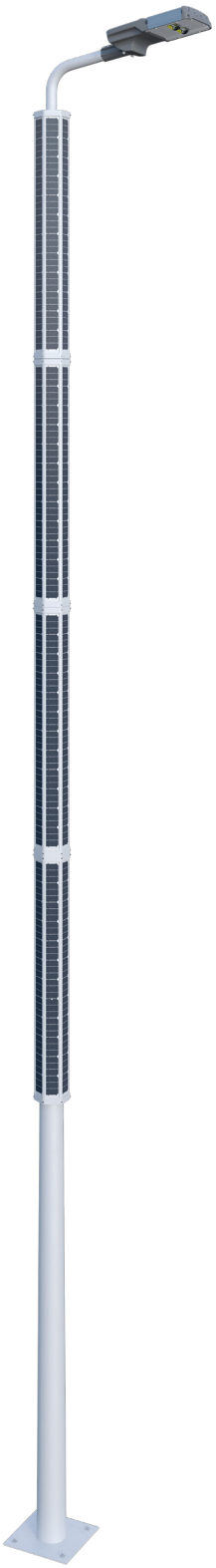
WORKING TEMPERATURE: -20°C +60°C

MICRO PLUS Germany

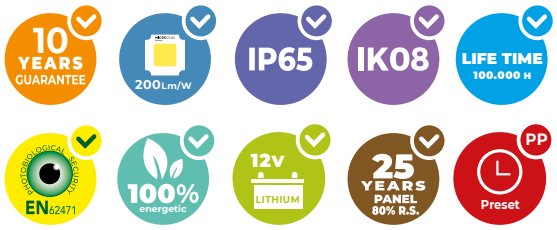
SLH-MPG2

▶ 15 - 30W [12Vdc]

Solar streetlight with a hexagonal solar panel integrated into the pole.



General information



Options

OPTION HYBRIDIZED
CONSULT

The **SLH-MPG2 SOLAR STREETLIGHT** features 1 **MPG-2** *luminaire* (*15 - 30W*) with next-generation glass lenses and a controller.

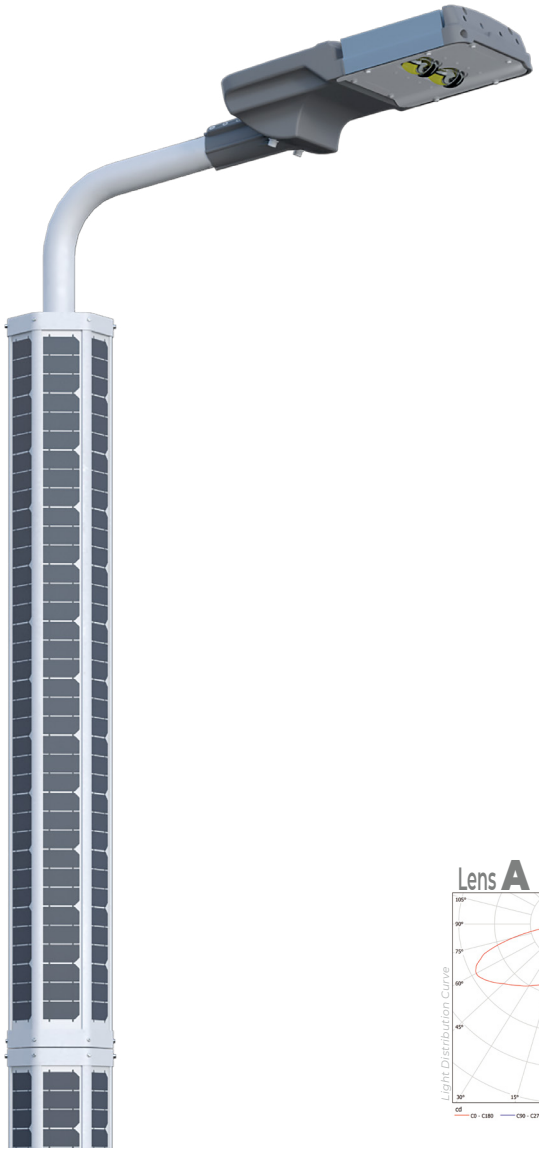
The **HEXAGONAL SOLAR PANEL**s enhance visual aesthetics and reduce wind resistance.

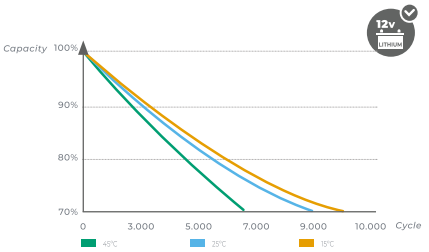
Integration is straightforward as the system is supplied in two 180° halves, which connect easily by sliding one half over the other.

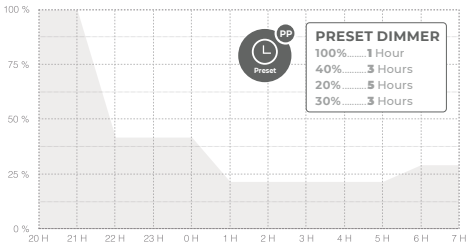
- MPPT **CONTROLLER** (*IP68*).
- 140Wp **HEXAGONAL PFH SOLAR PANEL**
- $LiFePO_4$ **LITHIUM BATTERIES** — *12.8V* with over 3,500 cycles (*80% discharge*) and 8,000 cycles (*30% discharge*).
- 6 to 7-meter **GALVANIZED IRON POLE** (*optional high-durability polyester painted*)

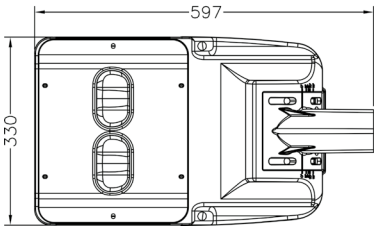
> *A minimum of 3 hours of sunlight per day is required for the proper functioning of the system.*

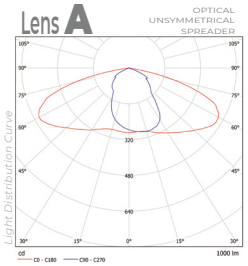
MADE IN EUROPE

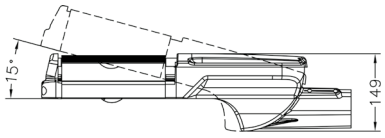


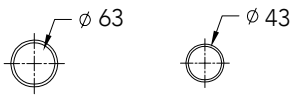












MODEL	OPTIONS					CHARACTERISTICS OF THE SOLAR LAMP								
						LIGHTING MODEL **MPG-2**					BATTERY			PV
						PROGRAMMING					COMPONENTS			
	CONTROL	NOMINAL POWER	TEMPERATURE	LENS TYPE	HEIGHT (M)	POWER	%	WATTS	HOURS	FLUX LUMINOUS	RESERVATION DAYS	UNITS	MODEL	CHARGER CONTROLLER	SOLAR PANEL
SLH-MPG2	/PP	/015 /020 /030	/1.8 /2.4 /3.0 /4.0 /4.5 /5.5	/A	/6 /7	**15**W	100 %	15 W	2 H	2.250 Lm	3 days	2	LP012 012A/B	DM060-W (10A - 12V)	(1 unit) PFH140 HEXAGON 140W
							80 %	12 W	2 H	1.800 Lm					
							40 %	6 W	5 H	900 Lm					
							50 %	7,5 W	3 H	1.125 Lm					
						20W	100 %	20 W	2 H	3.000 Lm		3			
							80 %	16 W	2 H	2.400 Lm					
							40 %	8 W	5 H	1.200 Lm					
							50 %	10 W	3 H	1.500 Lm					
						30W	100 %	30 W	2 H	4.500 Lm		4			(2 units) PFH140 HEXAGON 140W
							80 %	24 W	2 H	3.600 Lm					
							40 %	12 W	5 H	1.800 Lm					
							50 %	15 W	3 H	2.250 Lm					

/1.8: Amber color temperature of **1,800k**, for astronomical observation areas.
/2.4: Amber color temperature of **2,400k**, for astronomical observation areas.

WORKING TEMPERATURE: -20°C +60°C

MICRO PLUS Germany

SL-VILLA-L

▶ 15 - 40W [12/24Vdc]

UTILITY MODEL Efiten®
U201530907
U201500465
U201530820
MICRO PLUS Germany

Public and Road Solar Streetlight

General information

Options

OPTION HYBRIDIZED CONSULT

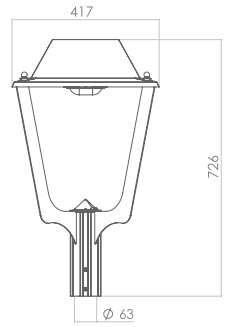
The **SL-VILLA-LM** and **SL-VILLA-LC** **SOLAR STREETLIGHT** feature the **VILLA-L** *luminaire* (*15-40W*), which does not cast shadows and includes next-generation glass lenses.

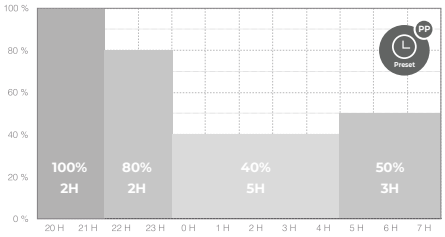
- MPPT **CONTROLLER** (*IP68*).
- 50 - 100Wp **SOLAR PANEL** (*12/24V*).
- $LiFePO_4$ **LITHIUM BATTERIES** — *12.8V* or *25.6V* with over 3,500 cycles (*80% discharge*) and 8,000 cycles (*30% discharge*).
- 4 to 6-meter **GALVANIZED IRON POLE** (*optional high-durability polyester painted*)

A minimum of 3 hours of sunlight per day is required for the proper functioning of the system.

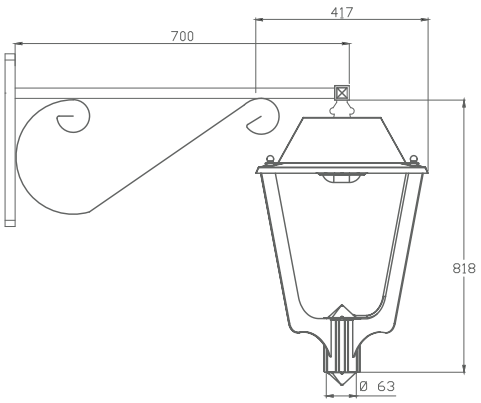
MADE IN EUROPE

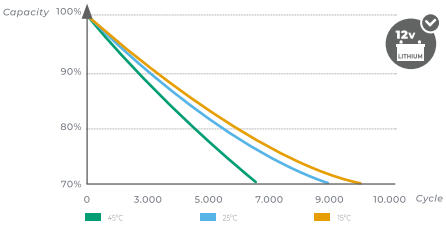
SL-VILLA-LM

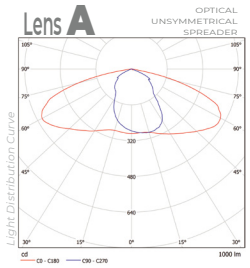


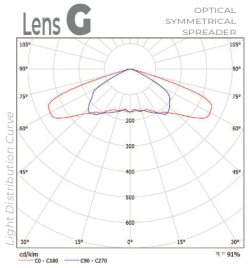


SL-VILLA-LC









MODEL	OPTIONS					CHARACTERISTICS OF THE SOLAR LAMP								
						LIGHTING MODEL **VILLA-L**					BATTERY			PV
						PROGRAMMING					COMPONENTS			
	CONTROL	NOMINAL POWER	TEMPERATURE	LENS TYPE	HEIGHT (M)	POWER	%	WATTS	HOURS	FLUX LUMINOUS	RESERVATION DAYS	UNITS	MODEL	CHARGER CONTROLLER	SOLAR PANEL
SL-VILLA-LM **SL-VILLA-LC**	/PP	/015 /020 /030 /040	/1.8 /2.4 /3.0 /4.0 /4.5 /5.5	/A /G	/4 /5 /6	**15**W	100 % 80 % 40 % 50 %	15 W 12 W 6 W 7,5 W	2 H 2 H 5 H 3 H	2.250 Lm 1.800 Lm 900 Lm 1.125 Lm	3 days	2	LP012 012A/B	DM060-W (10A - 12V)	80 WP
						20W	100 % 80 % 40 % 50 %	20 W 16 W 8 W 10 W	2 H 2 H 5 H 3 H	3.000 Lm 2.400 Lm 1.200 Lm 1.500 Lm		3			100 WP 44 V
						30W	100 % 80 % 40 % 50 %	30 W 24 W 12 W 15 W	2 H 2 H 5 H 3 H	4.500 Lm 3.600 Lm 1.800 Lm 2.250 Lm		1	LP024 030A/P	DM120-W (10A - 24V)	200 WP 44 V
						40W	100 % 80 % 40 % 50 %	40 W 32 W 16 W 20 W	2 H 2 H 5 H 3 H	6.000 Lm 4.800 Lm 2.400 Lm 3.000 Lm			LP024 036A/P		

/1.8: Amber color temperature of **1,800k**, for astronomical observation areas.
/2.4: Amber color temperature of **2,400k**, for astronomical observation areas.

WORKING TEMPERATURE: -20°C +60°C

MICRO PLUS Germany

SL-SEMURA

▶ 12W [12Vdc]

Compact Solar Streetlight

General information

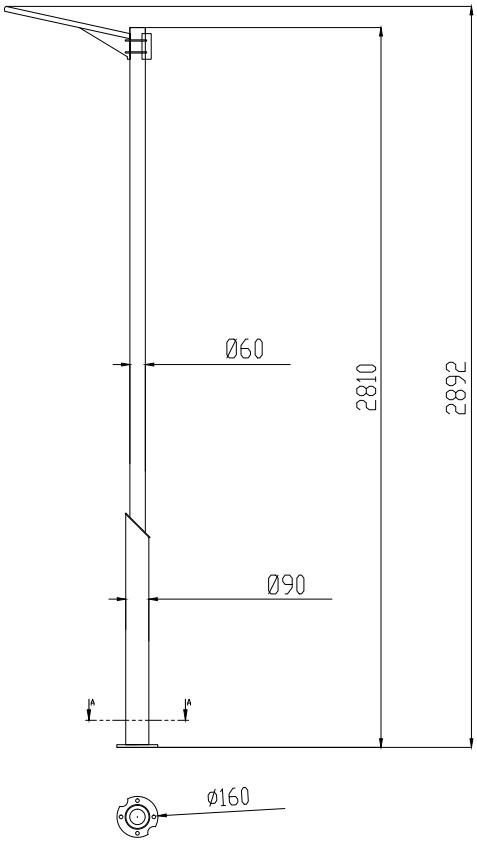
SL-SEMURA COMPACT SOLAR STREETLIGHT (*luminaire + battery + panel*).

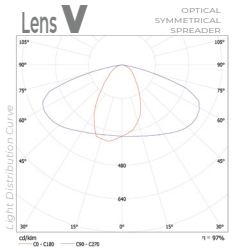
- MPPT **CONTROLLER** (*IP68*).
- 12Wp **SOLAR PANEL**.
- $LiFePO_4$ **LITHIUM BATTERIES** — *9.6V / 6Ah* with over 3,500 cycles (*80% discharge*) and 8,000 cycles (*30% discharge*).
- 3 to 4-meter **GALVANIZED IRON POLE** (*optional high-durability polyester painted*).

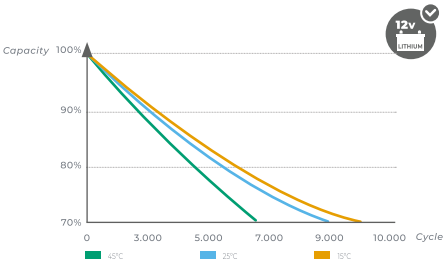
The **on/off system is automatic** and includes a motion sensor for **2 levels of illumination**, along with an **ON-OFF switch** for manual control if needed.

> ***It can be installed on the wall***
> *A minimum of 3 hours of sunlight per day is required for the proper functioning of the system.*

MADE IN EUROPE







MODEL	OPTIONS					CHARACTERISTICS OF THE SOLAR LAMP									
						LIGHTING MODEL				BATTERY				STREETLIGHT	
							PROGRAMMING			COMPONENTS					
	CONTROL	NOMINAL POWER	TEMPERATURE	LENS TYPE	HEIGHT (M)	POWER	%	HOURS	FLUX LUMINOUS	DAYS OF RESERVE	UNITS	AMP/ HOURS	CHARGER CONTROLLER	SOLAR PANEL (WP)	DIMENSIONS	WEIGHT
SL-SEMURA	**/PSM**	**/012**	**/4.0**	**/V**	**/3**	**12W**	100 %	1 H	1.200 Lm	3 days	1	6 Ah	(10 A - 9,6 V)	12 WP	510 x 280 x 120 mm	16,9 kg
					/4		25 %	12 H	400 Lm							

/1.8: Amber color temperature of **1,800k**, for astronomical observation areas.
/2.4: Amber color temperature of **2,400k**, for astronomical observation areas.

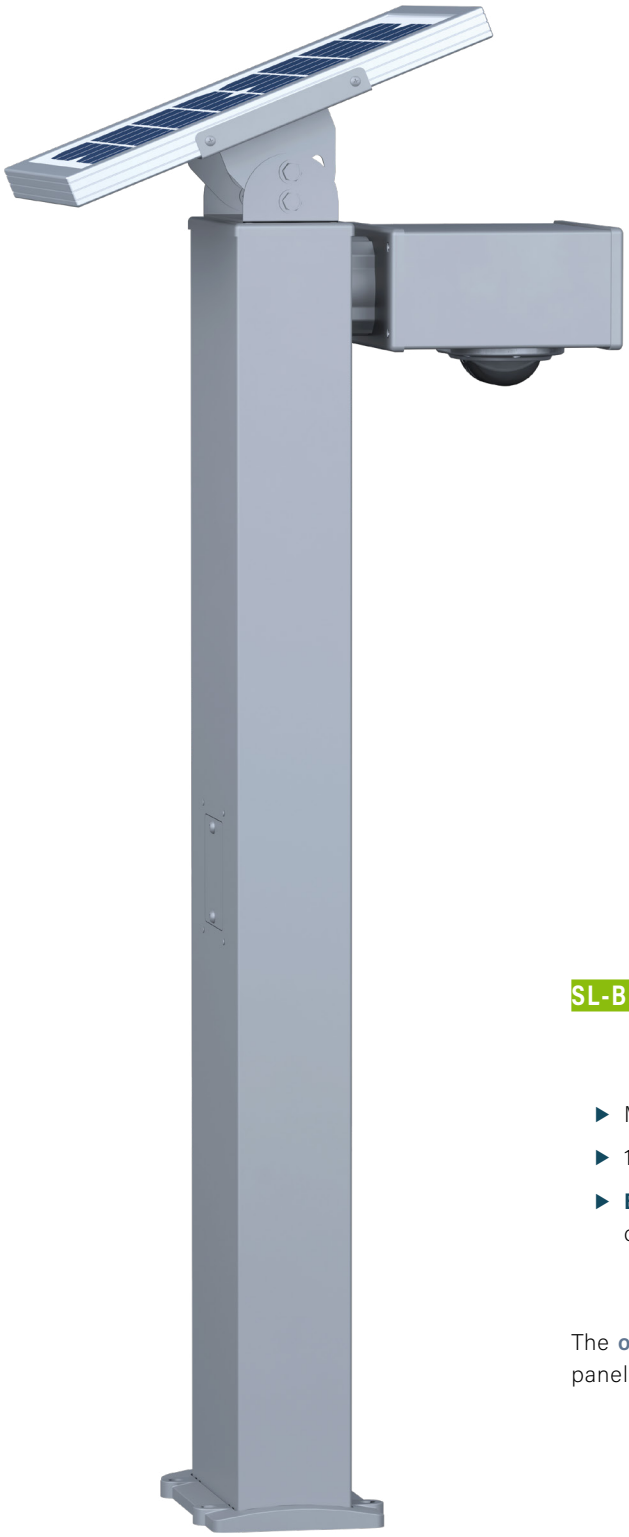
WORKING TEMPERATURE: -20°C +60°C

MICRO PLUS Germany

SL-BLF

▶ 5 - 10W [12Vdc]

Solar Beacon



General information

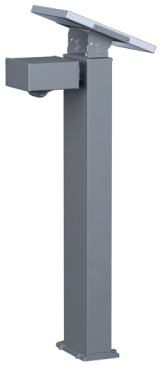
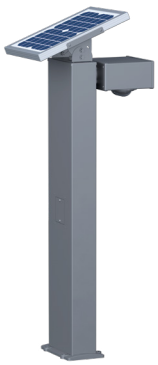
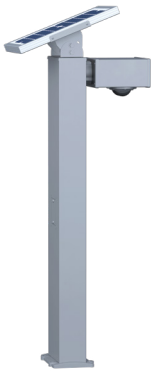
OPTION HYBRIDIZED
CONSULT

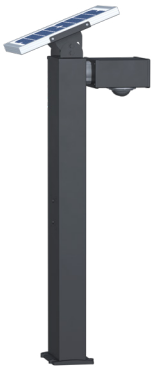
SL-BLF SOLAR BEACON (*pole + luminaire + battery + panel*).

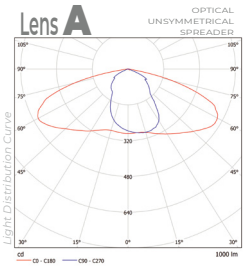
- MPPT **CONTROLLER** (*IP68*).
- 10 - 20Wp **SOLAR PANEL**..
- **BATERÍAS DE LITIO** $LiFePO_4$ — *12V / 12Ah* con más de 3.500 ciclos (*80% descarga*) y 8.000 ciclos (*30% descarga*).

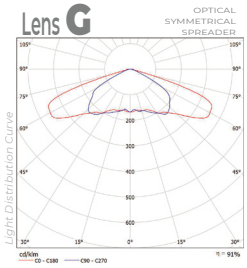
The **on/off system is automatic**, as the controller turns on when the panel has less than 8V and turns off when it exceeds 12V.

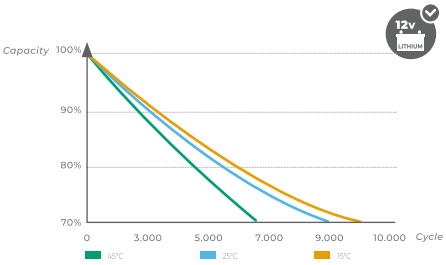
A minimum of 3 hours of sunlight per day is required for the proper functioning of the system.







MODEL	OPTIONS					CHARACTERISTICS OF THE SOLAR LAMP									
						BALIZA				BATTERY				STREETLIGHT	
						PROGRAMMING				COMPONENTS					
	CONTROL	NOMINAL POWER	TEMPERATURE	LENS TYPE	HEIGHT (M)	POWER	%	HOURS	FLUX LUMINOUS	DAYS OF RESERVE	UNITS	AMP/ HOURS	CHARGER CONTROLLER	SOLAR PANEL (WP)	DIMENSIONS	WEIGHT
SL-BLF	/PP	/005 /010	/1.8 /2.4 /3.0 /4.0 /4.5 /5.5	/A /G	/0,6 /1,0 /1,2 /1,5 /2,0 /3,0	5W	100 % 50 %	2 H 8 H	750 Lm 375 Lm	3 days	1	6 Ah / 12V	(10 A - 18 V)	10 WP	depending on the height	
						10W	100 % 50 %	1 H 9 H	1.500 Lm 750 Lm			12 Ah / 12V		20 WP		

/1.8: Amber color temperature of **1,800k**, for astronomical observation areas.
/2.4: Amber color temperature of **2,400k**, for astronomical observation areas.

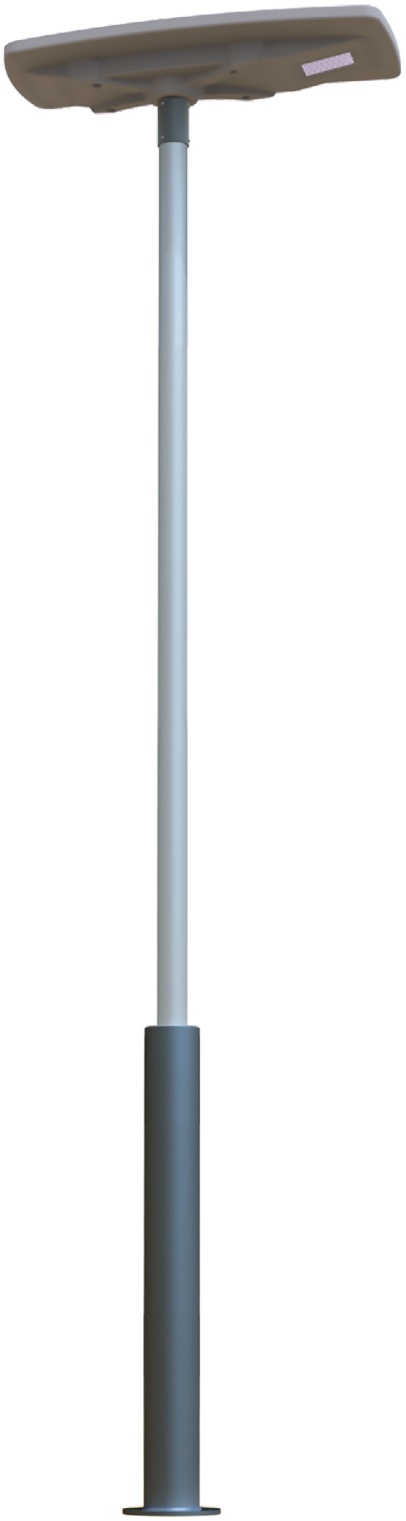
WORKING TEMPERATURE: -20°C +60°C

MICRO PLUS Germany

SL-ARIAN

▶ 30 - 60W [12Vdc]

Public and Road Solar Streetlight



General information

10 YEARS GUARANTEE · IK08 · IP67 · 100% energetic · LIFE TIME 100.000 H · 25 YEARS PANEL 80% R.S. · EN62471 · PP Preset · 12v LITHIUM

Options

OPTION COLORS · MOTION SENSOR

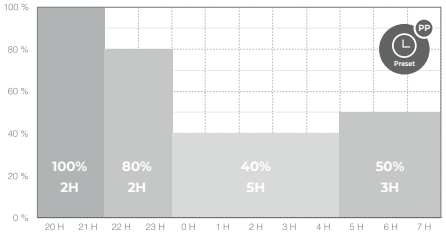
OPTION HYBRIDIZED *CONSULT*

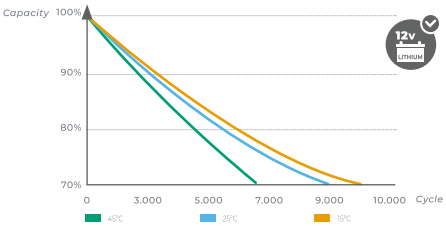
The **SL-ARIAN** **SOLAR STREETLIGHT** features a casing made from high-quality polymers with UV protection.

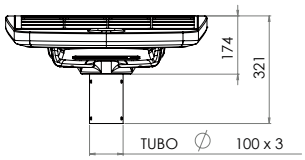
Available in a range of colors, it includes a multiled module (*30-60W*) with 180 Lm/W and a 15° tilt to enhance light beam dispersion.

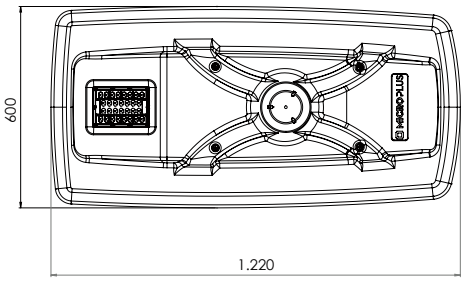
- MPPT **CONTROLLER** (*IP68*) con WIFI, programable a través de mando a distancia (*infrarojos*).
- 90Wp **SOLAR PANEL** (*22V*).
- **BATERÍAS DE LITIO** $LiFePO_4$ — *12.8V / 48-54Ah* con más de 3.500 ciclos (*80% descarga*) y 8.000 ciclos (*30% descarga*).
- 5 to 7-meter **GALVANIZED IRON POLE** (*optional high-durability polyester painted*).

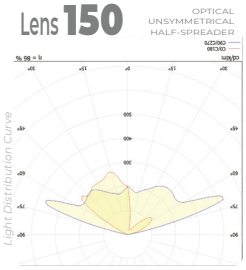
A minimum of 3 to 6 hours of sunlight per day is required for the proper functioning of the system.











MODEL	OPTIONS					CHARACTERISTICS OF THE SOLAR LAMP										
						LIGHTING MODEL					BATTERY					PV
						PROGRAMMING					COMPONENTS					
	CONTROL	NOMINAL POWER	TEMPERATURE	LENS TYPE	HEIGHT (M)	POWER	%	WATTS	HOURS	FLUX LUMINOUS	RESERVATION DAYS WITHOUT SENSOR	RESERVATION DAYS WITH SENSOR	UNITS	MODEL	CHARGER CONTROLLER	SOLAR PANEL
SL-ARIAN	/PP /PSM /SL	/030 /040 /060	/3.0 /4.0 /4.5	/150	/5	30W	100 %	30 W	2 H	4.500 Lm	3 days	4 days	1	LP012 048A/ ABS	MES060-W without sensor DM060-W with sensor	90 WP 22V
							80 %	24 W	2 H	3.600 Lm						
							40 %	12 W	5 H	1.800 Lm						
							50 %	15 W	3 H	2.250 Lm						
					/6	40W	100 %	40 W	2 H	6.000 Lm	2 days	4 days				
							80 %	32 W	2 H	4.800 Lm						
							40 %	16 W	5 H	2.400 Lm						
							50 %	20 W	3 H	3.000 Lm						
					/7	60W	100 %	60 W	2 H	9.000 Lm	1,3 days	3 days		LP012 054A/ ABS		
							80 %	48 W	2 H	7.200 Lm						
							40 %	24 W	5 H	3.600 Lm						
							50 %	30 W	3 H	4.500 Lm						

sensor activated 100% flow — deactivated 40% flow (modifiable)

/PP: pre-programmed — **/PSM**: pre-programmed + motion sensor — **/SL**: Smart Ligthing

WORKING TEMPERATURE: -20°C +60°C

MICRO PLUS Germany

SL-CITY

▶ 15 - 30W [12Vdc]

Solar streetlight, optional with Smart City control

General information

10 YEARS GUARANTEE · IK08 · IP67 · 100% energetic · LIFE TIME 100.000 H · 25 YEARS PANEL 80% R.S. · EN62471 · PP Preset · 12V LITHIUM

Options

OPTION COLORS · MOTION SENSOR

OPTION HYBRIDIZED
CONSULT

The **SL-CITY** **SOLAR STREETLIGHT** is made from injected aluminum for both the upper and lower parts, painted with epoxy in RAL 2,900 and 2,150 for the lighter section.

It features a Multi LED system ranging from 15 to 30W with 180 Lm/W, typically supplied in 4,000° K color temperature (*which can be adjusted according to specific technical requirements*).

An optional motion sensor system is available. It is specially designed for residential areas, parks, gardens, rural paths, coastal areas, and cities.

- MPPT **CONTROLLER** (*IP68*) programable por WIFI. Optional en version solar o híbrida.
- 40-80Wp **SOLAR PANEL** (*integrated into the top of the luminaire*).
- $LiFePO_4$ **LITHIUM BATTERIES** — *12.8V*
- 4 to 6-meter **GALVANIZED POLE** (*optional high-durability polyester painted*). Includes a bracket for mounting on posts with a diameter of 53 to 74mm, adjustable at angles from 0 to 15°.

> *A minimum of 3 to 6 hours of sunlight per day is required for the proper functioning of the system.*

MADE IN EUROPE

Polycrystalline solar panel (*40 or 80Wp*) integratedin the housing of the luminairewith silicone seal to ensure **IP** protection

High-efficiency

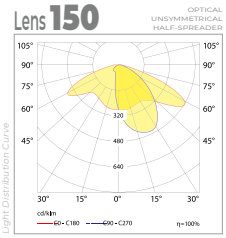
MultiLed and

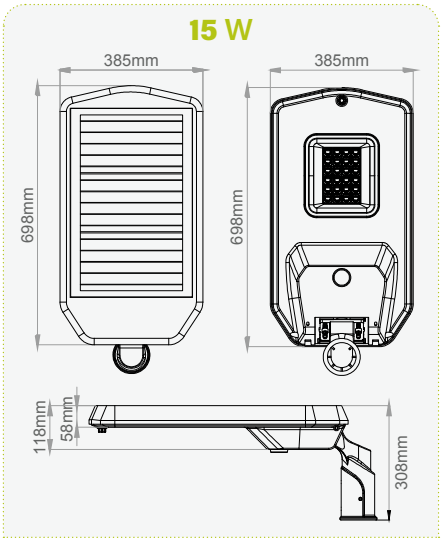
integrated IK08 optics

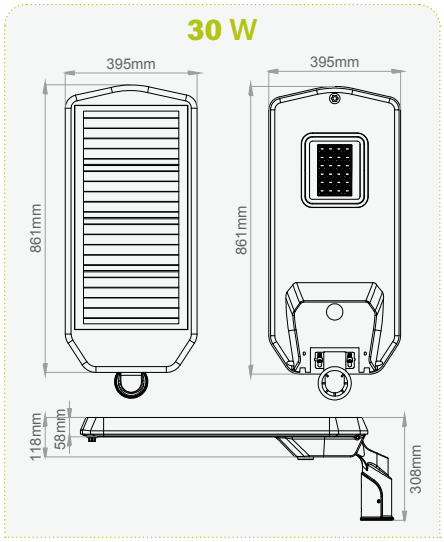
to allow

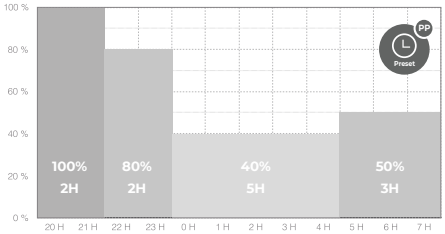
maximum efficiency

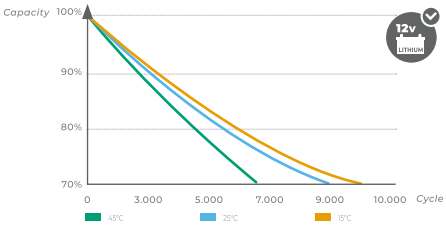
Our **INTEGRATED SENSOR** in the luminaire manages the controller allowing greater savings of the energy stored in the **LiFePO$_4$** battery











MODEL	OPTIONS					CHARACTERISTICS OF THE SOLAR LAMP										
						LIGHTING MODEL					BATTERY					PV
						PROGRAMMING					COMPONENTS					
	CONTROL	NOMINAL POWER	TEMPERATURE	LENS TYPE	HEIGHT (M)	POWER	%	WATTS	HOURS	FLUX LUMINOUS	RESERVATION DAYS WITHOUT SENSOR	RESERVATION DAYS WITH SENSOR	UNITS	MODEL	CHARGER CONTROLLER	SOLAR PANEL
SL-CITY	/PP /PSM /HYB	/015	/3.0 /4.0	/150	/4	15W	100 % 80 % 40 % 50 %	15 W 12 W 6 W 7,5 W	2 H 2 H 5 H 3 H	2.700 Lm 2.160 Lm 1.080 Lm 1.350 Lm	2 days	4 days	1	LiFePO$_4$ 24A 12V	DM060-W (10A - 12V)	40 WP
		/030	/3.0 /4.0		/6	30W	100 % 80 % 40 % 50 %	30 W 24 W 12 W 15 W	2 H 2 H 5 H 3 H	4.500 Lm 3.600 Lm 1.800 Lm 2.250 Lm	2 days	4 days		LiFePO$_4$ 48A 12V		80 WP

sensor activated 100% flow — deactivated 40% flow (modifiable)

/PP: pre-programmed — **/PSM**: pre-programmed + motion sensor — **/SL**: Smart Ligthing

WORKING TEMPERATURE: -20°C +60°C

MICRO PLUS Germany

SL-IAN

▶ 15 - 60W [12/24Vdc]

Public and Road Solar Streetlight

General information

Options

Bluetooth
OPTIONAL

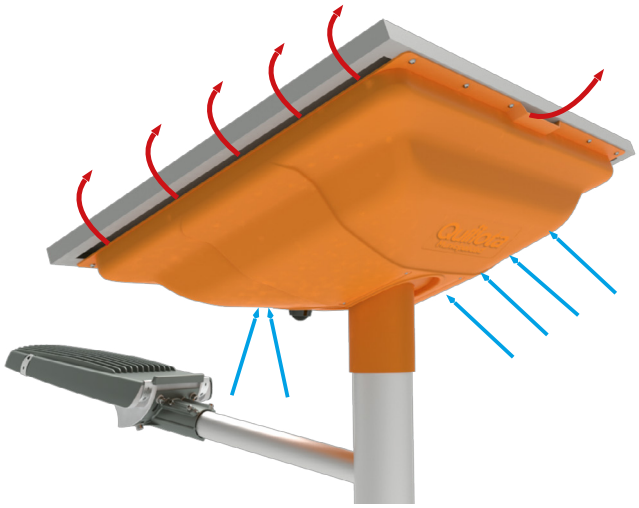
GX LTE 4G
BATTERY STATUS VISUALIZATION
FROM ANYWHERE

OPTION HYBRIDIZED
CONSULT

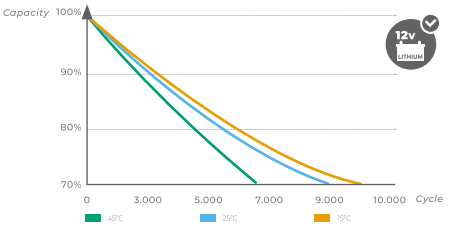
The **SL-IAN** **SOLAR STREETLIGHT** features the **MPG-1N** *luminaire* (*15-60W*) with next-generation glass lenses.

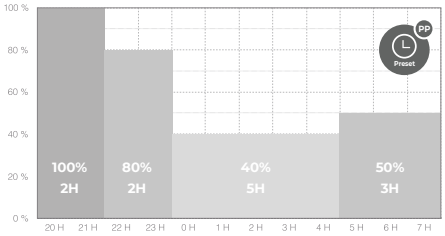
- MPPT **CONTROLLER** (*IP68*).
- 80-200Wp **SOLAR PANEL** (*36V*).
- $LiFePO_4$ **LITHIUM BATTERIES** — *12.8V* or *25.6V* with over 3,500 cycles (*80% discharge*) and 8,000 cycles (*30% discharge*).
- 5 to 7-meter **GALVANIZED IRON POLE** (*optional high-durability polyester painted*).

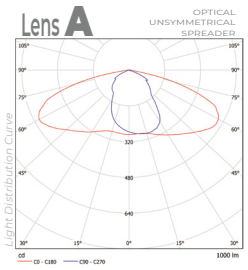
A minimum of 3 to 6 hours of sunlight per day is required for the proper functioning of the system.

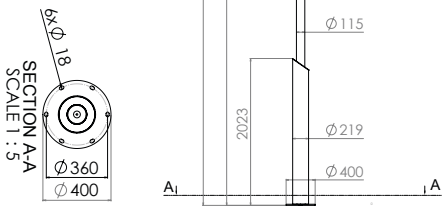


Natural convection cooling









MODEL	OPTIONS					CHARACTERISTICS OF THE SOLAR LAMP									
						LIGHTING MODEL **MPG-IN**					BATTERY				PV
						PROGRAMACIÓN					COMPONENTS				
	CONTROL	NOMINAL POWER	TEMPERATURE	LENS TYPE	HEIGHT (M)	POWER	%	WATTS	HOURS	FLUX LUMINOUS	RESERVA-TION DAYS	UNITS	MODEL	CHARGER CONTROLLER	SOLAR PANEL
SL-IAN	/PP	/015 /020 /030 /040 /050 /060	/1.8 /2.4 /3.0 /4.0 /4.5 /5.5	/A	/5 /6 /7	**15**W	100 % 80 % 40 % 50 %	15 W 12 W 6 W 7,5 W	2 H 2 H 5 H 3 H	2.250 Lm 1.800 Lm 900 Lm 1.125 Lm	3 days	2	LP012 012A/B	DM060-W (10A - 12V)	80 WP
						20W	100 % 80 % 40 % 50 %	20 W 16 W 8 W 10 W	2 H 2 H 5 H 3 H	3.000 Lm 2.400 Lm 1.200 Lm 1.500 Lm		3			100 WP 44 V
						30W	100 % 80 % 40 % 50 %	30 W 24 W 12 W 15 W	2 H 2 H 5 H 3 H	4.500 Lm 3.600 Lm 1.800 Lm 2.250 Lm		1	LP024 030A/P	DM120-W (10A - 24V)	270 WP 44 V
						40W	100 % 80 % 40 % 50 %	40 W 32 W 16 W 20 W	2 H 2 H 5 H 3 H	6.000 Lm 4.800 Lm 2.400 Lm 3.000 Lm			LP024 036A/P		
					/6 /7	**50**W	100 % 80 % 40 % 50 %	50 W 40 W 20 W 25 W	2 H 2 H 5 H 3 H	7.500 Lm 6.000 Lm 3.000 Lm 3.750 Lm			LP024 042A/P		
						60W	100 % 80 % 40 % 50 %	60 W 48 W 24 W 30 W	2 H 2 H 5 H 3 H	9.000 Lm 7.200 Lm 3.600 Lm 4.500 Lm		2	LP024 036A/P		

/1.8: Amber color temperature of **1,800k**, for astronomical observation areas.
/2.4: Amber color temperature of **2,400k**, for astronomical observation areas.

WORKING TEMPERATURE: -20°C +60°C

MICRO PLUS
Germany

SL-NATUR2

Public/Road and Private SOLAR Streetlight

MICRO PLUS
Germany

SL-NATUR2

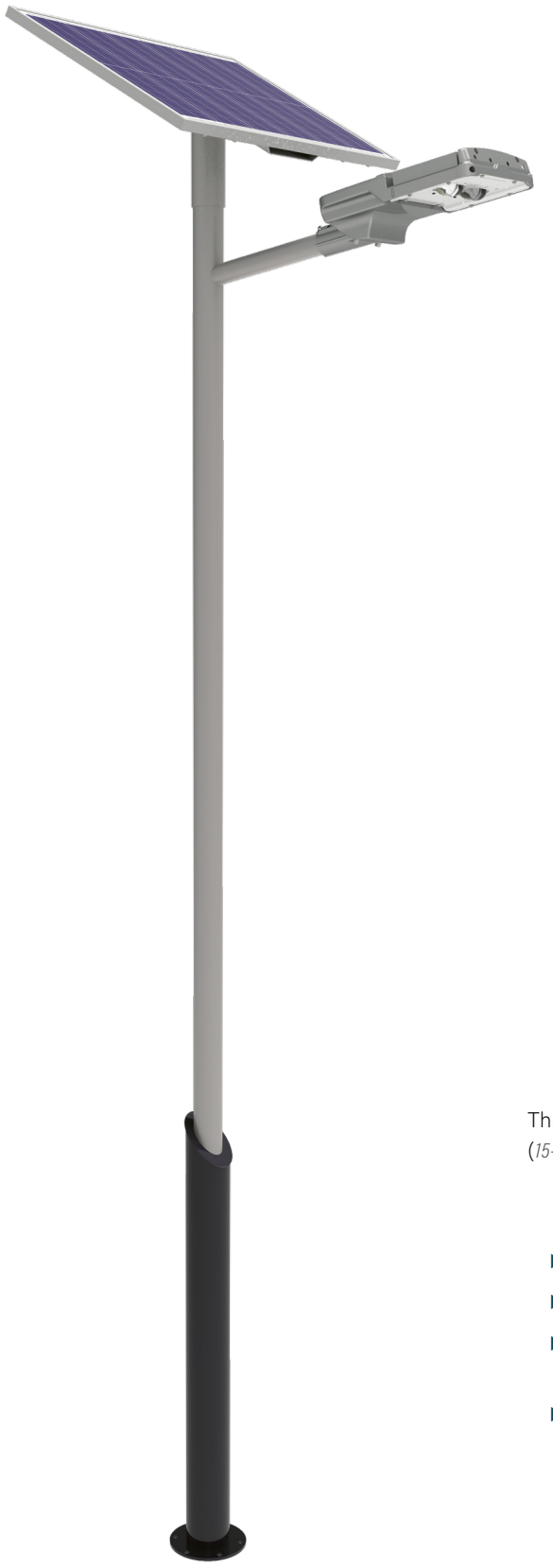
Public/Road and Private SOLAR Streetlight

MICRO PLUS Germany

SL-NATUR1

▶ 15 - 20W [12Vdc]

Public and Road Solar Streetlight



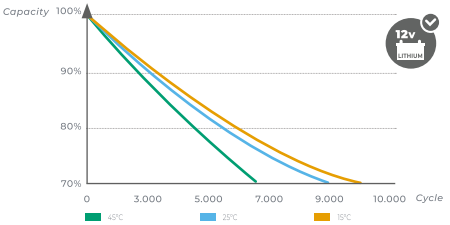
General information

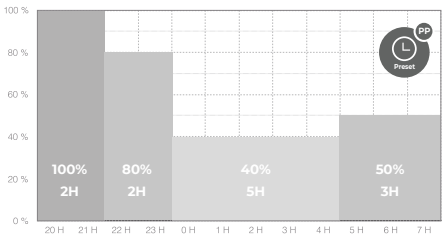
Options

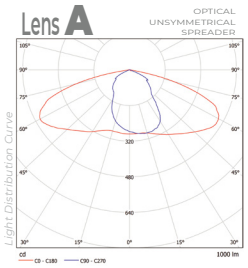
The **SL-NATUR1 SOLAR STREETLIGHT** features the **MPG-2** *luminaire* (*15-20W*) with two next-generation glass lenses.

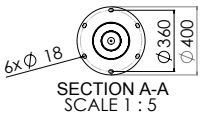
- MPPT **CONTROLLER** (*IP68*).
- 50-80Wp **SOLAR PANEL** (*12V*).
- $LiFePO_4$ **LITHIUM BATTERIES** — *12.8V / 12Ah* with over 3,500 cycles (*80% discharge*) and 8,000 cycles (*30% discharge*).
- 4 to 6-meter **GALVANIZED IRON POLE** (*optional high-durability polyester painted*).

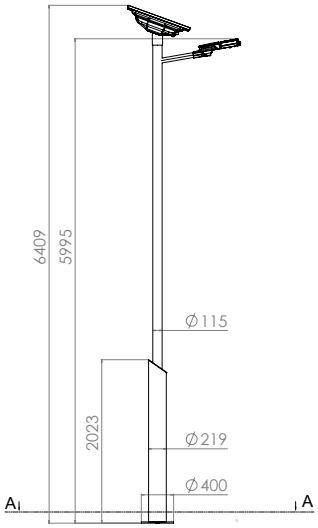
A minimum of 3 hours of sunlight per day is required for the proper functioning of the system.











MODEL	OPTIONS					CHARACTERISTICS OF THE SOLAR LAMP									
						LIGHTING MODEL **MPG-2**					BATTERY				PV
						PROGRAMMING					COMPONENTS				
	CONTROL	NOMINAL POWER	TEMPERATURE	LENS TYPE	HEIGHT (M)	POWER	%	WATTS	HOURS	FLUX LUMINOUS	RESERVA-TION DAYS	UNITS	MODEL	CHARGER CONTROLLER	SOLAR PANEL
SL-NATUR1	/PP /PSM	/015 /020	/1.8 /2.4 /3.0 /4.0 /4.5 /5.5	/A	/4 /5 /6	**15**W	100 %	15 W	2 H	2.250 Lm	3 days	2	LP012 012A/B	DM060-W (10A - 12V)	80 WP
							80 %	12 W	2 H	1.800 Lm					
							40 %	6 W	5 H	900 Lm					
							50 %	7,5 W	3 H	1.125 Lm					
						20W	100 %	20 W	2 H	3.000 Lm		3			100 WP 44 V
							80 %	16 W	2 H	2.400 Lm					
							40 %	8 W	5 H	1.200 Lm					
							50 %	10 W	3 H	1.500 Lm					

/1.8: Amber color temperature of **1,800k**, for astronomical observation areas.
/2.4: Amber color temperature of **2,400k**, for astronomical observation areas.

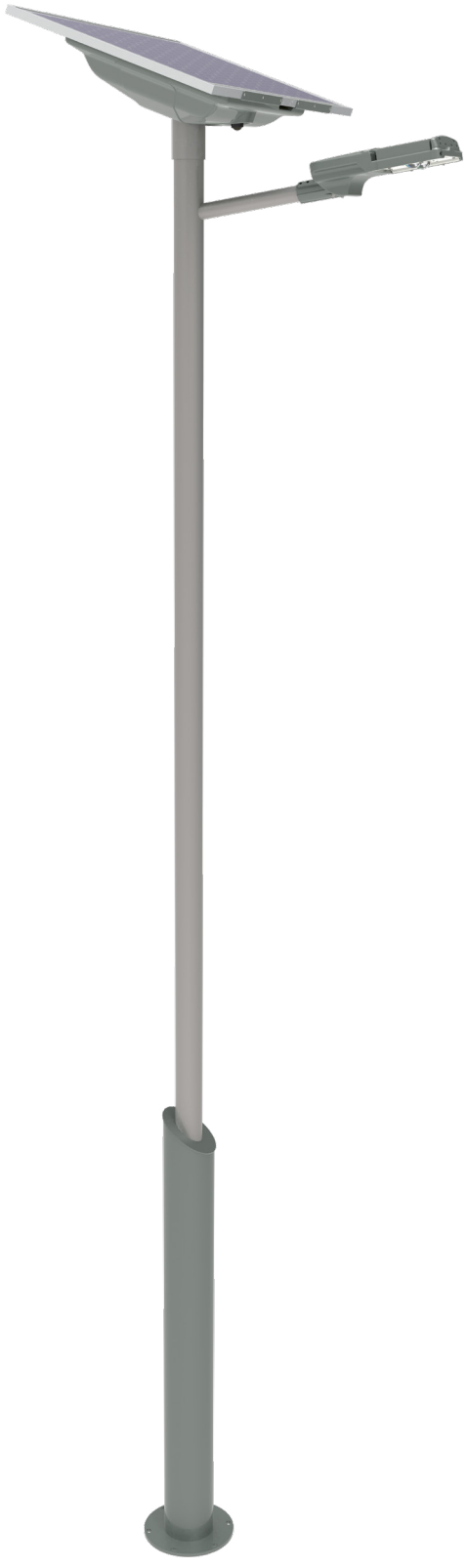
WORKING TEMPERATURE: -20**°C** +60**°C**

MICRO PLUS Germany

SL-NATUR2

▶ 40 - 120W [24Vdc]

Public and Road Solar Streetlight



General information

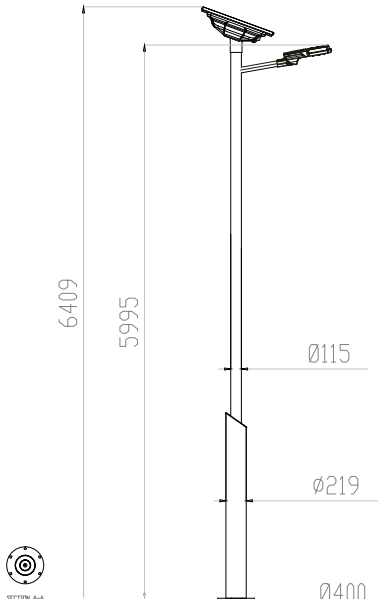
Options

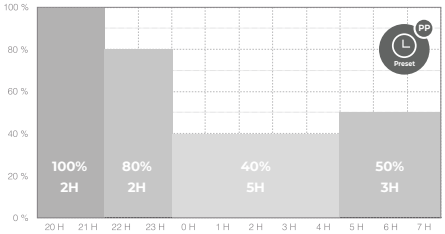
OPTION HYBRIDIZED
CONSULT

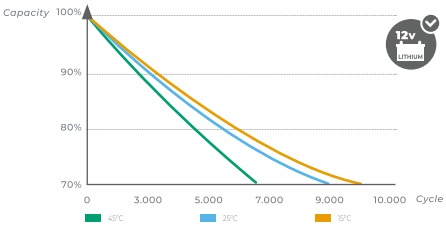
The **SL-NATUR2** **SOLAR STREETLIGHT** features 2 **MPG-2** *luminaires* (*40-120W*) with next-generation glass lenses.

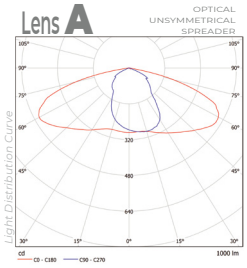
- MPPT **CONTROLLER** (*IP68*).
- 100-450Wp **SOLAR PANEL** (*24V*).
- **BATERÍAS DE LITIO** $LiFePO_4$ — *25.6V* con más de 3.500 ciclos (*80% descarga*) y 8.000 ciclos (*30% descarga*).
- 6 to 8-meter **GALVANIZED IRON POLE** (*optional high-durability polyester painted*).

A minimum of 3 hours of sunlight per day is required for the proper functioning of the system.









MODEL	OPTIONS					CHARACTERISTICS OF THE SOLAR LAMP									
						LIGHTING MODEL **MPG-2**					BATTERY				PV
						PROGRAMMING					COMPONENTS				
	CONTROL	NOMINAL POWER	TEMPERATURE	LENS TYPE	HEIGHT (M)	POWER	%	WATTS	HOURS	FLUX LUMINOUS	RESERVATION DAYS	UNITS	MODEL	CHARGER CONTROLLER	SOLAR PANEL
SL-NATUR2	/PP	/040 /050 /060 /080 /100 /120	/1.8 /2.4 /3.0 /4.0 /4.5 /5.5	/A	/6 /7 /8	**40**W	100 %	40 W	2 H	6.000 Lm	3 days	1	LP024 036A/P	DM120-W (10A - 24V)	270 WP (44 V)
							80 %	32 W	2 H	4.800 Lm					
							40 %	16 W	5 H	2.400 Lm					
							50 %	20 W	3 H	3.000 Lm					
						50W	100 %	50 W	2 H	7.500 Lm			LP024 042A/P		
							80 %	40 W	2 H	6.000 Lm					
							40 %	20 W	5 H	3.000 Lm					
							50 %	25 W	3 H	3.750 Lm					
						60W	100 %	60 W	2 H	9.000 Lm		2	LP024 036A/P		
							80 %	48 W	2 H	7.200 Lm					
							40 %	24 W	5 H	3.600 Lm					
							50 %	30 W	3 H	4.500 Lm					
						80W	100 %	80 W	2 H	12.000 Lm					
							80 %	64 W	2 H	9.600 Lm					
							40 %	32 W	5 H	4.800 Lm					
							50 %	40 W	3 H	6.000 Lm					
						100W	100 %	100 W	2 H	15.000 Lm			LP024 042A/P	DM160-W (15A - 24V)	450 WP (53 V)
							80 %	80 W	2 H	12.000 Lm					
							40 %	40 W	5 H	6.000 Lm					
							50 %	50 W	3 H	7.500 Lm					
						120W	100 %	120 W	2 H	18.000 Lm			LP024 054A/P		
							80 %	96 W	2 H	14.400 Lm					
							40 %	48 W	5 H	7.200 Lm					
							50 %	60 W	3 H	9.000 Lm					

/1.8: Amber color temperature of **1,800k**, for astronomical observation areas.
/2.4: Amber color temperature of **2,400k**, for astronomical observation areas.

WORKING TEMPERATURE: -20°C +60°C

MICRO PLUS Germany

SL-NATUR2D

▶ 60 - 140W [24Vdc]

Public and Road Solar Streetlight

General information

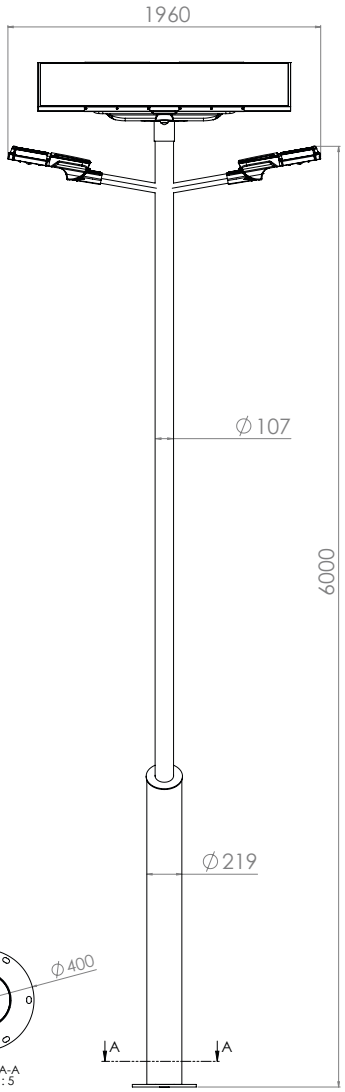
Options

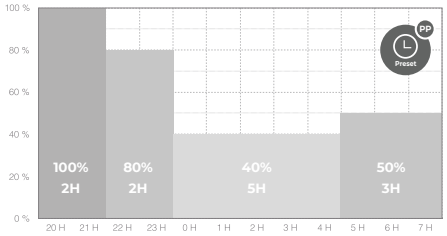
OPTION HYBRIDIZED
CONSULT

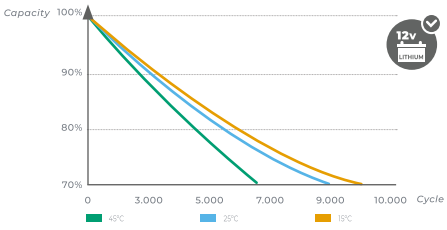
The **SL-NATUR2D** double **SOLAR STREETLIGHT** features 2 **MPG-2** *luminaires* (*60-140W*) with next-generation glass lenses.

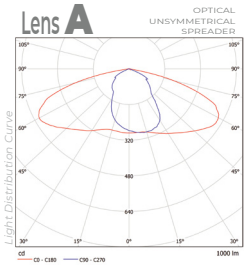
- MPPT **CONTROLLER** (*IP68*).
- 180-540Wp **SOLAR PANEL** (*24V*).
- **BATERÍAS DE LITIO** $LiFePO_4$ — *25.6V* con más de 3.500 ciclos (*80% descarga*) y 8.000 ciclos (*30% descarga*).
- 6 to 8-meter **GALVANIZED IRON POLE** (*optional high-durability polyester painted*).

A minimum of 3 hours of sunlight per day is required for the proper functioning of the system.









MODEL	OPTIONS					CHARACTERISTICS OF THE SOLAR LAMP									
						LIGHTING MODEL **MPG-2**					BATTERY				PV
						PROGRAMMING					COMPONENTS				
	CONTROL	NOMINAL POWER	TEMPERATURE	LENS TYPE	HEIGHT (M)	POWER	%	WATTS	HOURS	FLUX LUMINOUS	RESERVA-TION DAYS	UNITS	MODEL	CHARGER CONTROLLER	SOLAR PANEL
SL-NATUR2D	/PP	/060 /080 /100 /120 /140	/1.8 /2.4 /3.0 /4.0 /4.5 /5.5	/A	/6 /7 /8	**60**W	100 %	60 W	2 H	9.000 Lm	3 days	2	LP024 036A/P	DM120-W (10A - 24V)	270 WP (44 V)
							80 %	48 W	2 H	7.200 Lm					
							40 %	24 W	5 H	3.600 Lm					
							50 %	30 W	3 H	4.500 Lm					
						80W	100 %	80 W	2 H	12.000 Lm					
							80 %	64 W	2 H	9.600 Lm					
							40 %	32 W	5 H	4.800 Lm					
							50 %	40 W	3 H	6.000 Lm					
						100W	100 %	100 W	2 H	15.000 Lm			LP024 042A/P	DM200-W (20A - 24V)	450 WP (53 V)
							80 %	80 W	2 H	12.000 Lm					
							40 %	40 W	5 H	6.000 Lm					
							50 %	50 W	3 H	7.500 Lm					
						120W	100 %	120 W	2 H	18.000 Lm			LP024 054A/P		
							80 %	96 W	2 H	14.400 Lm					
							40 %	48 W	5 H	7.200 Lm					
							50 %	60 W	3 H	9.000 Lm					
						140W	100 %	140 W	2 H	21.000 Lm			LP024 060A/P		
							80 %	112 W	2 H	16.800 Lm					
							40 %	56 W	5 H	8.400 Lm					
							50 %	70 W	3 H	10.500 Lm					

/1.8: Amber color temperature of **1,800k**, for astronomical observation areas.
/2.4: Amber color temperature of **2,400k**, for astronomical observation areas.

WORKING TEMPERATURE: -20°C +60°C

SL-EVENT4

*Public/Road and Private **SOLAR** Streetlight*

MICRO PLUS
Germany

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SL-EVENT4

Public/Road and Private SOLAR Streetlight

MICRO PLUS Germany

SL-EVENT1

▶ 60 - 140W [24Vdc]

Public and Road Solar Streetlight

General information

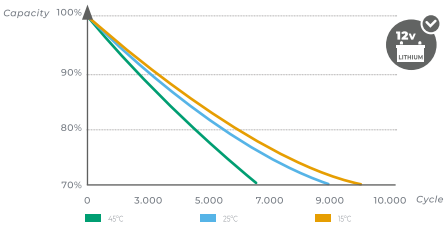
Options

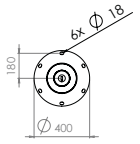
OPTION HYBRIDIZED CONSULT

The **SL-EVENT1** **SOLAR STREETLIGHT** features the **KS-2IP** *projector* (*60-140W*) with next-generation glass lenses.

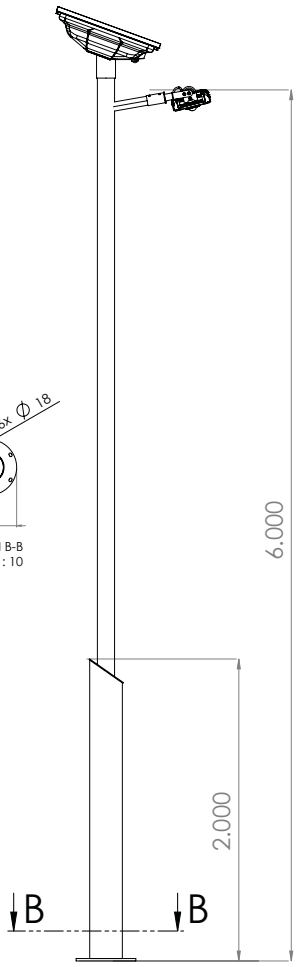
- MPPT **CONTROLLER** (*IP68*).
- 100-450Wp **SOLAR PANEL** (*24V*).
- **BATERÍAS DE LITIO** $LiFePO_4$ — *25.6V* con más de 3.500 ciclos (*80% descarga*) y 8.000 ciclos (*30% descarga*).
- 6 to 8-meter **GALVANIZED IRON POLE** (*optional high-durability polyester painted*).

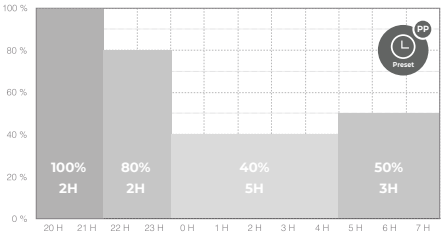
A minimum of 3 hours of sunlight per day is required for the proper functioning of the system.

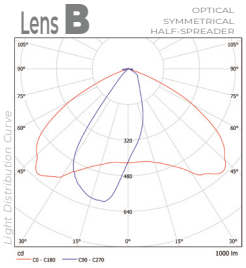


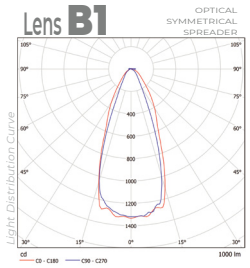


SECTION B-B
SCALE 1 : 10









MODEL	OPTIONS					CHARACTERISTICS OF THE SOLAR LAMP									
						LIGHTING MODEL **KS-2IP**					BATTERY				PV
						PROGRAMMING					COMPONENTS				
	CONTROL	NOMINAL POWER	TEMPERATURE	LENS TYPE	HEIGHT (M)	POWER	%	WATTS	HOURS	FLUX LUMINOUS	RESERVA-TION DAYS	UNITS	MODEL	CHARGER CONTROLLER	SOLAR PANEL
SL-EVENT1	/PP	/060 /080 /100 /120 /140	/1.8 /2.4 /3.0 /4.0 /4.5 /5.5	/B /B1	/6 /7 /8	**60**W	100 %	60 W	2 H	9.000 Lm	3 days	2	LP024 036A/P	DM120-W (10A - 24V)	270 WP (44 V)
							80 %	48 W	2 H	7.200 Lm					
							40 %	24 W	5 H	3.600 Lm					
							50 %	30 W	3 H	4.500 Lm					
						80W	100 %	80 W	2 H	12.000 Lm					
							80 %	64 W	2 H	9.600 Lm					
							40 %	32 W	5 H	4.800 Lm					
							50 %	40 W	3 H	6.000 Lm					
						100W	100 %	100 W	2 H	15.000 Lm			LP024 042A/P	DM200-W (20A - 24V)	450 WP (53 V)
							80 %	80 W	2 H	12.000 Lm					
							40 %	40 W	5 H	6.000 Lm					
							50 %	50 W	3 H	7.500 Lm					
						120W	100 %	120 W	2 H	18.000 Lm			LP024 054A/P		
							80 %	96 W	2 H	14.400 Lm					
							40 %	48 W	5 H	7.200 Lm					
							50 %	60 W	3 H	9.000 Lm					
						140W	100 %	140 W	2 H	21.000 Lm			LP024 060A/P		
							80 %	112 W	2 H	16.800 Lm					
							40 %	56 W	5 H	8.400 Lm					
							50 %	70 W	3 H	10.500 Lm					

/1.8: Amber color temperature of **1,800k**, for astronomical observation areas.
/2.4: Amber color temperature of **2,400k**, for astronomical observation areas.

WORKING TEMPERATURE: -20°C +60°C

MICRO PLUS Germany

SL-EVENT4

▶ 60 - 140W [24Vdc]

Public and Road Solar Streetlight

General information

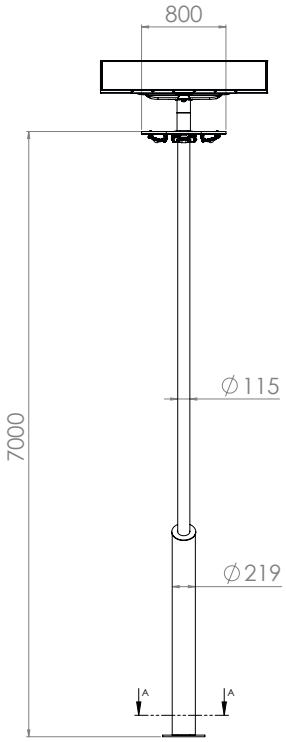
Options

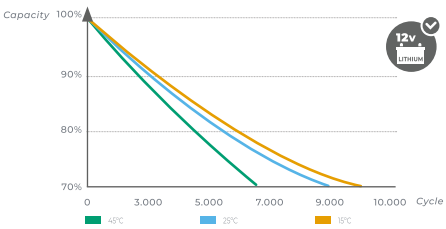
OPTION HYBRIDIZED
CONSULT

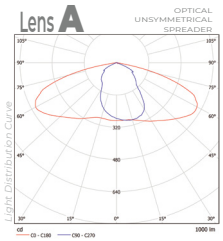
The **SL-EVENT4** **SOLAR STREETLIGHT** features 4 **KS-1** *projectors* (*60-140W*) with next-generation glass lenses.

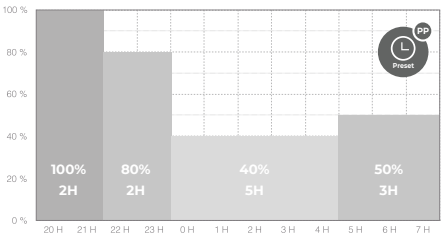
- MPPT **CONTROLLER** (*IP68*).
- 270-450Wp **SOLAR PANEL** (*24V*).
- **BATERÍAS DE LITIO** $LiFePO_4$ — *25.6V* con más de 3.500 ciclos (*80% descarga*) y 8.000 ciclos (*30% descarga*).
- 6 to 8-meter **GALVANIZED IRON POLE** (*optional high-durability polyester painted*).

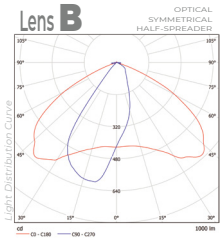
A minimum of 3 hours of sunlight per day is required for the proper functioning of the system.

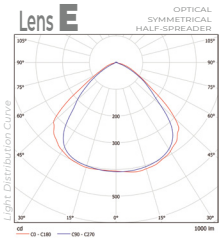


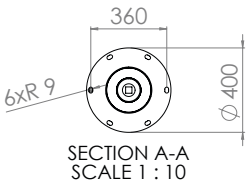












MODEL	OPTIONS					CHARACTERISTICS OF THE SOLAR LAMP									
						LIGHTING MODEL **KS-1**					BATTERY				PV
						PROGRAMMING					COMPONENTS				
	CONTROL	NOMINAL POWER	TEMPERATURE	LENS TYPE	HEIGHT (M)	POWER	%	WATTS	HOURS	FLUX LUMINOUS	RESERVATION DAYS	UNITS	MODEL	CHARGER CONTROLLER	SOLAR PANEL
SL-EVENT4	/PP	/060 /080 /100 /120 /140	/1.8 /2.4 /3.0 /4.0 /4.5 /5.5	/A /B /E	/6 /7 /8	**60**W	100 %	60 W	2 H	9.000 Lm	3 days	2	LP024 036A/P	DM120-W (10A - 24V)	270 WP (44 V)
							80 %	48 W	2 H	7.200 Lm					
							40 %	24 W	5 H	3.600 Lm					
							50 %	30 W	3 H	4.500 Lm					
						80W	100 %	80 W	2 H	12.000 Lm					
							80 %	64 W	2 H	9.600 Lm					
							40 %	32 W	5 H	4.800 Lm					
							50 %	40 W	3 H	6.000 Lm					
						100W	100 %	100 W	2 H	15.000 Lm			LP024 042A/P	DM200-W (20A - 24V)	450 WP (53 V)
							80 %	80 W	2 H	12.000 Lm					
							40 %	40 W	5 H	6.000 Lm					
							50 %	50 W	3 H	7.500 Lm					
						120W	100 %	120 W	2 H	18.000 Lm			LP024 054A/P		
							80 %	96 W	2 H	14.400 Lm					
							40 %	48 W	5 H	7.200 Lm					
							50 %	60 W	3 H	9.000 Lm					
						140W	100 %	140 W	2 H	21.000 Lm			LP024 060A/P		
							80 %	112 W	2 H	16.800 Lm					
							40 %	56 W	5 H	8.400 Lm					
							50 %	70 W	3 H	10.500 Lm					

/1.8: Amber color temperature of **1,800k**, for astronomical observation areas.
/2.4: Amber color temperature of **2,400k**, for astronomical observation areas.

WORKING TEMPERATURE: -20°C +60°C

MICRO PLUS Germany

SL-CORONA1E

▶ 15 - 25W [12Vdc]

Industrial design n°
U201631020

Public and Road Solar Streetlight

General information

10 YEARS GUARANTEE · 200Lm/W · IP67 · IK08 · LIFE TIME 100.000 H · PHOTOBIOLOGICAL SAFETY EN62471 · 100% energetic · 12V LITHIUM · 25 YEARS PANEL 80% R.S. · PP Preset · AIR COMPENSATION

Options

OPTION COLORS · MOTION SENSOR

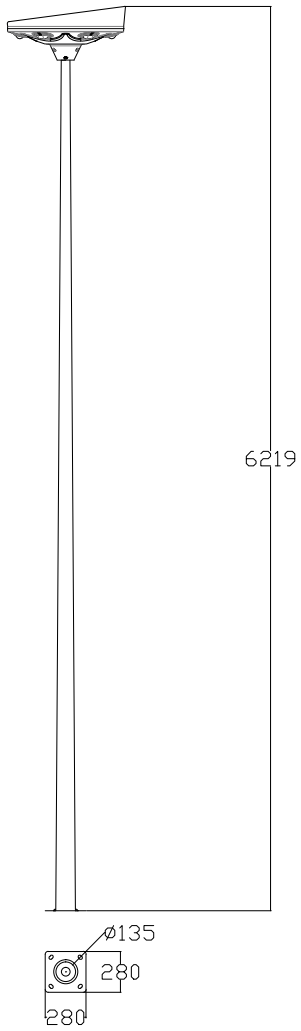
OPTION HYBRIDIZED
CONSULT

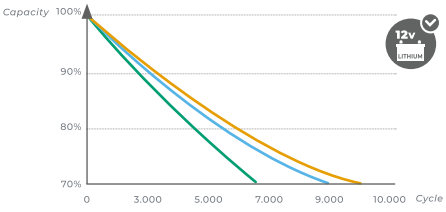
The **SL-CORONA1E SOLAR STREETLIGHT** features the **CORONA1E** *luminaire* (*15-25W*) with 3-6 next-generation glass lenses. It is designed for parks or public squares where 360° illumination is required.

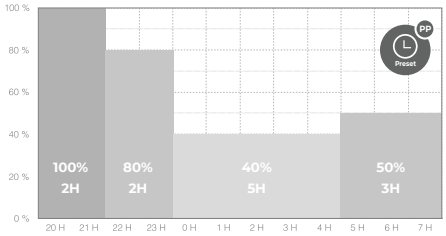
- MPPT **CONTROLLER** (*IP68*).
- 50Wp **SOLAR PANEL**.
- $LiFePO_4$ **LITHIUM BATTERIES** — *12.8V* with over 3,500 cycles (*80% discharge*) and 8,000 cycles (*30% discharge*).
- 4 to 6-meter **GALVANIZED IRON POLE** (*optional aluminum pole — high-durability polyester painted option*).

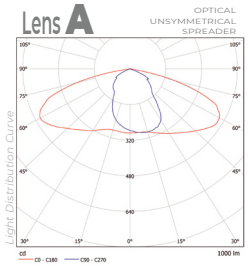
A minimum of 3 hours of sunlight per day is required for the proper functioning of the system.

MADE IN EUROPE









MODEL	OPTIONS					CHARACTERISTICS OF THE SOLAR LAMP								
						LIGHTING MODEL **CORONA1E**					BATTERY			PV
						PROGRAMMING					COMPONENTS			
	CONTROL	NOMINAL POWER	TEMPERATURE	LENS TYPE	HEIGHT (M)	POWER	%	WATTS	HOURS	FLUX LUMINOUS	RESERVATION DAYS	UNITS	MODEL	CHARGER CONTROLLER	SOLAR PANEL
SL-CORONA1E	/PP	/015 /020 /025	/1.8 /2.4 /3.0 /4.0 /4.5 /5.5	/A	/4 /5 /6	**15**W	100 %	15 W	2 H	2.250 Lm	3 days	2	LP012 012A/B	DM060-W (10A - 12V)	50 WP (22 V)
							80 %	12 W	2 H	1.800 Lm					
							40 %	6 W	5 H	900 Lm					
							50 %	7,5 W	3 H	1.125 Lm					
						20W	100 %	20 W	2 H	3.000 Lm		3			
							80 %	16 W	2 H	2.400 Lm					
							40 %	8 W	5 H	1.200 Lm					
							50 %	10 W	3 H	1.500 Lm					
						25W	100 %	25 W	2 H	3.750 Lm		4			
							80 %	20 W	2 H	3.000 Lm					
							40 %	10 W	5 H	1.500 Lm					
							50 %	12,5 W	3 H	1.8750 Lm					

/1.8: Amber color temperature of **1,800k**, for astronomical observation areas.
/2.4: Amber color temperature of **2,400k**, for astronomical observation areas.

WORKING TEMPERATURE: -20°C +60°C

MICRO PLUS Germany

SL-TOWER

▶ 600 - 1.200W [24Vdc]

Public and Road Solar Tower

General information

Options

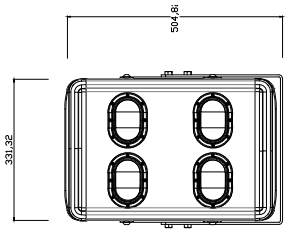
The **SL-TOWER** *solar tower is designed and manufactured to order*. As a standard, it is produced with a power range of 600 to 1,200W. The panels and battery box are positioned at different locations on the pole to provide an aesthetically pleasing, simple, and compact result.

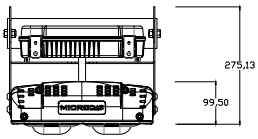
It is designed to illuminate sports areas, parking lots, and outdoor storage areas where there is no access to electrical power.

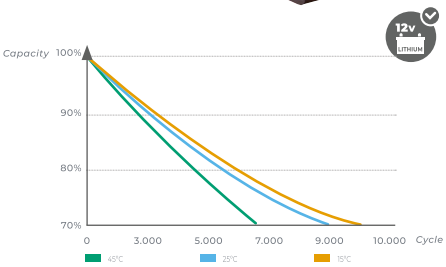
- 450Wp **SOLAR PANEL** (*consult for details*).
- $LiFePO_4$ **LITHIUM BATTERIES** installed in a polypropylene box beneath the solar panel.
- **MODULAR POLE** from 12 to 18 meters (*consult for details*).

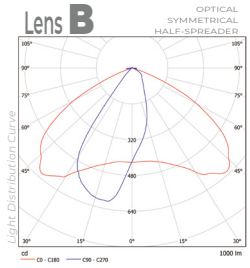
A minimum of 3 hours of sunlight per day is required for the proper functioning of the system.

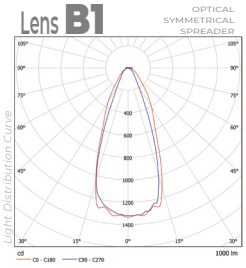
estructura panel
+
batería de litio
+
controlador

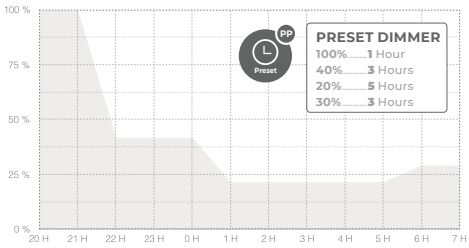












MODEL	OPTIONS					CHARACTERISTICS OF THE SOLAR LAMP								
						LIGHTING MODEL **KS-IP**					BATTERY			PV
						PROGRAMMING					COMPONENTS			
	CONTROL	NOMINAL POWER	TEMPERATURE	LENS TYPE	HEIGHT (M)	POWER	%	WATTS	HOURS	FLUX LUMINOUS	RESERVA-TION DAYS	UNITS	MODEL	CHARGER CONTROLLER	SOLAR PANEL
SL-TOWER	/PP	/0600 /0920 /1200	/3.0 /4.0 /4.5 /5.5	/B /B1	/12 /15 /18	**600**W (4 x KS-IP 150W)	100 %	600 W	2 H	90.000 Lm	2 dias	4	LP024 060A/P	DM200-W (20A - 24V)	3 x 450 WP
							50 %	300 W	3 H	45.000 Lm					
							30 %	180 W	3 H	27.000 Lm					
							40 %	240 W	2 H	36.000 Lm					
						920W (4 x KS-IP 230W)	100 %	920 W	2 H	138.000 Lm		6			5 x 450 WP
							50 %	460 W	3 H	69.000 Lm					
							30 %	276 W	3 H	41.400 Lm					
							40 %	368 W	2 H	55.200 Lm					
						1.200W (4 x KS-IP 300W)	100 %	1.200 W	2 H	180.000 Lm		8			6 x 450 WP
							50 %	600 W	3 H	90.000 Lm					
							30 %	360 W	3 H	54.000 Lm					
							40 %	480 W	2 H	72.000 Lm					

WORKING TEMPERATURE: -20°C +60°C

SL-TOWER

*Public/Road and Private **SOLAR** Tower*

MICRO PLUS
Germany

MICRO PLUS
Germany

SL-ROUND

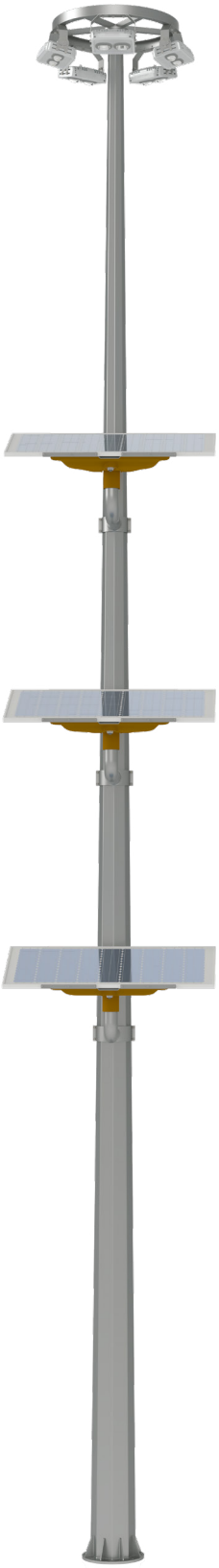
*Public/Road and Private **SOLAR** Tower*

MICRO PLUS Germany

SL-ROUND

▶ 300 - 600W [24Vdc]

Public and Road Solar Tower



General information

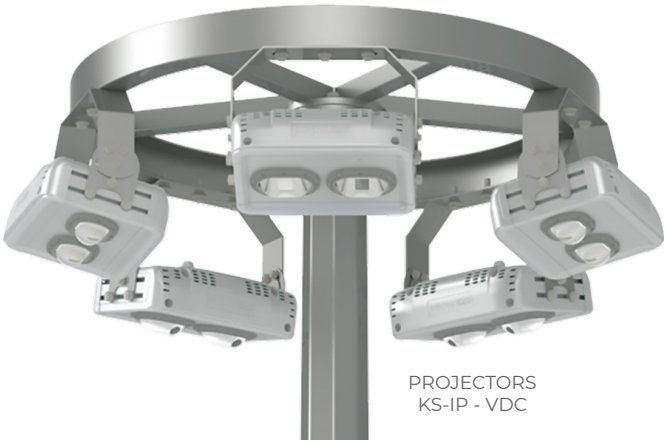
Options

The **SL-ROUND** *solar tower is designed and manufactured to order*. It is typically produced with a power range of 300 to 600W and features **KS-2IP** *projector*s arranged in a crown configuration.

The panels and battery box (*MODULUS-DC*) are positioned at different locations on the pole to achieve an aesthetically pleasing, simple, and compact design. It is intended for illuminating roundabouts, parking lots, port areas, and outdoor spaces without access to electrical power. An optional security camera is available.

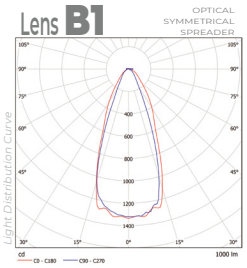
- 450Wp **SOLAR PANEL** (*consult for details*).
- $LiFePO_4$ **LITHIUM BATTERIES** installed in a *MODULUS-DC* polypropylene box beneath the solar panel.
- **GALVANIZED POLE** with a diameter of 323mm, a thickness of 5mm, and a height of 12 meters.

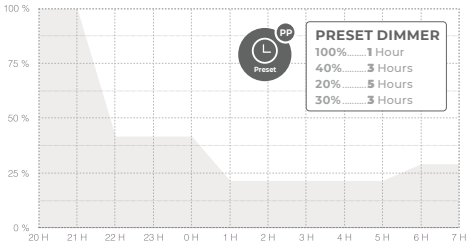
> *A minimum of 3 hours of sunlight per day is required for the proper functioning of the system.*

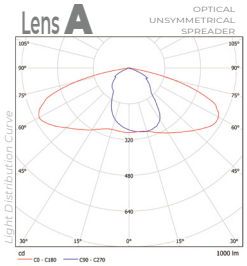


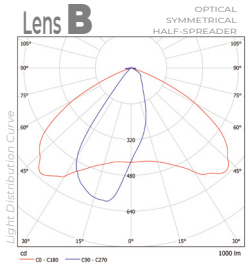
PROJECTORS
KS-IP - VDC

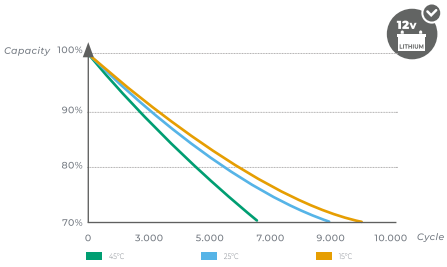
panel structure
+
lithium battery
+
controller











MODEL	OPTIONS					CHARACTERISTICS OF THE SOLAR LAMP									
						LIGHTING MODEL **KS-2IP**					BATTERY				PV
						PROGRAMMING					COMPONENTS				
	CONTROL	NOMINAL POWER	TEMPERATURE	LENS TYPE	HEIGHT (M)	POWER	%	WATTS	HOURS	FLUX LUMINOUS	RESERVA-TION DAYS	UNITS	MODEL	CHARGER CONTROLLER	SOLAR PANEL
SL-ROUND	/PP	/300 /400 /500 /600	/3.0 /4.0 /4.5 /5.5	/A /B /B1	/12	**300**W	100 %	300 W	2 H	45.000 Lm	2 days	4	LP024 036A/P	DM200-W (20A - 24V)	2 x 450 WP
							50 %	150 W	3 H	22.500 Lm					
							30 %	90 W	3 H	13.500 Lm					
							40 %	120 W	2 H	18.000 Lm					
						400W	100 %	400 W	2 H	60.000 Lm		5			
							50 %	200 W	3 H	30.000 Lm					
							30 %	120 W	3 H	18.000 Lm					
							40 %	160 W	2 H	24.000 Lm					
						500W	100 %	500 W	2 H	75.000 Lm		3	LP024 060A/P		3 x 450 WP
							50 %	250 W	3 H	37.500 Lm					
							30 %	150 W	3 H	22.500 Lm					
							40 %	200 W	2 H	30.000 Lm					
						600W	100 %	600 W	2 H	90.000 Lm		4			
							50 %	300 W	3 H	45.000 Lm					
							30 %	180 W	3 H	27.000 Lm					
							40 %	240 W	2 H	36.000 Lm					

WORKING TEMPERATURE: -20°C +60°C

S-MODULUS-L

▶ 15 - 140W *[307 - 3,072Wh • Output 12/24Vdc]*

Compact system for energy production and storage for nighttime lighting

General information

10 YEARS GUARANTEE · 100% energetic · 12V LITHIUM · 24V LITHIUM · 25 YEARS PANEL 80% R.S.

OPTION HYBRIDIZED
CONSULT

GX LTE 4G
BATTERY STATUS VISUALIZATION FROM ANYWHERE

Bluetooth
OPTIONAL

APPLICATIONS

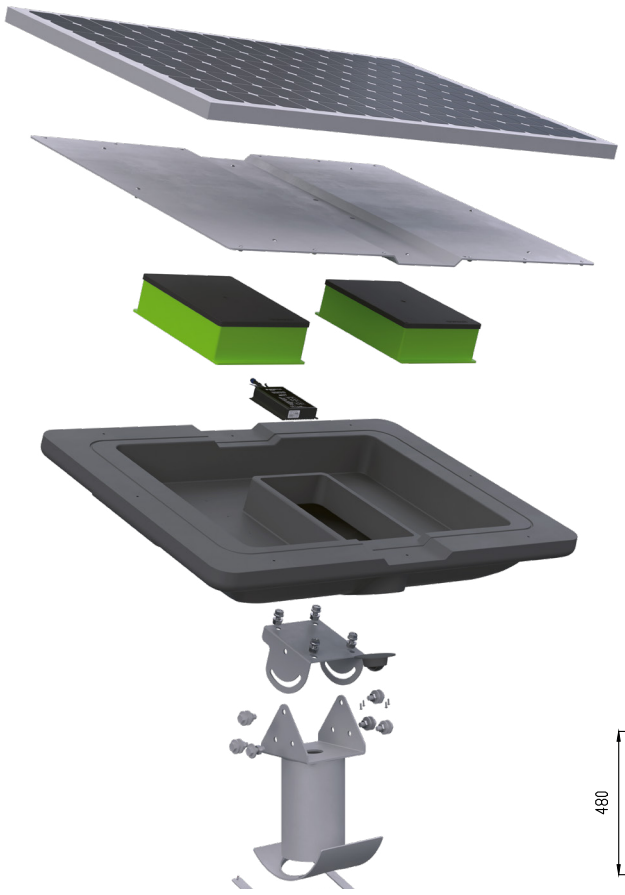
- SOLAR LIGHTING
- VDC LIGHTING

The **S-MODULUS-L** is a compact system (*pole not included*) consisting of an **IP68 MPPT** controller, a solar panel ranging from 80-450W (*22 to 53V*), and $LiFePO_4$ batteries (*12.8V or 25.6V*) with capacities of 12Ah or 60Ah housed in a polymer box with an air chamber.

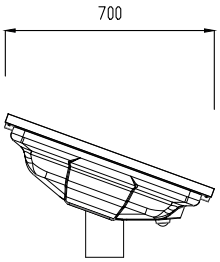
This system captures solar energy through the panels and stores it in the batteries. When the panel produces less than 8V, the controller is activated, providing the preprogrammed output (*as per customer requirements*) to power the corresponding *luminaire*, *projector*, illuminated signs, etc.

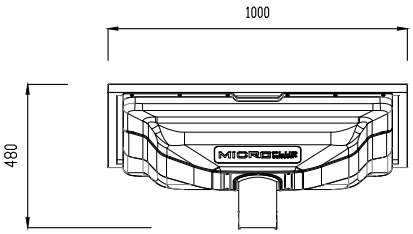
An optional motion sensor system can be installed in the exterior capsule surrounding the batteries.

Battery charge levels can also be monitored optionally via the *Victron Energy* app using the *SmartShunt*.



structure





MODEL	TECHNICAL CHARACTERISTICS OF THE MODULUS FOR NIGHT LIGHTING									
	BATTERY							PV	GENERAL CHARACTERISTICS	
	ENERGY ACCUMULATED IN BATTERIES (Wh)	VOLTAGE OUTPUT (V)	LIGHTING IN WATTS (W)	RESERVATION DAYS	COMPONENTS UNITS	COMPONENTS MODEL	CHARGE CONTROLLER	SOLAR PANEL (WP)	DIÁMETRO INTERNO DEL TUBO (mm)	WEIGHT (KG)
S-MODULUS-L/0307-12	307 Wh	12V	15 W	3 days	2	LP012012A/B (12.8V - 12Ah)	DM060-W (10A - 12V)	80 WP (22V)	68 mm or 80 mm or 93 mm or 120 mm	31,2 kg
S-MODULUS-L/0460-12	460 Wh		20 W		3					32,2 kg
S-MODULUS-L/0540-24	540 Wh	24V	30 W		1	LP024030A/P (25.6V - 30Ah)	DM120-W (10A - 24V)	100 WP (44V)		37,6 kg
S-MODULUS-L/0921-24	921 Wh		40 W			LP024036A/P (25.6V - 36Ah)		270 WP (44V)		39,1 kg
S-MODULUS-L/1075-24	1.075 Wh		50 W			LP024042A/P (25.6V - 42Ah)				54,8 kg
S-MODULUS-L/1842-24	1.842 Wh		60 - 80 W		2	LP024036A/P (25.6V - 36Ah)				63,7 kg
S-MODULUS-L/2150-24	2.150 Wh		100 W			LP024042A/P (25.6V - 42Ah)	DM200-W (20A - 24V)	450 WP (53V)		75,7 kg
S-MODULUS-L/2764-24	2.764 Wh		120 W			LP024054A/P (25.6V - 54Ah)				81,7 kg
S-MODULUS-L/3072-24	3.072 Wh		140 W			LP024060A/P (25.6V - 60Ah)				84,7 kg

S-MODULUS

▶ 307 - 3.072Wh *[Output 12/24Vdc or 230Vac]*

Compact system for energy production and storage with AC or DC output

General information

APPLICATIONS

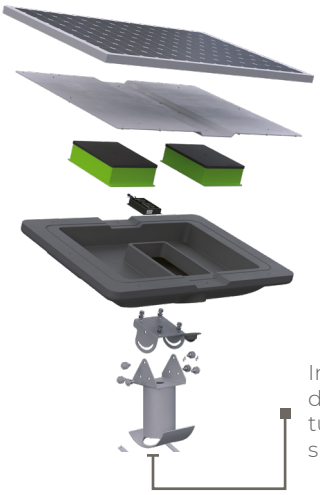
The **S-MODULUS** **AC** or **DC** is a compact system (*pole not included*) featuring an **IP68 MPPT** controller, a solar panel ranging from 80-450W (*22 to 53V*), and $LiFePO_4$ batteries (*12.8V or 25.6V*) with capacities of 12Ah or 60Ah housed in a polymer box with an air chamber.

This system captures solar energy through the panels and directly supplies it in DC or 230Vac via the integrated *Victron Energy* inverter. Simultaneously, excess energy is used to charge the batteries, which then provide power during non-sunny hours to the connected system.

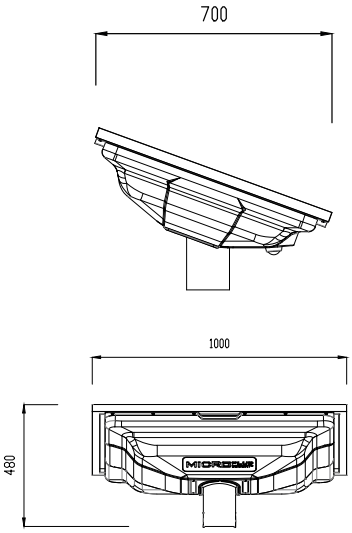
Applications include traffic lights, video surveillance cameras, electric gates, telecommunication systems, and various domestic or industrial uses where access to electrical power is unavailable.

Battery charge levels can optionally be monitored via the *Victron Energy* app using the *SmartShunt*.

structure



Internal diameter of tube (mm) supplied



MODEL	TECHNICAL CHARACTERISTICS OF THE MODULUS									
	BATTERY							PV	GENERAL CHARACTERISTICS	
	DAILY ENERGY GENERATED ACCUMULATED IN BATTERIES (Wh)	VOLTAGE OUTPUT (V)	INVERTER	RESERVATION DAYS	COMPONENTS UNITS	COMPONENTS MODEL	CHARGE CONTROLLER	SOLAR PANEL (WP)	INTERNAL DIAMETER OF TUBE (mm)	WEIGHT (KG)
S-MODULUS-AC/0307-230	**307** Wh	230 Vac	MULTIPLUS 12/500	3 days	1	LP012012AD/B (12.8V - 24Ah)	BLUE SOLAR (12V - 10A)	80 WP (22V)	68 mm ó 80 mm ó 93 mm ó 120 mm	35,6 kg
S-MODULUS-DC/0307-012		12 Vdc	NO		2	LP012012A/B (12.8V - 12Ah)				31,2 kg
S-MODULUS-AC/0460-230	**460** Wh	230 Vac	MULTIPLUS 12/500		1	LP012012AD/B (12.8V - 36Ah)				36,6 kg
S-MODULUS-DC/0460-012		12 Vdc	NO		3	LP012012A/B (12.8V - 12Ah)				32,2 kg
S-MODULUS-AC/0540-230	**540** Wh	230 Vac	MULTIPLUS 24/500		1	LP024030AD/P (25,8V - 30Ah)	BLUE SOLAR (24V - 10A)	100 WP (44V)		42 kg
S-MODULUS-DC/0540-024		24 Vdc	NO			LP024030A/P (25,8V - 30Ah)				37,6 kg
S-MODULUS-AC/0921-230	**921** Wh	230 Vac	MULTIPLUS 24/500			LP024036AD/P (25.6V - 36Ah)		270 WP (44V)		43,5 kg
S-MODULUS-DC/0921-024		24 Vdc	NO			LP024036A/P (25.6V - 36Ah)				39,1 kg
S-MODULUS-AC/1075-230	**1.075** Wh	230 Vac	MULTIPLUS 24/500			LP024042AD/P (25.6V - 42Ah)				59,2 kg
S-MODULUS-DC/1075-024		24 Vdc	NO			LP024042A/P (25.6V - 42Ah)				54,8 kg
S-MODULUS-AC/1842-230	**1.842** Wh	230 Vac	MULTIPLUS 24/500		2	LP024036AD/P (25.6V - 36Ah)				68,1 kg
S-MODULUS-DC/1842-024		24 Vdc	NO			LP024036A/P (25.6V - 36Ah)				63,7 kg
S-MODULUS-AC/2150-230	**2.150** Wh	230 Vac	MULTIPLUS 24/500			LP024042AD/P (25.6V - 42Ah)	BLUE SOLAR (24V - 20A)	450 WP (53V)		81,1 kg
S-MODULUS-DC/2150-024		24 Vdc	NO			LP024042A/P (25.6V - 42Ah)				75,7 kg
S-MODULUS-AC/2764-230	**2.764** Wh	230 Vac	MULTIPLUS 24/800			LP024054AD/P (25.6V - 54Ah)				88,2 kg
S-MODULUS-DC/2764-024		24 Vdc	NO			LP024054A/P (25.6V - 54Ah)				81,7 kg
S-MODULUS-AC/3072-230	**3.072** Wh	230 Vac	MULTIPLUS 24/800			LP024060AD/P (25.6V - 60Ah)				90,3 kg
S-MODULUS-DC/3072-024		24 Vdc	NO			LP024060A/P (25.6V - 60Ah)				84,7 kg

BCL

*New **360° Circular Panel** and **Battery** System for Direct Pole Mounting*

We propose a solution for any type of existing pole by implementing a high-efficiency **photovoltaic system** to harness **solar energy**.

This system features a circular 360° structure, with a solar panel covering 180°, a **$LiFePO_4$ battery** with an integrated **BMS**, and an **MPPT** controller on the remaining 180° side.

MICRO PLUS
Germany

PATENT
PENDING

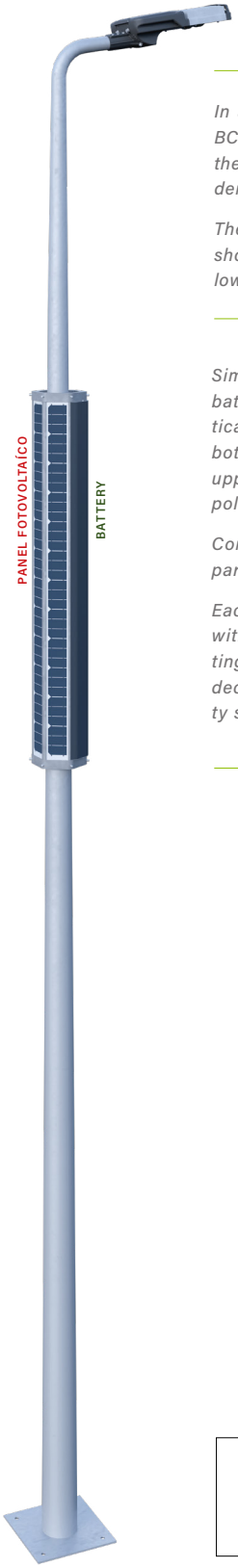
High-Efficiency
Photovoltaic System
with
Solar Panel and Battery
for
Existing Poles

NEW
« PRODUCT »

MICRO PLUS Germany

BCL

▶ 360° Photovoltaic System and Battery
for Attachment to Existing Poles (Patented)



In a simple manner, we will attach the BCL battery to the existing pole, whether it is galvanized, concrete, or wooden.

The outer diameter of these poles should not exceed 114mm, while the lower part can be 63mm.

Simply take the two halves—the BCL battery and the panels—align them vertically with the pole inside, and once both are level, secure them with the upper and lower screws to the existing pole.

Connect the panels either in series or in parallel using MC4 connectors.

Each battery model can be equipped with various accessories such as lighting projectors, Smart City sensors, video cameras, weather stations, proximity sensors, etc.

Our patented system can be applied to all types of existing poles.

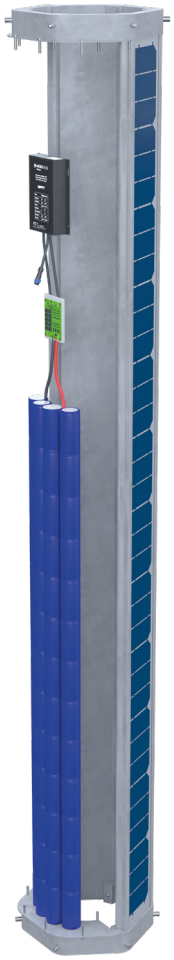
It features a battery and panel in two 180° halves with quick coupling and an **IP68** rating, consisting of *6A*, *3.2V* Lithium Iron Phosphate ($LiFePO_4$) cells in *12.8V* or *25.6V* (*on demand*) for various professional applications such as:

- Providing power to a video camera anywhere in the city or outside it.
- Powering a weather station or various Smart City sensors.
- Supplying power to WIFI or 5G repeaters.
- Energizing traffic lights and traffic signage.
- Installing lighting on any existing pole without the need for welding or invasive methods.

This intelligent and modern solution offers a way to access power anywhere, addressing numerous needs we encounter every day.

BCL/	BCL/V	BCL/VM	BCL/P	BCL/W	BCL/VP
Panel and battery 6 - 72A	*with video camera*	*with video camera and weather station*	*with projector*	*with WIFI / 5G*	*with video camera and projector*

MADE IN EUROPE



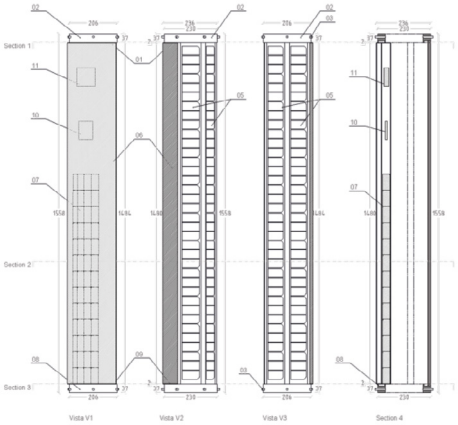
TECHNICAL SPECIFICATIONS OF THE $LiFePO_4$ BATTERY

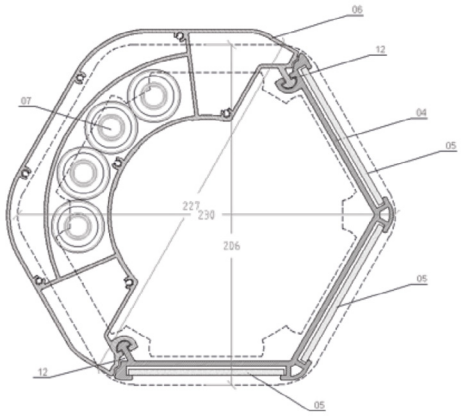
The battery is constructed within an aluminum frame with 180° panel sections that easily connect to the other 180° half through vertical displacement. Inside, it houses batteries of various capacities (*watt-hours*) and all necessary components for each specific requirement, as detailed in the accompanying technical tables.

It includes an air chamber for thermal insulation and is fully covered with a special resin, providing an **IP68** rating. The battery features MC4 male and female terminals to receive the power generated by the circular panels, offering a uniform and simple solution with minimal environmental impact.

An optional heating resistor is included to prevent the battery from becoming inactive in negative outdoor temperatures. Inside, it contains a Battery Management System (*BMS*) for cell balancing, as well as an **MPPT** charge controller with WiFi for lighting applications or 4G for video camera applications.

The battery's sides are designed to accommodate connections needed for various scenarios. The top and bottom covers are adaptable with anchors for any customer requirements, and with the provided bolts, you simply need to tighten them to secure the battery to the existing pole.





MODEL /REF		BCL006A	BCL012A	BCL018A	BCL024A	BCL030A	BCL036A	BCL042A	BCL048A	BCL060A	BCL072A
ELECTRICAL CHARACTERISTICS											
Nominal voltage (*V*)		12.8									
Nominal capacity (*Ah*)		6	12	18	24	30	36	42	48	60	72
Operating voltage (*V*)		12.8									
Battery energy at 25°C / -10°C (*Wh*)		76,8	153,6	230,4	307,2	384	460,8	537,6	614,4	768	921,6
Nominal discharge in Ah (%)		50 %									
Continuous discharge current (*A*)		3	6	9	12	15	18	21	24	30	36
Max. recommended current (*A*)		6	12	18	24	30	36	42	48	60	72
Recommended charge voltage		11 – 14,4									
Cycle life		< 8,000 cycles - 30% SoH 0.5C									
Photovoltaic panel (*Wp*)		50		70		150		210			
PROTECTION											
Short circuit protection		YES									
Short circuit protection recovery		LOAD OFF									
Protection: Temperature / recovery (*°C*)		70 / 50 ±5									
Internal resistance (*mΩ*)		60									
Cell size		32700									
GENERAL											
Complete with aluminum housing	Dimensions (*mm*)	236 x 230 x 1.160		236 x 230 x 1.560		236 x 230 x 2.320		236 x 230 x 3.120			
	Weight (*kg*)	11,9	12,5	18	19,2	29,5	30,2	39,8	40,4	41	42,2

CAN BE MADE TO MEASURE EACH NEED

SOLAR TREE

MICRO PLUS
Germany

***Solar tree**, energy production*

PATENT
PENDING

MICRO PLUS
Germany

SOLAR TREE

***Solar tree**, energy production*

PATENT
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MICRO PLUS Germany

S-TREE

PATENT PENDING

▶ 5,000W to 32,400W generated per day
12*Vdc* / 24*Vdc* / 36*Vdc* / 48*Vdc* — 230*Vac*

Solar tree, manufactured and customized for each project

OPTION HYBRIDIZED CONSULT

In this SOLAR TREE project, each unit can be customized to the client's specifications

MicroPlus Germany has been manufacturing **SOLAR TREES** for over 20 years. Technologies have evolved, and today we offer **SOLAR TREES** with significantly more power and storage in *lithium batteries*, along with more efficient panels.

Surveillance cameras, bicycle chargers, mobile phone chargers, and lighting for the surrounding area of the tree can be installed. Optionally, power can be provided at 230Vac for *street lighting* or other necessary systems around the installation.

These **SOLAR TREES** are specially designed for parks or remote areas where electrical power is unavailable, ensuring 100% efficiency.

We can manufacture any tree model in different sizes, *customized* with municipal or commercial logos as required.

In the attached table, you can see the various models we will always *manufacture to order and tailored* to our clients' specifications.

MODEL	S-TREE/02	S-TREE/04	S-TREE/06	S-TREE/12
Number of bifacial panels 540 Wp (*units*)	2	4	6	12 (*2 arboles x 6 placas cada uno*)
Total panel power (*Wp*)	**1.620**	**2.160**	**3.240**	**6.480**
Minimum daily generation: 4 hours of sunlight (*Wp*)	6.480	8.640	12.960	25.920
Maximum daily generation: 6 hours of sunlight (*Wp*)	**9.720**	**12.960**	**19.440**	**38.880**
Lithium battery voltage (*Vdc*)	25.6			51.2
Battery model	LP024036AD/LH		LP024054AD/LH	LP048054A/P
Number of lithium batteries (*units*)	1	2	2	3
Energy stored in batteries (*Wh*)	921,6	1.843	2.764	8.292
Victron inverter model	MULTIPLUS 24/500/10	MULTIPLUS 24/800/16	MULTIPLUS 24/1600/40	MULTIPLUS 48/5000/70
Nominal inverter power (*kW*)	500	800	1.600	5.000
Victron charge controller	SMART SOLAR 100/30	SMART SOLAR 150/60	SMART SOLAR 150/70	2 x SMART SOLAR 150/70
Output voltage (*Vac/Vdc*) to choose	24Vdc — 48Vdc — 230Vac			
Pre-programmed standard lighting (*W*)	2 x 20W	4 x 20W	6 x 20W	12 x 20W
Single-phase Schuko outlet for charging bicycles and motorcycles	1			2
USB charging outlet for mobile devices	2			4
RGBW lighting (*40W*)	1			
Customization (*municipal coat of arms logo*)	1			
Protection for panels, batteries, and AC output	INCLUDED			
Concrete anchor bolts	INCLUDED			
Solar tree dimensions (*m*)	3,6 x 2,1 x 2,3	4,2 x 2,3 x 3,6	4,2 x 3,6 x 4,1	8,7 x 3,6 x 4,1
Weight (*kg*) including panels	680	980	1.400	2.800

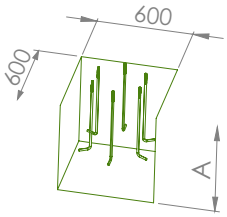
SUPPLEMENTS

SUP-AYESENTO-1	Seats outside the metal tree
SUP-AYESENTO-2	360° concrete base for tree support
SMARTHUNT	Battery monitor and mobile app
SUP-AIRE	Compressed air for bicycles

MICRO PLUS Germany

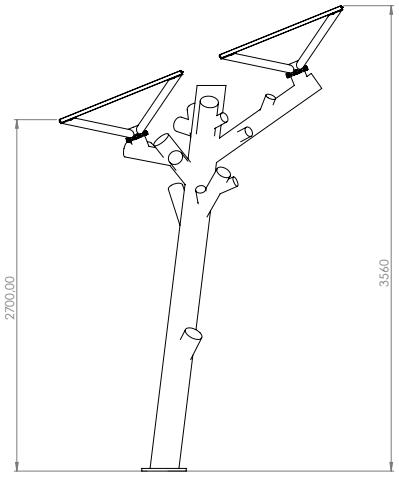
These trees are supplied in multiple sections for ease of transportation.

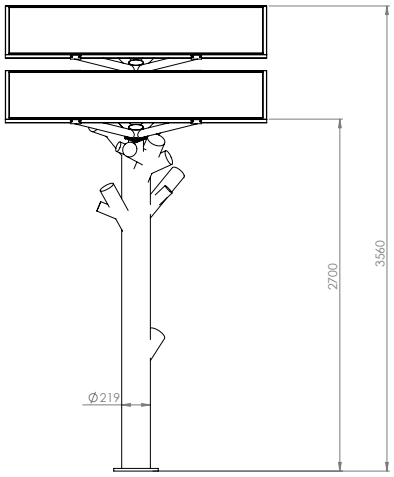
S-TREE/02



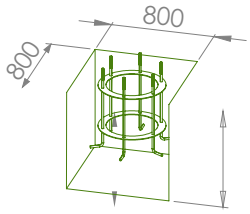
NOTE:
SOFT GROUND 800mm DEPTH
HARD GROUND 700mm DEPTH

Front view of the section of the pit for concreting with the anchors supplied by Micro PlusGermany



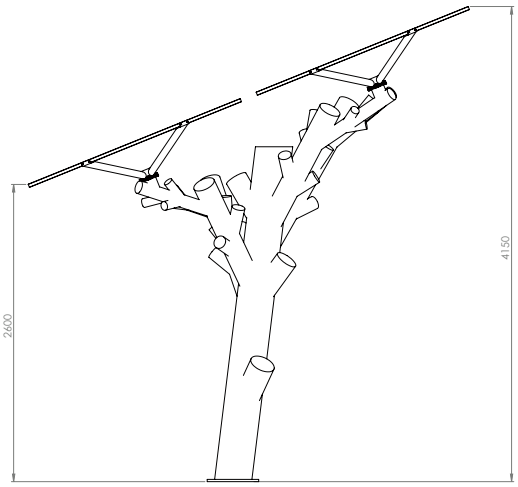


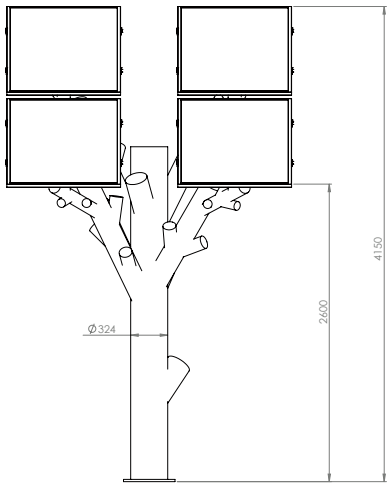
S-TREE/04



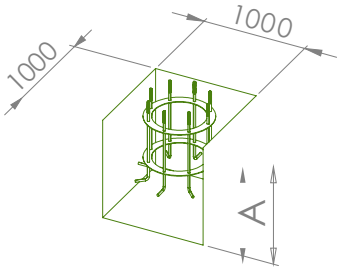
NOTE:
SOFT GROUND 1000mm DEPTH
HARD GROUND 800mm DEPTH

Front view of the section of the pit for concreting with the anchors supplied by Micro PlusGermany



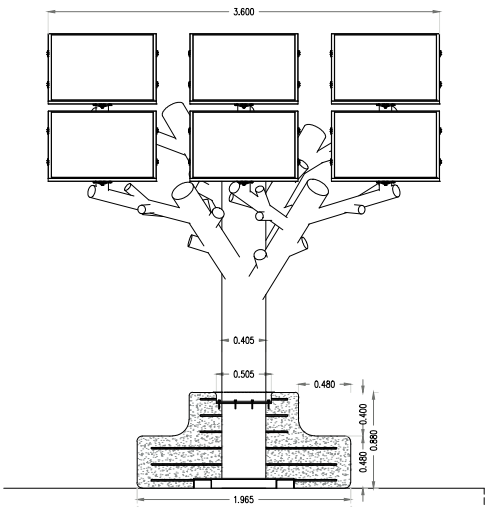


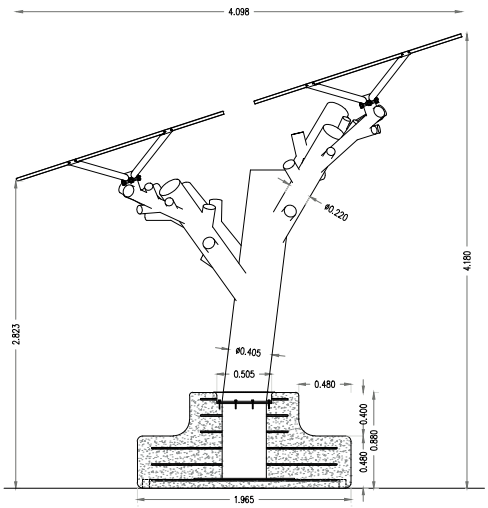
S-TREE/06



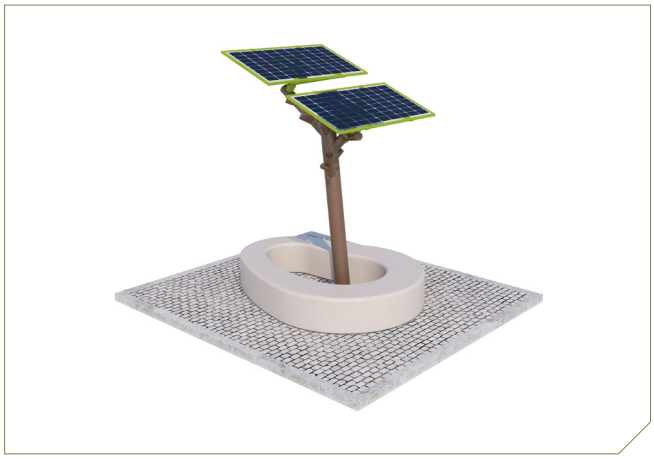
NOTE:
SOFT GROUND 1300mm DEPTH
HARD GROUND 1000mm DEPTH

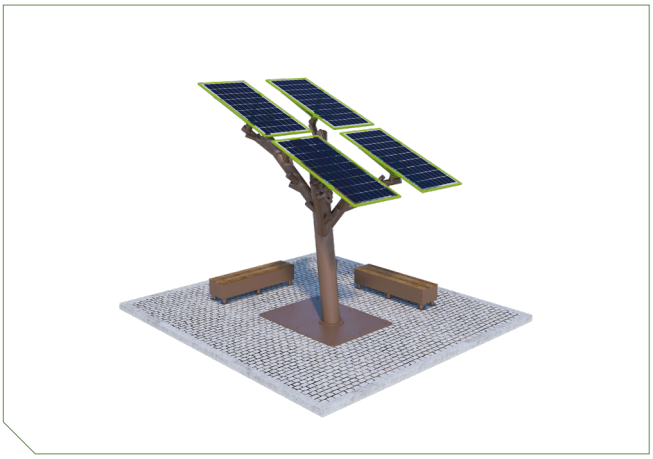
Front view of the section of the pit for concreting with the anchors supplied by Micro PlusGermany



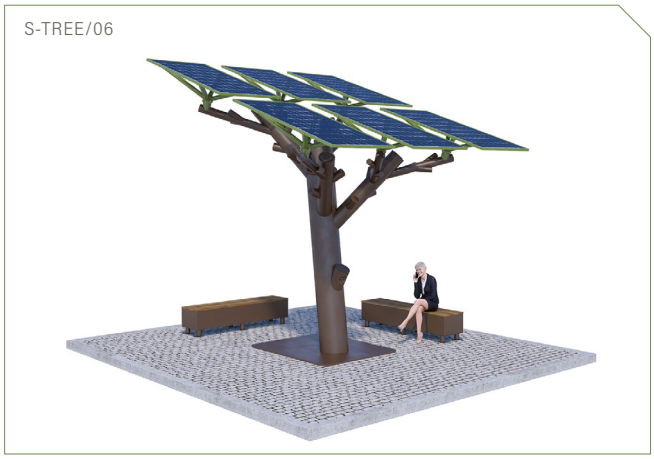


MADE IN EUROPE

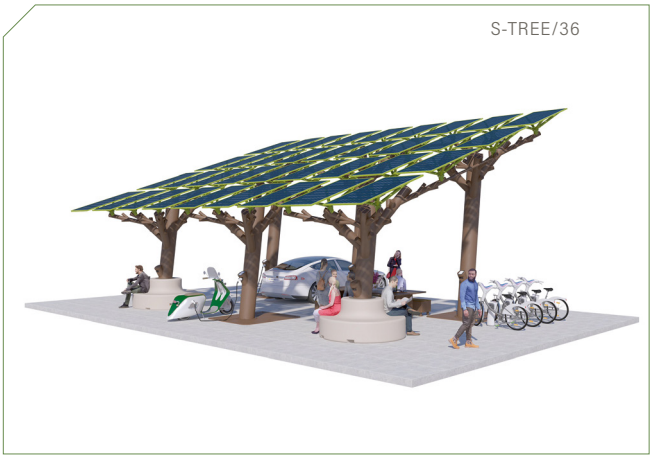




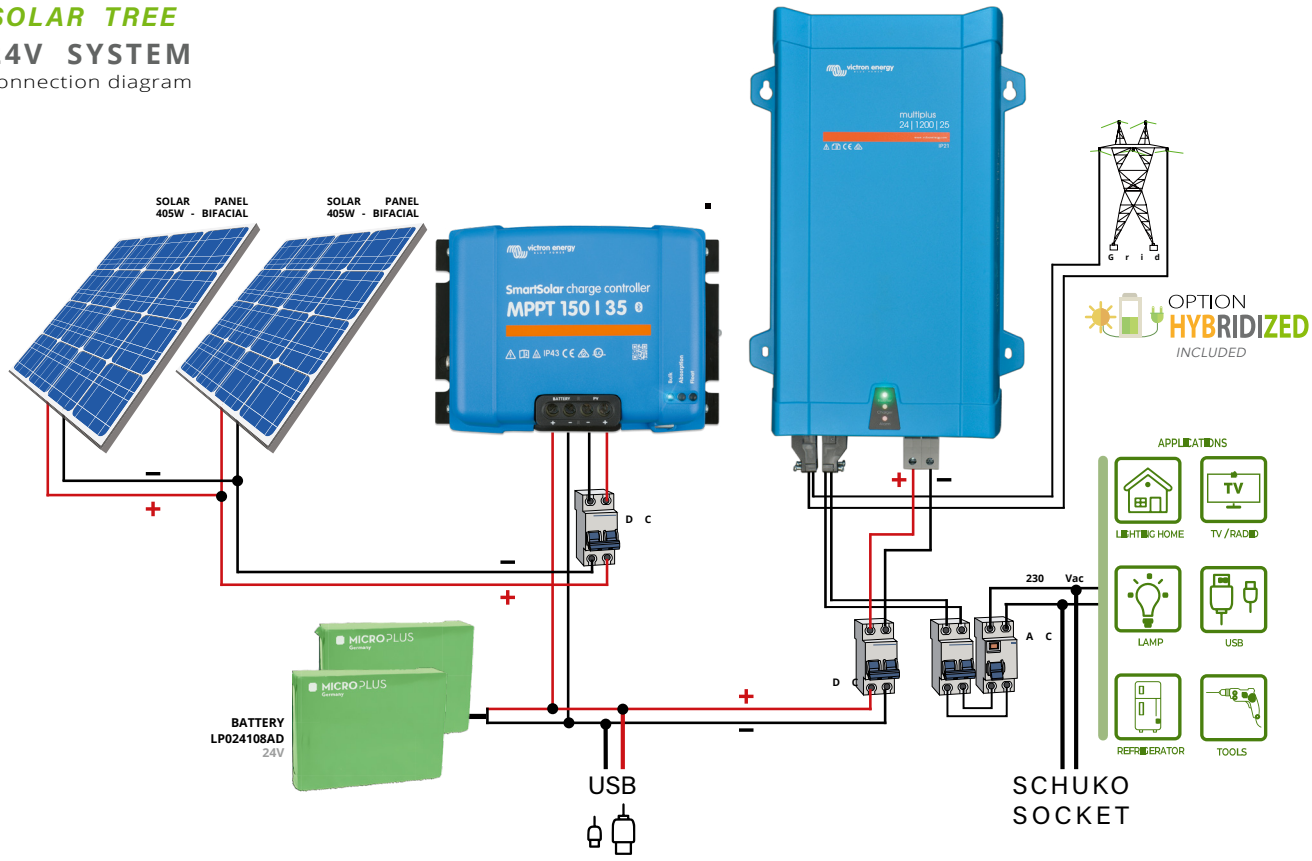
S-TREE/06



S-TREE/36



SOLAR TREE
24V SYSTEM
connection diagram



SOLAR TREE

MICRO PLUS
Germany

Grove of 8 solar trees — 144 kW/day

SOLAR TREE

MICRO PLUS
Germany

ARB

▶ SOLAR GROVE (from 1 to 8 solar trees)

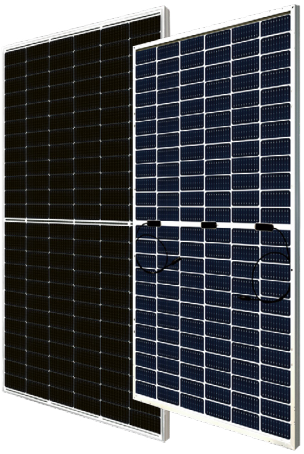
Energy production from 19.4 kW/day to 155 kW/day

The SOLAR GROVES can be **tailored** to each client

The **grove** consists of the assembly of several trees, mainly with 6 panels (arranged in different combinations), to generate energy or to sell to the electric company.

It has direct applications such as public lighting, charging of cars, motorcycles, etc.

It incorporates energy storage systems with lithium $LiFePO_4$ batteries.



BIFACIAL
MONO PERC
540 W

12 Years — Enhanced Product Warranty on Materials and Workmanship*

30 Years — Linear Power Performance Warranty*

ELECTRICAL DATA | STC*

		NOMINAL MAX. POWER (Pmax)	OPT. OPERATING VOLTAGE (Vmp)	OPT. OPERATING CURRENT (Imp)	OPEN CIRCUIT VOLTAGE (Voc)	SHORT CIRCUIT CURRENT (Isc)	MODULE EFFICIENCY
CS6W-540MB-AG		**540 W**	41,3 V	13,08 A	49,2 V	13,90 A	21,0 %
BIFACIAL GAIN	**5 %**	**567 W**	41,3 V	13,73 A	49,2 V	14,60 A	22,1 %
	10 %	**594 W**	41,3 V	14,39 A	49,2 V	15,29 A	23,1 %
	20 %	**648 W**	41,3 V	15,70 A	49,2 V	16,68 A	25,2 %

ELECTRICAL DATA | NMOT*

	NOMINAL MAX. POWER (Pmax)	OPT. OPERATING VOLTAGE (Vmp)	OPT. OPERATING CURRENT (Imp)	OPEN CIRCUIT VOLTAGE (Voc)	SHORT CIRCUIT CURRENT (Isc)
	405 W	38,7 V	10,47 A	46,5 V	11,21 A

** Under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.*

MORE POWER

- 540 W — Module power up to 540 W, Module efficiency up to 21.4 %
- Up to 12.3 % lower LCOE, Up to 5.2 % lower system cost
- Comprehensive LID / LeTID mitigation technology, up to 50% lower degradation
- Compatible with mainstream trackers, cost effective product for utility power plant
- Better shading tolerance

MORE RELIABLE

- Minimizes micro-crack impacts
- Heavy snow load up to 5400 Pa, wind load up to 2400 Pa*

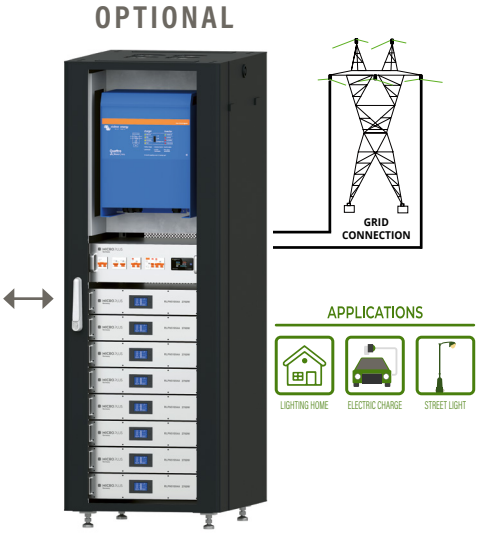
MECANICAL DATA	
Cell Type	Mono-crystalline
Cell Arrangement	144 [2 x (12 x 6)]
Dimensions	2266 × 1134 × 30 mm
Weight	32.1 kg
Front Glass	2.0 mm heat strengthened glass with antireflective coating
Back Glass	2.0 mm heat strengthened glass
Frame	Anodized aluminium alloy
J-Box	IP68, 3 bypass diodes
Cable	4.0 mm² (IEC), 12 AWG (UL)
Cable Length (Including Connector)	410 mm (16.1 in) (+) / 290 mm (11.4 in) (-) or customized length*
Connector	T6 or MC4-EVO2
Per Pallet	35 pieces
TEMPERATURE CHARACTERISTICS	
Temperature Coefficient (Pmax)	-0,34 % / °C
Temperature Coefficient (Voc)	-0,26 % / °C
Temperature Coefficient (Isc)	0,05 % / °C
Nominal Module Operating Temperature	41 ± 3°C

PRODUCT CERTIFICATES*

IEC 61215 / IEC 61730 / CE / INMETRO / MCS / UKCA / CEC listed (US California) / FSEC (US Florida)
UL 61730 / IEC 61701 / IEC 62716 / IEC 60068-2-68 / Take-e-way

MANAGEMENT SYSTEM CERTIFICATES*

ISO 9001:2015 / *Quality management system*
ISO 14001:2015 / *Standards for environmental management system*
ISO 45001: 2018 / *International standards for occupational health & safety*

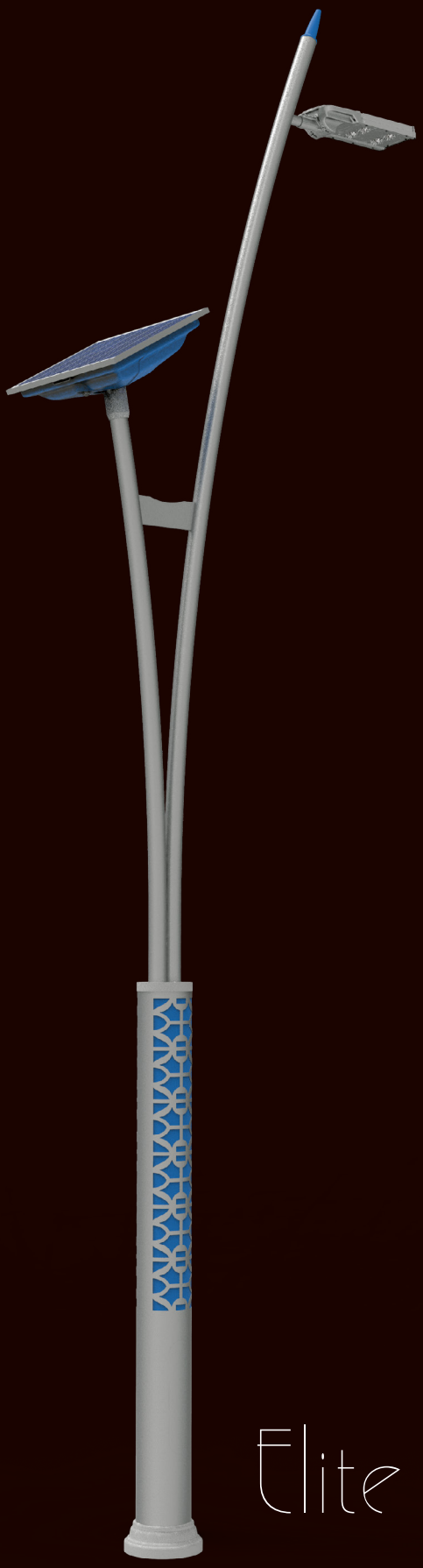


MODEL /REF	ARB-01	ARB-02	ARB-03	ARB-04	ARB-05	ARB-06	ARB-07	ARB-08
No. of bifacial panels 540 Wp (*units*)	6	12	18	24	30	36	42	48
Total panel power (*Wp*)	**3,240**	**6,480**	**9,720**	**12,960**	**16,200**	**19,440**	**22,680**	**25,920**
Minimum daily generation: 4 hours of sun (*Wp*)	12,960	25,920	38,880	51,840	64,800	77,760	90,720	103,680
Maximum daily generation: 6 hours of sun (*Wp*)	**19,440**	**38,880**	**58,320**	**77,760**	**97,200**	**116,640**	**136,080**	**155,520**
Lithium battery voltage (*Vdc*)	51.2							
Battery model	CHOSEN FROM THE ENTIRE RANGE AVAILABLE IN OUR BATTERIES AND INVERTERS (*ACCORDING TO NEED*)							
Output voltage (*Vac/Vdc*) to choose from panels	from panels from 40V to 600V (*depending on the inverter controller*)							
Pre-programmed series lighting (*W*)	4 x 20W	8 x 20W	12 x 20W	16 x 20W	20 x 20W	24 x 20W	28 x 20W	32 x 20W
Single-phase Schuko socket for charging bikes and motorcycles	1	2	3	4	5	6	7	8
USB mobile charging outlet	1	2	3	4	5	6	7	8
Customization (*municipal logo/shield*)	INCLUDED							
Solar cable with MC4	INCLUDED							
Panel, battery, and AC output protection	INCLUDED BASED ON CHOSEN BATTERY AND INVERTER MODEL							
Concrete anchor bolts	INCLUDED (*8 bolts per tree*)							
Dimensions of the grove (*m*)	3.60 x 4.180 x 4.098	7.50 x 4.180 x 4.098	11.4 x 4.180 x 4.098	7.50 x 8.488 x 5.098	11.4 x 8.488 x 5.098	11.4 x 8.488 x 5.098	15.30 x 8.488 x 5.098	15.30 x 8.488 x 5.098
Example of distribution								
Weight (*kg*) including panels	1,080	2,160	3,240	4,420	5,500	6,630	7,710	8,840

Shipping and installation **NOT INCLUDED**

Custom design and manufacturing

MICRO PLUS Germany



Elite

SolarWind

MADE IN EUROPE

MICRO PLUS
Germany

SL-CSH

Solar crown with wind turbine

Under preparation

MICRO PLUS
Germany

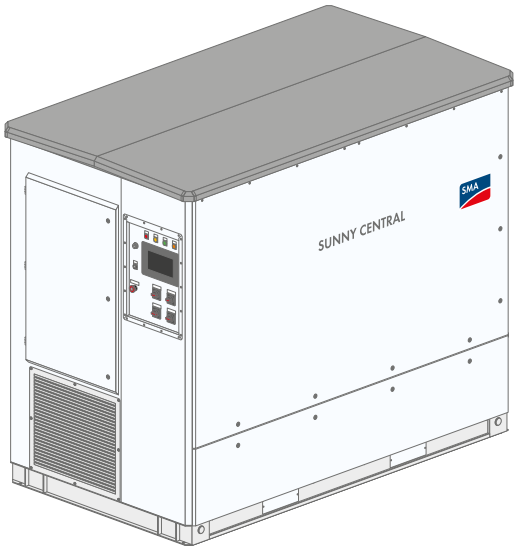
MICRO PLUS
Germany

IMPLEMENTATION OF PHOTOVOLTAIC PARKS

1 - 200 MW

Our company group designs from the project to the complete turnkey execution and maintenance for any type of solar project anywhere in the world, using European materials from top brands.

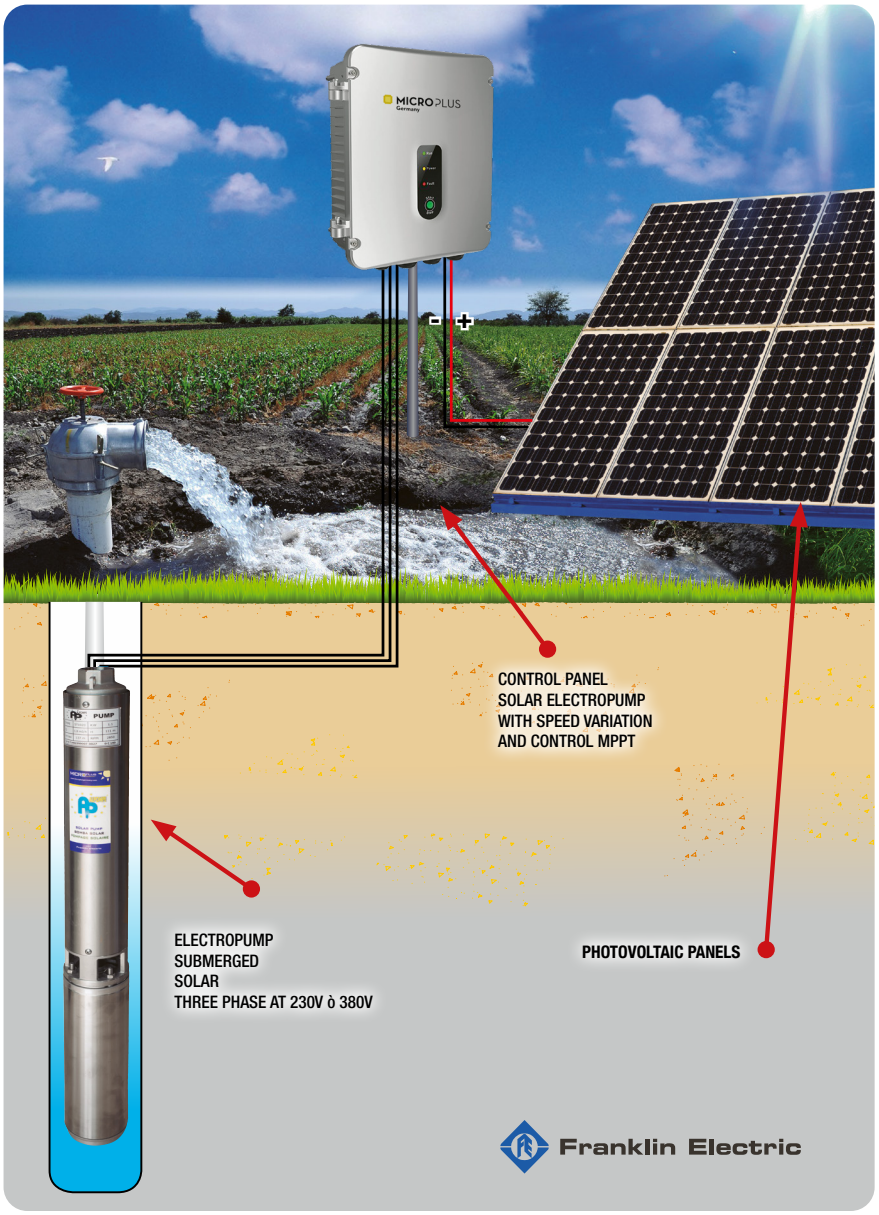
Consult.



SOLAR WATER PUMPING

▶ Up to 37 kW (50Hp)

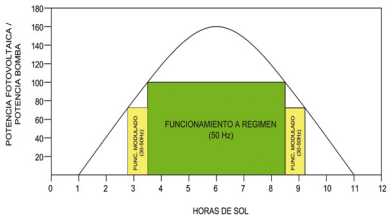
For higher powers consult



Kit designed for the extraction of water through solar energy.

It is formed by a submerged electric pump designed for optimal performance through renewable energy and controlled by a frame with speed variation to work with direct current input (Vdc) and to be able to leave with voltage in alternating current (Vac).

This system will allow you to get water and fill a tank during the central hours of the day, taking advantage of solar energy, in places where bringing electricity can be expensive, difficult, or simply impossible.



OPERATING LOGIC

The solar panels collect the energy radiated by the sun and send the voltage produced directly to the DC bus of the variable, which is responsible for modifying the output frequency to maintain the voltage stable. The regulation system consists of increasing the speed according to the amount of radiation received. That is to say, the higher the radiation, the higher the speed and, on the contrary, if the solar intensity decreases, the pump speed will be reduced to avoid the firing of the variator due to lack of tension.

The frame must be powered with a group of plates that will give direct current, and therefore will supply the D.C. bus of the variator.

CBSV

▶ 3 - 37 kW • Three-phase 400Vac

Solar pump box with speed changer

- Selectable V/f Control, Sensorless Vector
- Pulse width modulation sensorless control
- 200% to 0.5Hz starting torque
- Optimisation of side space (side-by-side installation)
- Dual operation: constant torque and variable torque (except IP66)
- Overload capacity:
  - Constant torque 150% of nominal current, 60 seconds
  - Variable torque 120% of rated current, 60 seconds
- Smart Copy Option (Smart Copier)
  (Flash Drop, possibility to copy parameters and download operating system of the variator)
- Compact size

Functions:
- Integrated safety function Safe Torque Off (STO)
- Auto-tuning rotary/stop selectable to optimize engine performance
- Cycle life management of condensers and fans
- P2P function of shared I/O
- PLC function (operation in simple sequences)
- Includes probe relay and level electrodes

EMC/RFI filter
- Integrated (de 0.4 a 45kW)

Degree of protection:
- Protection IP20 (Single phase 0.4-2.2kW, 200-230V, Three phase 0.4-75kW 380-480kW)
- Protection IP66
- Optional kit UL NEMA Type 1 protection

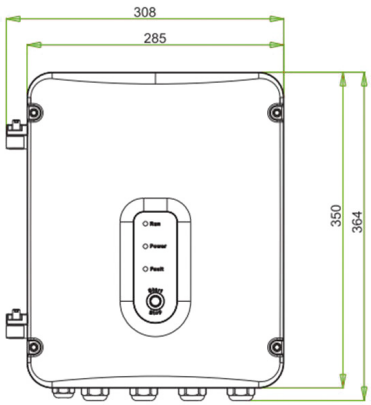
Communications:
- Profibus, Ethernet IP, Modbus TCP, CANopen, EtherCAT, Profinet

MODEL	TECHNICAL CHARACTERISTICS									
	RATED OUTPUT PANEL			MAXIMUM ENTRY PANELLED kW	ENTRANCE MAXIMUM AND MINIMUM PANELLED kW	EXIT VOLTAGE AC	FREQUENCY Hz	MODEL INVERTER	FILTER EMC	WEIGHT Kg
	POWER kW	POWER HP	INTENSITY A							
CBSV-3KW	3	4	7,5	6,2	460 - 790	three-phase 400V	0 - 320 Hz	LSLV0040S100-4EOFNS	INTEGRATED (Cat. C3)	5,90
CBSV-4KW	4	5,5	9,8	10,50						6,10
CBSV-5,5KW	5,5	7,5	13,5	10,50				LSLV0055S100-4EOFNS		6,23
CBSV-7,5KW	7,5	10	19	15,84				LSLV0075S100-4EOFNS		7,30
CBSV-11KW	11	15	24	21,12				LSLV0110S100-4EOFNS		7,80
CBSV-15KW	15	20	32	26				LSLV0150S100-4EOFNS		8,60
CBSV-18,5KW	18,5	25	40	31,60				LSLV0185S100-4EOFNS		8,90
CBSV-22KW	22	30	47	39				LSLV0220S100-4EOFNS		11,50
CBSV-30KW	30	40	64	52				LSLV0300S100-4COFDS		32
CBSV-37KW	37	50	80	58				LSLV0370S100-4COFDS		45

CBSL

▶ 0,5 - 3 Hp • Three-phase 230Vac

Compact solar pump box.



FEATURES

0,37 ~ 2,2 kW **CBSL** solar pump variator for 230Vac three-phase pumps

- Easy installation and commissioning
- Degree of protection IP65 (*no need for closet*)
- Aluminium housing
- Modular configuration (*Basic and Premium models*)
- Input voltage booster (*boost*): reduction in the number of panels
- One-button running/stopping
- Hardware programmable via external console or GPRS communication
- MPPT function and pressure control
- Compatible with three-phase AC AM pumps, three-phase AC PMSM pumps and single-phase BLDC pumps
- Communication RS-485/Modbus
- Remote monitoring and control via APP

MODEL	TECHNICAL CHARACTERISTICS									
	RATED OUTPUT PANEL			MAXIMUM ENTRY of solar panels W	ENTRANCE VOLTAGE DC	EXIT VOLTAGE AC	FREQUENCY HZ	ELEVATOR OF TENYESON (Boost)	FILTER EXIT 10A	MODULE COMMUNICATING IOT
	Potency kW	Potency Hp	Intensity A							
CBSL-B-0008-2	0,37 0,55 0,75	0,5 0,75 1	4	1.650	90 - 450V	THREE-PHASE 230V	0 - 320 Hz	INCLUDED	OPTIONAL	OPTIONAL
CBSL-IFB-0008-2									INCLUDED	INCLUDED
CBSL-B-0015-2	1,5	2	7	1.950					OPTIONAL	OPTIONAL
CBSL-IFB-0015-2									INCLUDED	INCLUDED
CBSL-B-0022-2	2,2	3	10	2.860					OPTIONAL	OPTIONAL
CBSL-IFB-0022-2									INCLUDED	INCLUDED

(B) MODEL Basic
Inverter + Boost Module

(IFB) MODEL Premium
Inverter + Output filter + Boost module + IOT/GPRS communication module (APP access)

POWER	
Voltage	160 ~ 450Vdc/ 1 220Vac
Frequency	50/60Hz ±5%
Fluctuations	▪ Tension: <3% ▪ Frequency: ±5% ▪ Distortion rate according to IEC 61800-2
VFD efficiency	≥ 97%
Recommended total range Voc (V)	150-430VDC
OUTPUT	
MPPT efficiency	up to 99,9%
Output frequency range	0 - 320Hz (*customization possibility for 320Hz or more*)
Overload capacity	▪ 150% (*of the rated current for 1 minute*) ▪ 180% (*of the rated current for 10 seconds*) ▪ 200% (*of the rated current for 0,5 seconds*)
EFFICIENCY	
Protective functions of solar pumping	▪ Dry operation ▪ Low frequency ▪ Baja POWER ▪ Water filled ▪ Pump overcurrent protection ▪ Mode of sleep ▪ Tank and submerged level
AC/DC switching function	Automatic switching AC and DC power supply
IOT function	APP service
Boost function	Built-in boost function
Types of water pumps	▪ Three phase AC AM pumps ▪ Three phase PMSM AC pumps ▪ Single phase BLDC pumps
Inputs Multi-function	Up to 4 entrances
Analog inputs	2 analog inputs AI 0-10V or 0-20mA
Basic protective function	▪ Bus overvoltage ▪ Subtension ▪ Speedometer current surcharge ▪ Failure of the module ▪ Speed drive overload ▪ Engine overload ▪ Drift failure to land ▪ Hall Judgment ▪ Bug E2RCM ▪ Engine Ground Connection Short Circuit Failure ▪ Loss of entry phase ▪ Loss of exit phase ▪ Drive overheating ▪ Communication failure ▪ Engine parameter auto-tuning failure
Ground short circuit detection engine	Automatically detects if the engine is short-circuited to earth. Automatic detection while feeding
Communication network	RS485 / Modbus (*Allows linking with other VDSUN drives*)
Functions of monitoring and remote control	▪ Allows remote program update, monitoring and remote locking. ▪ Can be connected to GPRS module. ▪ Allows access to virtual oscilloscope for monitoring and debugging.
ATMOSPHERE	
Installation	Indoor (*altitude below 1,000m, free of corrosive gases and direct sunlight*)
Temperature, humidity	-10 °C ~ +60°C , 20% a 95% RH (*no condensation*)
Vibration	Less than 0,5g (*when the frequency is less than 20Hz*)
Storage temperature	-20 °C ~ +60°C
Installation	Fixing with optional support
Degree of protection	IP65
Ventilation	Natural ventilation / Forced ventilation

BS

▶ SOLAR WATER PUMPING

4" OUTPUT 1$^{1/4}$" UP to ***6,6***m^3/H
4" OUTPUT 2" UP to ***24***m^3/H
6" OUTPUT 3" UP to ***78***m^3/H

ELECTRIC PANEL — SOLAR BOMB — SOLAR PANEL

KIT PUMPING SOLAR

Franklin Electric

MADE IN EUROPE

The power of the panels can be modified by other panels with higher power (without exceeding the total power)

MODEL	TECHNICAL CHARACTERISTICS										FLOW M³ / H																				
	ELECTROPUMP					ELECTRIC PANEL	PANELS				M³/H	0	0,3	0,6	0,9	1,2	1,5	1,8	2,1	2,4	2,7	3,0	3,6	4,2	4,8	5,4	6,0	6,6		
	kW	Hp	VOLTAGE	AMP.	OUTPUT		UDS	W/P	TOTAL W/P		L/m	0	5	10	15	20	25	31	35	40	45	50	60	70	80	90	100	110		
BS-0510	0,37kw	0,50Hp	THREE-PHASE 230V	1,9A	1 1/4"	CBSL-B-0008-2	3	180	540	H (m)		67	63	55	46	33	18														
BS-0513												86	78	70	56	42	23														
BS-1007												46	45	44	43	42	39	36	33	30	25	21									
BS-1305												34	34	33	32,5	32	31	30,5	30	29	27	24	19	12							
BS-1805												33	31	30	29	29	28,5	28	27	26	25	23	20	18	12	8	4				
BS-2504												26	25,5	25	24,5	24	24	23,5	23	22	22	21	19	17	14	11	7				
BS-0519	0,55kw	0,75Hp	THREE-PHASE 230V	2,8A	1 1/4"	CBSL-B-0008-2	4	180	720	H (m)		126	118	105	86	60	30														
BS-1010												67	66	65	64	60	55	50	45	37	30	28									
BS-1308												54	53,5	53	51	51	50	49	47	43	41	39	30	19							
BS-1807												46	46	45	45	44	43	42	41	40	39	38	32	29	20	13	7				
BS-2506												39	39	38	38	37	36	35	34	33	32	31	30	26	22	18	12				
BS-0526	0,75kw	1Hp	THREE-PHASE 230V	3,6A	1 1/4"	CBSL-B-0008-2	4	270	1.080	H (m)		173	160	141	117	81	39														
BS-1014												92	90	88	86	83	80	74	67	60	52	42									
BS-1311												72	72	71	70	69	68	65	61	58	53	50	39	26							
BS-1809												59	58	58	57	56	55	54	52	51	50	48	42	38	30	20	10				
BS-2508												50	50	50	49,5	49,5	49	48	47	46	44	42	40	35	30	25	19	11			
BS-0538	1,1kw	1,5Hp	THREE-PHASE 230V	5,2A	1 1/4"	CBSL-B-0015-2	6	270	1.620	H (m)		253	234	208	169	117	52														
BS-1020												139	137	134	131	127	120	111	100	90	75	60									
BS-1316												106	104	103	102	101	98	94	89	82	78	70	55	33							
BS-1814												92	91	91	90	89	88	86	84	81	79	76	69	60	49	33	20				
BS-2512												78	78	77	77	76	75	73	72	71	70	68	62	50	48	40	30	20			
BS-1321	1,5kw	2Hp	THREE-PHASE 230V	6,8A	1 1/4"	CBSL-B-0015-2	8	270	2.160	H (m)		141	141	140	138	137	132	128	122	116	109	100	80	49							
BS-1818												120	119	118	116	114	112	110	109	105	101	98	89	74	60	41	25				
BS-2516												102	101	101	100	100	99	99	98	97	94	91	85	80	70	59	45	32			
BS-1332	2,2kw	3Hp	THREE-PHASE 230V	10A	1 1/4"	CBSL-B-0022-2	12	270	3.240	H (m)		209	208	207	203	200	194	188	178	166	150	140	102	62							
BS-1827												175	173	171	169	167	163	160	158	152	148	140	126	110	88	60	35				
BS-2524												150	150	149	148	147	146	144	142	140	137	131	121	110	99	80	61	42			
BS-1835	3kw	4Hp	THREE-PHASE 400V	7,5A	1 1/4"	CBSV-3kW	17	270	4.590	H (m)		230	228	225	222	220	218	211	208	202	196	190	170	150	120	83	46				
BS-2532												200	199	198	197	196	193	191	183	182	180	173	163	145	130	102	80	59			
BS-1848	4kw	5,5Hp	THREE-PHASE 400V	9,8A	1 1/4"	CBSV-4kW	21	270	5.670	H (m)		309	298	296	292	290	289	283	276	267	258	248	225	197	162	120	73				
BS-2544												278	277	276	274	272	270	269	263	260	253	248	230	210	190	160	130	100			

▶ SOLAR WATER PUMPING

Electropump 4" · UP to 24m³/H

The power of the panels can be modified by other panels with higher power (without exceeding the total power)

MODEL	TECHNICAL CHARACTERISTICS									FLOW M³ / H																	
	ELECTROPUMP					ELECTRIC PANEL	PANELS			M³/H	0	2	3	4	4,8	6	8	10	12	14	16	18	20	22	24	26	-
	kW	Hp	VOLTAGE	AMP.	OUTPUT		UDS	W/P	TOTAL W/P	L/m	0	33	50	66	80	100	122	166	200	233	268	300	333	366	400	433	
BS-3507	0,75kw	1Hp	THREE-PHASE 230V	3,6A	2"	CBSL-B-0008-2	4	270	1.080	H (m)	42	39	36	32	30	28	12										
BS-4004											26	25	24,5	24	23,5	23	20	18	11								
BS-3510	1,1kw	1,5Hp	THREE-PHASE 230V	5,2A	2"	CBSL-B-0015-2	6	270	1.620	H (m)	62	58	53	51	45	38	20										
BS-4006											39	38	37,5	37	35	34	30	25	18								
BS-3514	1,5kw	2Hp	THREE-PHASE 230V	6,8A	2"	CBSL-B-0015-2	8	270	2.160	H (m)	90	85	77	74	68	59	29										
BS-4008											52	51	50,5	50	48	47	41	32	22								
BS-6007											45	42	41	40	38	37	34	30	25	20	14						
BS-3520	2,2kw	3Hp	THREE-PHASE 230V	10A	2"	CBSL-B-0022-2	12	270	3.240	H (m)	125	115	107	99	92	80	42										
BS-4013											82	81	79	78	75	71	61	48	30								
BS-6010											64	61	59	58	56	55	50	43	36	28	20						
BS-8008											50	48	47	46	45	44	41	38	35	32	28	25	20	16	12		
BS-3527	3kw	4Hp	THREE-PHASE 400V	7,5A	2"	CBSV-3KV	17	270	4.590	H (m)	169	158	145	135	123	107	57										
BS-4017											109	106	103	101	98	94	82	67	45								
BS-6014											88	85	83	81	78	75	68	60	50	39	28						
BS-8011											68	66	65	64	63	61	58	54	50	45	40	35	30	24	17		
BS-3534	3,7kw	5Hp	THREE-PHASE 400V	9A	2"	CBSV-4KV	20	270	5.400	H (m)	208	193	178	164	159	132	68										
BS-4021											132	128	124	121	116	110	98	79	43								
BS-6017											106	101	98	96	92	90	82	72	60	45	33						
BS-8013											80	78	76	75	73	72	67	63	58	54	48	41	35	30	22		
BS-3536	4kw	5,5Hp	THREE-PHASE 400V	9,8A	2"	CBSV-5,5KV	21	270	5.670	H (m)	221	210	190	175	164	143	74										
BS-4023											148	142	140	138	134	128	111	91	60								
BS-6019											120	115	112	109	106	102	93	82	69	54	38						
BS-8015											101	93	91	89	87	85	80	75	70	64	57	50	43	35	26		
BS-3549	5,5kw	7,5Hp	THREE-PHASE 400V	13,5A	2"	CBSV-7,5KV	34	270	9.180	H (m)	302	280	257	236	222	193	98										
BS-4032											200	198	193	188	182	172	150	120	80								
BS-6026											163	155	149	146	140	136	124	110	90	70	50						
BS-8020											125	120	117	115	112	110	104	97	90	83	75	65	56	46	37		

The power of the panels can be modified by other panels with higher power (without exceeding the total power)

MODEL	TECHNICAL CHARACTERISTICS									FLOW M³ / H															
	ELECTROPUMP					ELECTRIC PANEL	PANELS			M³/H	3	6	9	12	15	18	21	23						
	kW	Hp	VOLTAGE	AMP.	OUTPUT		UDS	W/P	TOTAL W/P	L/m	50	100	150	200	250	300	350	383						
BS-0090-04	2,2	3	THREE-PHASE 230V	10	2 1/2"	CBSL-B-0022-2	11	270	2.970	H (m)	42,5	42	40,5	38	33	28,5	23	18						
BS-0090-05	3	4	THREE-PHASE 400V	7,5		CBSV-3kW	17		4.590		53	52	51	47,5	42,5	37	29	22						
BS-0090-06	3,7	5		9		CBSV-4kW	20		5.400		64	63	60	56	50	43	34	27						
BS-0090-07	4	5,5		9,8		CBSV-4kW	21		5.670		75	74	71	66	59	51	40	32						
BS-0090-10	5,5	7,5		13,5		CBSV-5,5kW	34		9.180		108	107	102	95	86	74	59	49						
BS-0090-13	7,5	10		16,3		CBSV-7,5kW	40		10.800		141	139	133	124	112	95	75	60						
BS-0090-20	11	15		24		CBSV-11kW	60		16.200		216	213	206	192	175	147	116	95						
BS-0090-27	15	20		32		CBSV-15kW	80		21.600		292	288	277	260	234	200	158	128						
BS-0090-33	18,5	25		40		CBSV-18,5kW	100		27.000		355	350	337	315	285	243	191	157						
BS-0090-40	22	30		47		CBSV-22kW	120		32.400		433	428	412	384	346	296	235	190						

MODEL	ELECTROPUMP					ELECTRIC PANEL	PANELS			M³/H	6	9	12	15	18	21	24	27	30	33	36	39	42
	kW	Hp	VOLTAGE	AMP.	OUTPUT		UDS	W/P	TOTAL W/P	L/m	100	150	200	250	300	350	400	40	500	550	600	650	700
BS-0150-02	2,2	3	THREE-PHASE 230V	10	3"	CBSL-B-0022-2	11	270	2.970	H (m)	23	22	21	20	19	18	17	16	15	13	11	9	6
BS-0150-04	3,7	5	THREE-PHASE 400V	9		CBSV-4kW	20		5.400		43	42	41	40	38	35	34	31	18	26	23	19	15
BS-0150-06	5,5	7,5		13,5		CBSV-5,5kW	34		9.180		67	64	62	60	58	56	52	49	45	40	36	30	25
BS-0150-08	7,5	10		16,3		CBSV-7,5kW	40		10.800		88	87	84	81	78	73	68	64	58	53	46	38	31
BS-0150-11	11	15		24		CBSV-11kW	60		16.200		122	120	117	112	108	102	97	90	83	76	67	57	47
BS-0150-15	15	20		32		CBSV-15kW	80		21.600		138	166	162	157	150	142	134	124	113	102	90	77	65
BS-0150-21	18,5	25		40		CBSV-18,5kW	100		27.000		230	226	220	212	202	190	177	164	149	134	117	100	80
BS-0150-26	22	30		47		CBSV-22kW	120		32.400		287	282	275	266	255	242	227	212	194	173	152	127	100
BS-0150-32	30	40		64		CBSV-30kW	160		43.200		353	347	338	327	313	298	281	261	240	217	190	160	130

MODEL	ELECTROPUMP					ELECTRIC PANEL	PANELS			M³/H	12	15	18	21	24	27	30	35	42	48	54	60		
	kW	Hp	VOLTAGE	AMP.	OUTPUT		UDS	W/P	TOTAL W/P	L/m	200	250	300	350	400	450	500	600	700	800	900	1000		
BS-0230-02	3	4	THREE-PHASE 400V	7,5	3"	CBSV-3kW	17	270	4.590	H (m)	24	24	23	22	22	21	20	18	17	15	12	9		
BS-0230-03	3,7	5		9		CBSV-4kW	20		5.400		35	34	32	31	29	28	27	24	22	19	15	10		
BS-0230-04	5,5	7,5		13,5		CBSV-5,5kW	34		9.180		49	47	46	45	43	41	39	36	32	28	23	17		
BS-0230-05	7,5	10		16,3		CBSV-7,5kW	40		10.800		65	63	61	59	57	55	53	48	44	39	32	24		
BS-0230-07	11	15		24		CBSV-11kW	60		16.200		94	92	88	85	82	79	76	70	64	57	47	37		
BS-0230-10	15	20		32		CBSV-15kW	80		21.600		133	130	127	122	117	112	107	98	90	80	67	53		
BS-0230-12	18,5	25		40		CBSV-18,5kW	100		27.000		158	155	150	145	140	135	130	120	110	98	83	64		
BS-0230-15	22	30		47		CBSV-22kW	120		32.400		200	195	189	183	177	169	163	150	138	124	105	81		
BS-0230-19	30	40		64		CBSV-30kW	160		43.200		254	248	241	233	224	216	208	193	178	160	136	107		
BS-0230-24	37	50		78		CBSV-37kW	200		54.000		325	317	309	298	287	276	265	244	223	199	171	140		

MODEL	ELECTROPUMP					ELECTRIC PANEL	PANELS			M³/H	18	23	24	27	30	36	42	48	54	60	66	72	78
	kW	Hp	VOLTAGE	AMP.	OUTPUT		UDS	W/P	TOTAL W/P	L/m	300	383	400	450	500	600	700	800	900	1000	1100	1200	1300
BS-0300-02	3,7	5	THREE-PHASE 400V	9	3"	CBSV-4kW	20	270	5.400	H (m)	26	25	24	23	22	20	18	16	14	13	11	8	5
BS-0300-03	5,5	7,5		13,5		CBSV-5,5kW	34		9.180		40	39	38	37	36	32	28	26	24	22	18	14	10
BS-0300-04	7,5	10		16,3		CBSV-7,5kW	40		10.800		53	52	51	48	47	43	38	35	32	28	25	20	14
BS-0300-06	11	15		24		CBSV-11kW	60		16.200		79	78	76	73	70	64	58	53	48	40	38	32	23
BS-0300-08	15	20		32		CBSV-15kW	80		21.600		106	104	101	97	94	87	80	73	67	60	53	44	33
BS-0300-10	18,5	25		40	4"	CBSV-18,5kW	100		27.000		135	132	128	125	120	111	102	95	87	78	68	57	45
BS-0300-12	22	30		47		CBSV-22kW	120		32.400		162	157	153	148	143	133	122	112	103	94	83	68	53
BS-0300-16	30	40		64		CBSV-30kW	160		43.200		216	211	206	200	193	178	162	148	135	123	108	92	72
BS-0300-20	37	50		78		CBSV-37kW	200		54.000		267	263	256	248	239	220	201	184	168	153	136	115	90

SMART CAPSULE

PATENT
PAT20201000046988

▶ 7 - 22kW of recharge

Electric charger *using existing poles*


VOLVO
00·33·00

SMART CAPSULE

Components

Lid
to close with the staff

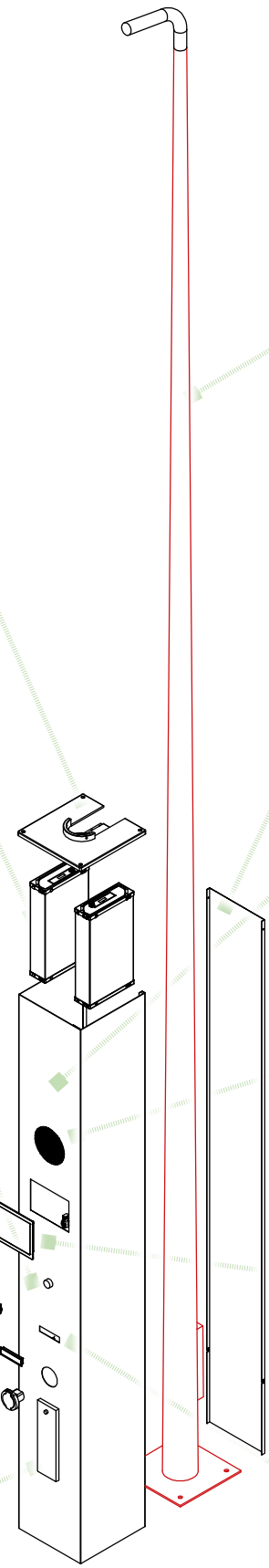
Lithium phosphate battery
($LiFePO_4$)

Panic button
for critical moments (optional)

Refill socket
single-phase schuko up to 7,4 kW

Refill socket
type Mennekes for car connection three phase up to 22 kW

Protective box
differential + magnetothermal + surge



Existing pole
its dimensions are needed

Back cover
of the Smart Capsule

Location
engrave the city crest (optional)

Loudspeaker
connects to the system of city hall loudspeaker or different options (optional)

Touch screen IK10
zone display popular interest (optional)

Load display
the system is displayed charging and monitoring on mobile devices.

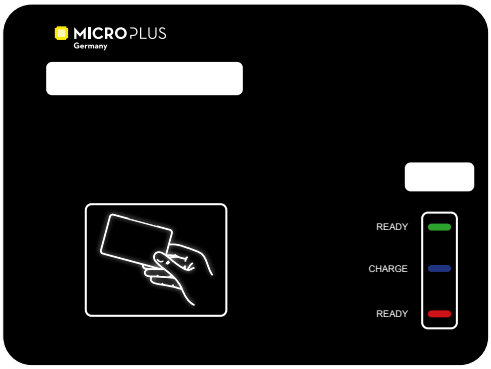
The smart device does not have visible screws

▶ SMART CAPSULE

Components

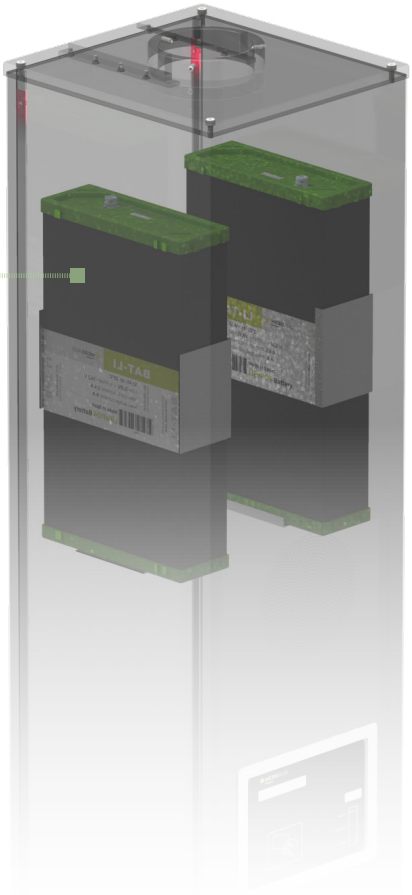
Backlight

standard blue
Optional other Colour



Battery

lithium $LiFePO_4$
(optional)



SMART CAPSULE

▶ Smart recharging pole

MADE IN EUROPE

The **SMART CAPSULE** is an innovative product to install a recharging point for cars, motorcycles, bicycles or skates, taking advantage of the existing poles or columns of public lighting and without the need for civil work, change or replacement of them.

The placement of the **SMART CAPSULE** around the staff or column, allows a quick and easy installation.

With connection to the socket, turning a simple staff or column into an intelligent device with a multitude of functions, control and monitoring of the area, providing its inhabitants new resources nonexistent so far.

It is presented as a high-tech product that surpasses the current facilities, developing a new multifunctional concept of high performance in energy, information and emergency use. Taking advantage of the current facilities to turn them into a new generation of smart columns to lead municipalities and cities to a technological and sustainable advance.

MICRO PLUS
Germany

SMART CAPSULE

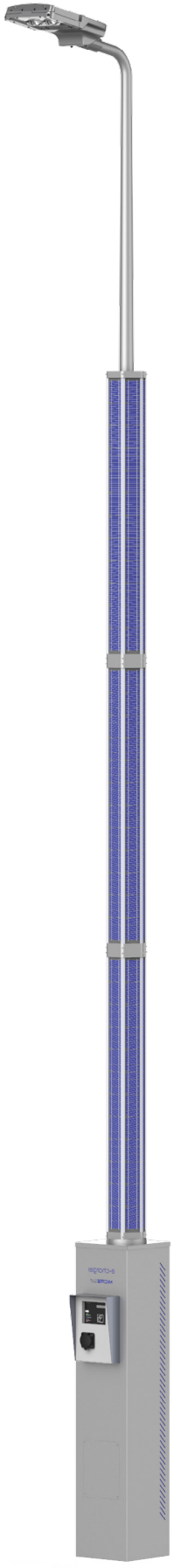
▶ Basic models- coupling for existing staff

PATENT PAT20201000046988

OPTION
CHARGER
INDEPENDENT
ISOLATED

*Any of the models can be installed independently of the staff. Add to /**AS** reference*

MODEL		CAPSULA-001	CAPSULA-002	CAPSULA-003	CAPSULA-004	CAPSULA-005
DIMENSIONS						
Height (*cm*)		170			250	120
Width x bottom (*cm*)		36 x 36				
Colour		Dark gray or optional				
Built material		Galvanized steel				
Weight (*approximate*) (*kg*)		57,5	58	59	67	49
CHARACTERISTICS						
Charger	Schucko (*kW*)	NO	7,2	Monofasico 230V - 7,2		2 x 2,4
	Serial	Single phase 230V		THREE-PHASE 400V		Single phase 230V
	(*kW*)	7,2		22		7,2
	Type	Type II (*according to IEC 62196-2*)				
Charger reader		NO	YES			NO
3G communication		Optional				NO
Ethernet communication		Optional				NO
Touch screen		NO			Optional	NO
Loudspeaker		Optional				
Panic button		NO			YES	No
Lithium battery		Optional				No
Magnetothermal		YES				
Differential		YES				
Surge		YES				
Shield or logo engraving		Optional				
Backlit in blue		YES				NO



Smart poles with photovoltaic

BUILDING ON THE EXISTING

The SMART CAPSULE becomes an object of additional services giving a great technological leap thanks to its solar panels and batteries; ideal for remote areas or areas where the costs of extending a grid are not possible, creating a positive impact on the people around them.

The services that can include the SMART CAPSULE in addition to being a self-sufficient luminaire, includes public WI-FI, weather station, public safety, photovoltaic energy, digital signage, charging electric vehicles..

SECURITY

- Panic button
- Security cameras
- Monitoring of air quality
  (Temperature, pressure, humidity, air quality, precipitation, wind, solar radiation)
- Monitoring of environmental noise
- Motion monitoring
  (safety, car and people statistics)
- Loudspeakers

GREEN ENERGY

- Charging point for electric vehicles
  (cars, bicycles, scooters, small electronic devices)

ADVERTISEMENTS AND ADVERTIYESNG

- Business advertising
- Official announcements
- Information on points of cultural interest

COMMUNICATIONS

- WiFi access point
- Telephone point 5G

INTELLIGENT LUMINAIRE

- Telemanagement
- Pre-programming
- Dimming
- Lighting with emergency battery

*Technical characteristics of the **loader** for the **SMART CAPSULE***

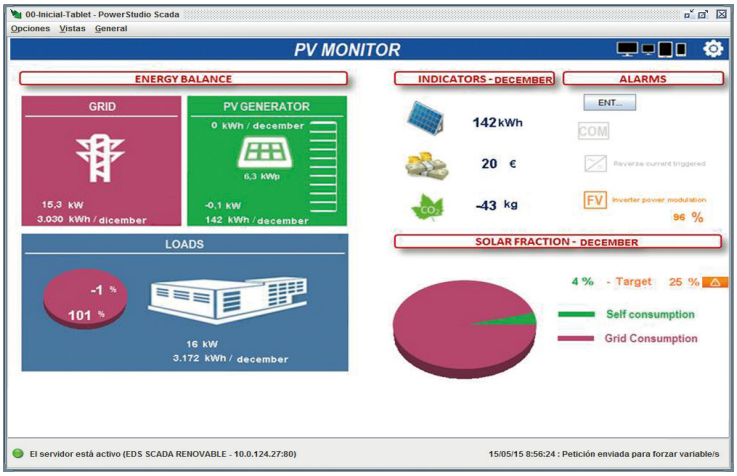
CONNECTING	**Connector type**	Type 1 cable [5 m], Type 2 cable [5 m], Base Type 2 or Schuko.
	Cargo type	Loading in Mode 1 (*Schuko*) Loading in Mode 3 (*as per IEC 61851-1*)
FEATURES ELECTRIC	**Input voltage**	230 Vc.a. / 400 Vc.a.
	Input frequency	50...60 Hz
	Output voltage	230 Vc.a. / 400 Vc.a.
	Maximum output current	32 A
	Power measure	Integrated counter
	Energy measure	Integrated counter
FEATURES ADDITIONAL	**Communications**	Ethernet
	Wireless communications	3G / GPRS (*Optional*)
	Communications protocol	OCPP 1.5 and 1.6
	Visualization	Display
	Data storage	Yes
FEATURES CONSTRUCTIVE	**Mechanical protection degree**	IK-10
	Degree of protection	IP 54
SECURITY	Category III - 300 Vc.a. (*EN 61010*) Class II double insulation electric shock protection	
RULES	EN 61851-1, ISO 14443A	

ENERGY MANAGEMENT SOFTWARE

Two versions of the software are available for photoliner management and related infrastructure.

PVmonitor, offers the main electrical data of the installation and energy information of the same.

The other version, more complete *(***PowerStudio SCADA***)*, offers total management and energy monitoring of the entire marquee.

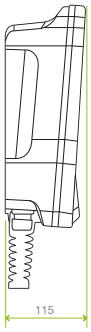


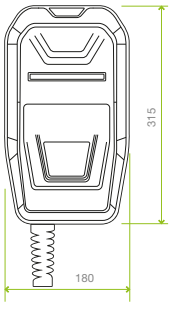
eHome

▶ 3.6 to 7.2kW

[Basic charging box]

Intelligent Charging Systems for Electric Vehicles





▸ DESCRIPTION

Designed to be easily installed in both indoor and outdoor private parking spaces, and to be distributed to electric vehicle manufacturers. The **eHome** range has been optimised to offer the best cost/quality ratio on the market. As a result, we offer a high quality product that can comfortably charge all the electrical vehicle brands on the market in Mode 3 with a Type 1 or Type 2 connector.

Thanks to its compatibility with the **CirBEON** device, which manages the current supplied to the vehicle based to the power available, the **eHome** charger is ideal for the domestic sector.

▸ APPLICATION

Its application focuses on home use, since it is easy to install and is compact in size.

▸ TECHNICAL SPECIFICATIONS

Circuit feeding	**AC power**	1F + N + PE
	Voltage AC	230 Vc.a. ±10%
Recharging vehicles electric	**Max output power**	3,6 kW - 7,2 kW
	Maximum output current	16 A - 32 A
	Loading system	Cable Type 1 / Type 2 (*Mode 3*)
Features constructive	**Cable length**	5 m
	Protection category	IP54 / IK10
	Installation mode	Wall, wall anchoring by 3 points
	Dimensions	315 x 180 x 110 mm
Interface	**LED indicator**	State of charge

▸ REFERENCES

MODEL	POWER (*kW*)	Current (*A*)	Connector	Characteristics
eHome-T1C16	3,6	16	Type I	-
eHome-T1C32	7,2	32		
eHome-T2C16	3,6	16	Type II	
eHome-T2C32	7,2	32		
eHome-T1C32-A	7,2	32	Type I	30 mA Type A differential protection Access to key protection
eHome-T1C32-A-MID				30 mA Type A differential protection Energy meter MID certification Access to key protection
eHome-T1C32-B				30 mA Type B differential protection Access to key protection
eHome-T2C32-A			Type II	30 mA Type A differential protection Access to key protection
eHome-T2C32-A-MID				30 mA Type A differential protection Energy meter; MID certification Access to key protection
eHome-T2C32-B				30 mA Type B differential protection Access to key protection

They include 5 m cable and cable support.

MICRO PLUS
Germany

eNext

▶ 7.4 to 22kW

[Recharging equipment for electric vehicles]

Intelligent Charging Systems for Electric Vehicles

▸ DESCRIPTION

With a modern and minimalist design, the new **eNext** range is proposed as the best recharging option for interior. It has an intuitive app for monitoring the recharge and the consultation of history.

▸ APPLICATION

These equipments are specially designed to be used in covered parking, capable of being destined to the parking of vehicles of any type (*cars, motorcycles, bicycles, transport, cleaning, etc.*).

▸ TECHNICAL SPECIFICATIONS

Connecting	**Connector type**	Type 1 or type 2 cable (*depending on model*)
	Cargo type	Mode 3 load (*according to IEC 61851-1*)
Features electric	**Input voltage**	230 V~ / 400 V~ (*1P+N+PE / 3P+N+PE*) ± 10%
	Maximum current input	32 A
	Input frequency	50.60Hz
	Output voltage	230 V~ / 400 V~ (*1P+N+PE / 3P+N+PE*)
	Maximum output current	32 A
	Output power range	7,4 / 22 kW
Interface	**Beacon**	RGB charging status light display
	Access control	Bluetooth v4.2 + BLE
Communications	**Technology**	Bluetooth v4.2 + BLE
Features mechanical	**Enveloping**	ABS/PC
	Dimensions	200 x 335 x 315 mm
	Weight	4 Kg
Conditions environmental	**Operating temperature**	-5 ... +45 °C
	Storage temperature	-20 ... +60 °C
	Relative humidity	5 ... 95% without condensation
	Degree of protection	IP 54 / IK 10 (*IK 8 in some components added to the Enveloping, e.g.: screen, window, beacon*)
Security electric	**Category of the installation**	
	Maximum altitude	
Rules	IEC 61851-1, IEC 61851-22, ISO 1444 3A, IEC 62196-1, IEC 62196-2, 2014/35/UE, LVD;2014/30/UE	

▸ OPTIONALS

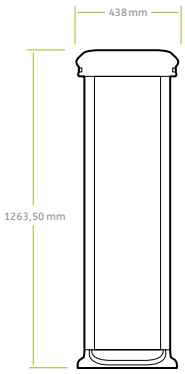
Extras model Basic	**Low temperature kit**	-30 ... +45 °C
	Electrical protections	MCB (*Curve C*), includes trigger coil • Leak detector DC 6mA • RCD Type A (*30mA*)
	Cable type (*smooth or curly*)	Type 1, Type 2
	Control of the power limit	CirBEON sensor
Model extras Advanced	**HMI graphic display**	4"
	Access control	ISO/IEC 14443 A/B • MIFARE Classic/DESFire EV1 • ISO 18092 ECMA-340 • NFC 13,56 MHz
	Cable type (*smooth or curly*)	Type 1, Type 2
	Control of the power limit	CirBEON sensor

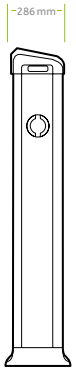
URBAN10

▶ 7,2 to 22kW

[Poles for external charging]

Intelligent Charging Systems for Electric Vehicles





▸ DESCRIPTION

MicroPlus Germany has designed a new range of outdoor charging posts with a new aesthetic design that combines an attractive appearance with safe, reliable and robust construction. Outdoor posts have to be capable of withstanding a wide range of environmental conditions and possible acts of vandalism, while simplifying the installation and maintenance processes for operators.
The URBAN posts reduce installation time and simplify operations and maintenance tasks.
URBAN devices facilitate charging tasks for all kinds of EV users, incorporating all the electrical protections necessary to guarantee safety inside an aluminium metal body. They come with Type-2, mode-3 single-phase or three-phase sockets, depending on the configuration chosen.
The URBAN 10 is designed for locations where simple Plug & Charge operations are required.

▸ APPLICATIONS

URBAN charging posts are especially suited for all types of outdoor parking areas for use to park and charge electric vehicles. Its applications range from public roads and squares, to outdoor car parks at department stores, airport terminals, vehicle sales and rental companies, company employee car parks, etc.

▸ TECHNICAL SPECIFICATIONS

Connection	**Connector type**	Type II (*as per IEC 62196-2*) or Schuko
	Type of charge	Charge in Mode 3 (*as per IEC 61851-1*)
Features electric	**Input voltage**	230 VAC / 400 VAC
	Tolerance	±10%
	Input frequency	50...60 Hz
	Output voltage	230 VAC / 400 VAC
	Maximum output current	32 A depending on type
	Output power range	7,4 / 22 kW
Electrical protections	**Differential protection**	RCD Type A (*30 mA*) RCD Type A (*30 mA*) with automatic reclosure* RCD Type B*
	Magnetothermal protection	MCB (*curve C*)
Interface	**Indicating light**	RGB charge status display
Construction specifications	**Enclosure**	Aluminium and ABS plastic
	Dimensions	450 mm x 290 mm x 1263,50 mm
	Weight	50 kg
	Mechanical protection rating	IK 10
	Protection rating	IP 54
	Attachment	Ground fixing with 4 bolts
Safety	**Category III - 300 Vac (*EN 61010*)**	
	Electric shock protection via class-II dual insulation	
Standards	EN 61851-1 : 2001 parte1, IEC 61000, IEC 60364-4-41, IEC 61008-1, IEC 60884-1 , IEC 60529, IEC 61010, UNE-EN55011	

▸ REFERENCES

MODEL	Number connectors	Connector	Power	Electrical characteristics
URBAN-M11	1	Type II	Single phase	230 Vca, 32 A, 7,2 kW
URBAN-T11			Three phase	400 Vca, 32 A, 22 kW
URBAN-M12	2		Single phase	230 Vca, 32 A, 7,2 kW
URBAN-T12			Three phase	400 Vca, 32 A, 22 kW

MICRO PLUS
Germany

RAPTION150C

▶ 150kW

[Quick charging station exterior double socket]

Intelligent Charging Systems for Electric Vehicles

▸ DESCRIPTION

The RAPTION 150C chargers are ideal for the rapid charging of electric vehicles that need a powerful boost to get back on the road as soon as possible. These chargers are compact units with a power output of up to 150 kW, which can be distributed to 2 outlets simultaneously at 75 kW per spot in their dual-cable version. These units address the disadvantage of electric vehicles regarding charging speeds, as they are capable of recharging cars up to 400 km in 20 minutes, thus facilitating long journeys.

In addition to high charging power, this equipment offers all the features required for easy and convenient use, such as a touch screen with instructions, LED charge status indicators, cloud management platform communications, and a contactless payment terminal for bank cards.

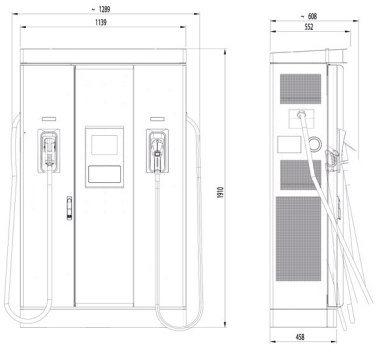
▸ APPLICATIONS

The RAPTION 150C is perfectly suited to various scenarios where the charging time of the EV is more critical for the end user, such as service and rest stations on highways, charging areas in shopping centers, professional fleets of cars, and urban bus fleets, among others.

▸ TECHNICAL CHARACTERISTICS

AC Power Supply	**Input Current**	237 A
	Efficiency	95% with nominal output power
	Power Factor	> 0.98
	Frequency	50 / 60 Hz
	Network Type	3F + N + PE
	Nominal Voltage	400 V ~ ± 10%
Electrical Characteristics	**Surge Protection** (*SP*)	Optional: 4-pole transient overvoltage protection (*IEC 61643-11 Class II*)
	Overcurrent Protection	Circuit Breaker
	Power	163 kVA
Mechanical Characteristics	**Size** (*mm*) **Width x Height x Depth**	1290 x 1910 x 610 (*mm*)
	Enclosure	Stainless Steel
	Noise	< 55 dBA
	Ventilation	Air Cooling Fans
	Net Weight (*kg*)	450
Environmental Characteristics	**Protection Rating**	IP 54 / IK10
	Relative Humidity (*non-condensing*)	5 ..95%
	Storage Temperature	-40 ...+60 °C
	Operating Temperature	-30 ...+50 °C
Standards	**Certifications**	CE / Combo-2, (*DIN 70121; ISO15118*)
	Standards	(*DIN 70121; ISO15118*); IEC 61851-1; IEC 61851-23; IEC 61851-21-2
Communications	**Protocol**	OCPP 1.5, OCPP 1.6 / XML
	Type	Ethernet 10/100 Base TX (*TCP/IP*)
User Interface	**RFID**	ISO / IEC 14443-1/2/3, MIFARE Classic
	LED	Charge Indicator and Courtesy Lighting
	Display Type	8" TFT Anti-Vandal Touch Screen
Protection	**Safety Relay Type** (*Class*)	Type B

Output		**Output 1**	**Output 2**
	Maximum Current	375 A	375 A
	Maximum Power	150 kW	150 kW
	Voltage Range	150 ... 920 Vdc	150 ... 920 Vdc
	Connector Type	CCS Combo 2 (*FF*)	CCS Combo 2 (*FF*)
	Network Type	Three-Phase (*DC*)	Three-Phase (*DC*)



Optonal

- Heater -30 ... +50 °C
- Vandal-proof mechanical connector lock
- Contactless payment system
- Connection cables with 5.5 m length
- 8-port TCP Ethernet switch
- EMC protection class B according to IEC 61000 EMC filter

▸ REFERENCES

MODEL	N. Sockets	Output Type	Connector Type	Network Type	Recharge Mode	Communications
RAPTION 150C CCS2-CCS2	2	150-920 Vcc - 375 A - 150kW 150-920 Vcc - 375 A - 150 kW	CCS Combo 2 (*FF*) CCS Combo 2 (*FF*)	Three-Phase	4	Ethernet | 4G
RAPTION 150C CCS2-CHA		150-920 Vcc - 375 A - 150 kW 150-500 Vcc - 200 A - 100 kW	CCS Combo 2 (*FF*) JEVS G105 - CHAdeMO (*AA*)			

Fotolineras

▶ STANDALONE Power System Generation

[PHOTOVOLTAIC up to 7.2kW per socket]

MANUFACTURED victron energy BLUE POWER

For charging cars, motorcycles, and bicycles with energy storage in batteries

ISOLATED SOLAR CHARGING STATIONS designed by **MicroPlus Germany** to harness solar energy and convert it into electrical current for charging cars or motorcycles where access to electrical power is unavailable.

At the same time, these **solar charging stations** are equipped with lithium batteries for storage, and through an inverter, they supply the chargers with 230V to charge the vehicle even when the photovoltaic system is not producing power *(e.g., at night)*.

These canopies for **solar charging stations** are designed with a modular and robust system that can be extended sideways as needed. They are prepared for integration with charging solutions.

The structure is made of galvanized steel with priming and painting, which ensures product durability against corrosion and atmospheric agents.

> *We offer a variety of models and manufacture them to the customer's specifications as a certified product. It includes electronic devices for system monitoring on various devices.*

MODEL /REF	FOTOL-S3/7,2	FOTOL-S4/7,2
SOLAR PANEL		
Number of panels (*units*) 540Wp	18	36
Total panel power (*Wp*)	9,720	19,440
Minimum daily generation: 4 hours of sunlight (*Wp*)	38,880	77,760
Maximum daily generation: 6 hours of sunlight (*Wp*)	58,320	116,640
STORED ENERGY		
Lithium battery voltage (*Vdc*)	51.2	
Lithium battery module (*Ah*)	MP-BT/51.2-0280	
Number of modules in rack (*units*)	3	4
Stored energy in racks (*Wh*)	**43,008**	**57,344**
INVERTER / CONTROLLER		
Inverter model and units	1 x Multiplus 48/10000	1 x Multiplus 48/15000
Charging socket (*kW*)	1 x SINGLE-PHASE – 7.2 kW	2 x SINGLE-PHASE – 7.2 kW
Output voltage (*Vac*)	230	
Charging current of the regulator (*ADC*)	Smart Solar	
Power system generation	Fully isolated (*photovoltaic*)	
DIMENSIONS		
Solar charging station structure (*width x length x height*) (*mm*)	On project	
Mechanical protection rating	IK10	
Protection rating	IP54	
Safety rating	Category III – 300 V AC (*EN 61010*) – Protection against electric shock by double insulation Class II	
Standards	EN 61851-1, ISO 14443A	

All these details are indicative, as the solar charging station would be designed according to each customer's needs based on the geographical location of the project.

Fotolineras

▶ HYBRID Power System Generation

[GRID + PHOTOVOLTAIC from 7.2 - 50kW per socket]

For charging cars, motorcycles, and bicycles with energy storage in batteries

HYBRID SOLAR CHARGING STATIONS designed by **MicroPlus Germany** to harness solar energy and convert it into electrical current for charging cars.

At the same time, these **solar charging stations** are connected to the electrical grid to ensure operation when solar energy and batteries are insufficient for charging at that moment, while guaranteeing maximum performance in vehicle charging.

These batteries can be recharged overnight when electricity rates are much lower, providing cost savings for the following day. It includes a 100 kW inverter with a 50 kW charger, two 22 kW chargers, and a 7.5 kW charger. The canopies for **solar charging stations** are designed with a modular and robust system that can be extended sideways as needed.

The structure is made of galvanized steel with priming and painting, ensuring product durability against corrosion and atmospheric agents..

> *We offer a variety of models and manufacture them to the customer's specifications as a certified product, including electronic devices for system monitoring on various devices.*

MODEL /REF	FOTOL-H1/22	FOTOL-H2/22	FOTOL-H3/22	FOTOL-H4/50
SOLAR PANEL				
Number of panels (*units*) 540Wp	28	36	46	72
Total panel power (*Wp*)	15.120	19.440	24.840	38.880
Minimum daily generation: 4 hours of sunlight (*Wp*)	60.480	77.760	99.360	155.520
Maximum daily generation: 6 hours of sunlight (*Wp*)	90.720	116.640	149.040	233.280
STORED ENERGY				
Lithium battery voltage (*Vdc*)	51.2			
Rack 19'' batería litio (*Ah*)	MP-BT/51.2-0280			
Number of modules in rack (*units*)	6	8	10	12
Stored energy in racks (*Wh*)	**85.800**	**114.400**	**143.000**	**171.600**
INVERTER / CONTROLLER				
Inverter model and units	1 x HBS/030	2 x HBS/060	3 x HBS/080	1 x HBS/120
Charging socket (*kW*)	1 x SINGLE-PHASE 230 VAC - 7.2 kW 1 x THREE-PHASE 400 VAC - 22 kW	2 x SINGLE-PHASE 230 VAC - 7.2 kW 2 x THREE-PHASE 400 VAC - 22 kW	4 x SINGLE-PHASE 230 VAC - 7.2 kW 2 x THREE-PHASE 400 VAC - 22 kW	1 x SINGLE-PHASE 230 VAC - 7.2 kW 2 x THREE-PHASE 400 VAC - 22 kW 1 x THREE-PHASE 400 VAC - 50 kW
Charging current of the regulator (*ADC*)	Smart Solar		RS	
Power system generation	Hybrid (*electrical grid + photovoltaic*) with lithium batteries			
DIMENSIONS				
Solar charging station structure (*width x length x height*) (*mm*)	On project			
Mechanical protection rating	IK10			
Protection rating	IP54			
Safety rating	Category III - 300 V AC (*EN 61010*) - Electric shock protection by double insulation Class II			
Standards	EN 61851-1, ISO 14443A			

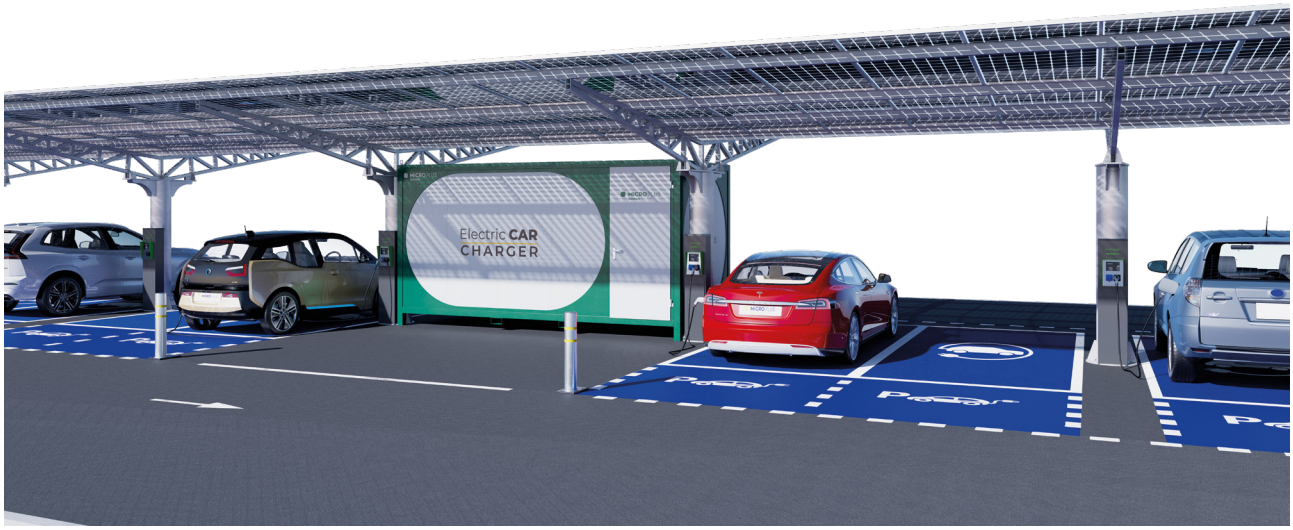
All these details are indicative, as the solar charging station would be designed according to each customer's needs based on the geographical location of the project.

Fotolineras

▶ HYBRID Power System Generation

[GRID + PHOTOVOLTAIC from 22 - 150 kW per socket]

For **ULTRA-FAST** charging of cars, with energy storage in batteries



HYBRID SOLAR CHARGING STATIONS designed by **MicroPlus Germany** to harness solar energy and convert it into electrical current for charging cars.

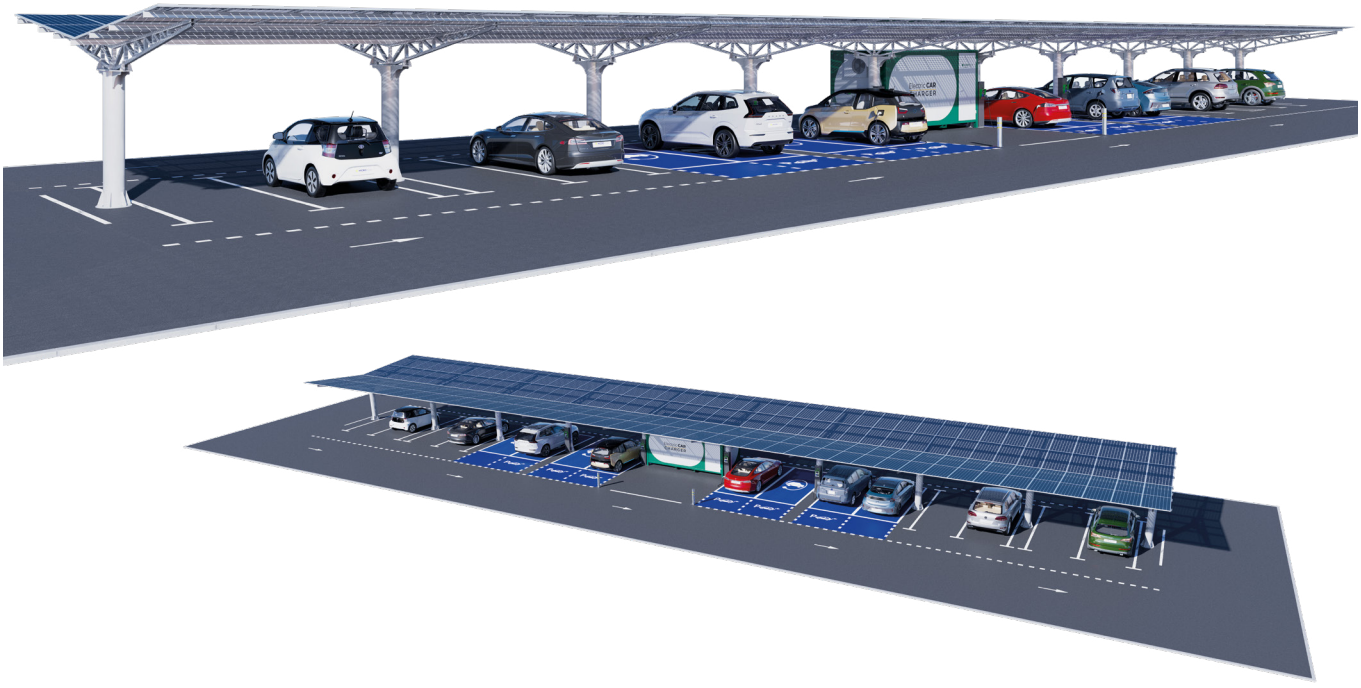
At the same time, these **solar charging stations** are connected to the electrical grid to ensure operation when solar energy and batteries are insufficient for charging at that moment, while guaranteeing maximum performance in vehicle charging.

These batteries can be recharged overnight when electricity rates are much lower, providing cost savings for the following day. It includes a 500 kW inverter with 2 chargers of 150 kW at 850 V and 2 chargers of 22 kW, along with 1 MWh of storage batteries.

The canopies for **solar charging stations** are designed with a modular and robust system that can be extended sideways as needed.

The structure is made of galvanized steel with priming and painting, ensuring product durability against corrosion and atmospheric agents..

> *We offer a variety of models and manufacture them to the customer's specifications as a certified product, including electronic devices for system monitoring on various devices..*



MODEL /REF	FOTOL-H4/344	FOTOL-H5/366	FOTOL-H6/422	FOTOL-H7/444
SOLAR PANEL				
Number of panels (*units*) 540Wp	72	90	108	120
Total panel power (*Wp*)	38,880	48,600	58,320	64,800
Minimum daily generation: 4 hours of sunlight (*Wp*)	155,520	194,400	233,280	259,200
Maximum daily generation: 6 hours of sunlight (*Wp*)	233,280	291,600	349,920	388,800
STORED ENERGY				
Lithium battery voltage (*Vdc*)	358.4			
Rack Model	ARM/21-358			
Number of lithium battery racks (*units*)	3			
Stored energy in batteries (*kWh*)	**900**			
INVERTER / CONTROLLER				
Inverter model and units	SPSHE500			
Charging socket (*kW*)	2 x THREE-PHASE - 150 kW - 850V 2 x THREE-PHASE - 22 kW - 400V	2 x THREE-PHASE - 150 kW - 850V 3 x THREE-PHASE - 22 kW - 400V	2 x THREE-PHASE - 150 kW - 850V 1 x THREE-PHASE - 50 kW - 400V 3 x THREE-PHASE - 22 kW - 400V	2 x THREE-PHASE - 150 kW - 850V 1 x THREE-PHASE - 50 kW - 400V 4 x THREE-PHASE - 22 kW - 400V
Charging current of the regulator (*ADC*)	RS			
Power system generation	Hybrid (*electrical grid + photovoltaic*) with lithium batteries			
DIMENSIONS				
Solar charging station structure (*width x length x height*) (*mm*)	Under project			
Mechanical protection rating	IK10			
Protection rating	IP54			
Safety rating	Category III – 300 V AC (*EN 61010*) – Electric shock protection by double insulation Class II			
Standards	EN 61851-1, ISO 14443A			

All these details are indicative, as the solar charging station would be designed according to each customer's needs based on the geographical location of the project.

SMART CITY

energy efficiency and quality of life

MICRO PLUS Germany

01	ADVERTIYESNG AND YESGNAGE MANAGEMENT IN THE CITY
02	RENEWABLE ENERGY ANALYYESS AND MONITORING
03	INDUSTRIAL ESTATE MANAGEMENT
04	ANALYYESS, VISUALISATION AND MANAGEMENT OF POSYESBLE FIRES OR FIRE OR ACCIDENT FROM THE FIRE BRIGADE
05	MANAGEMENT OF SPORTS AREAS: LIGHTING, IRRIGATION AND SECURITY
06	INTENYESVE LIGHTING OF PEDESTRIAN CROSYESNGS
07	ENERGY MANAGEMENT AND MONITORING THROUGH DISTRIBUTION NETWORKS
08	CONTROL OF THE MUNICIPAL FLEET AND MONITORING WITH FACIAL RECOGNITION OF DIFFERENT SECURITY AREAS
09	PHOTOVOLTAIC STATIONS FOR ELECTRIC VEHICLE CHARGING MANAGEMENT OF ELECTRIC VEHICLES
10	ADAPTATION OF EXISTING PUBLIC LIGHTING POLES TO RECHARGE ELECTRIC VEHICLES TO RECHARGE ELECTRIC VEHICLES

MADE IN EUROPE

11	WASTE COLLECTION MANAGEMENT AND AUTOMATION
12	INTELLIGENT TRAFFIC LIGHT MANAGEMENT WITH SENSORS TO AVOID CONGESTION
13	SOLAR TREES FOR THE PRODUCTION OF ELECTRICAL ENERGY FOR LIGHTING AND ELECTRIC RECHARGING
14	SOLAR LIGHTING IN PARKS AND GARDENS
15	PARKING AND CAPACITY MANAGEMENT

16	SMART BUILDINGS AND MICROLED LIGHTING
17	HOSPITAL MANAGEMENT WITH HEALTHCARE MANAGEMENT SOFTWARE
18	MANAGEMENT OF SCHOOLS WITH PHOTOVOLTAIC ENERGY, SECURITY CAMERAS AND STUDIO MANAGEMENT
19	TELECOMMUNICATION SYSTEMS FOR SMART CITY
20	VIDEO SURVEILLANCE AND SOLAR LIGHTING MANAGEMENT FOR PLAYGROUNDS
21	GARDEN AND FOUNTAIN IRRIGATION MANAGEMENT

with photovoltaic applications

SMART CITY
by MicroPlus

Projects in the world

01

02

03

01. SL-OCELLUM2 (10W)
Morón de la Frontera
SEVILLA - SPAIN

02. SL-NATUR2 (60W)
Torrejon de Ardoz
(MADRID) SPAIN

03. S-OCELLUM2 (10W)
Tanger MARRUECOS

04. **SL-IAN** (30W)
Agaete — Gran Canaria (ISLAS CANARIAS) SPAIN

05. **SL-IAN** (40W)
Iscar (VALLADOLID) SPAIN

Projects in the world

06. **SL-NATUR**
Puerto de Barcelona (TRANSMEDITERRANEA) entrada de camiones (Barcelona) SPAIN

07. **FSB-MPG-2** (60W)
ANGOLA

08. **FS-PROTEA** (30W)
Parque San Luis ARGENTINA

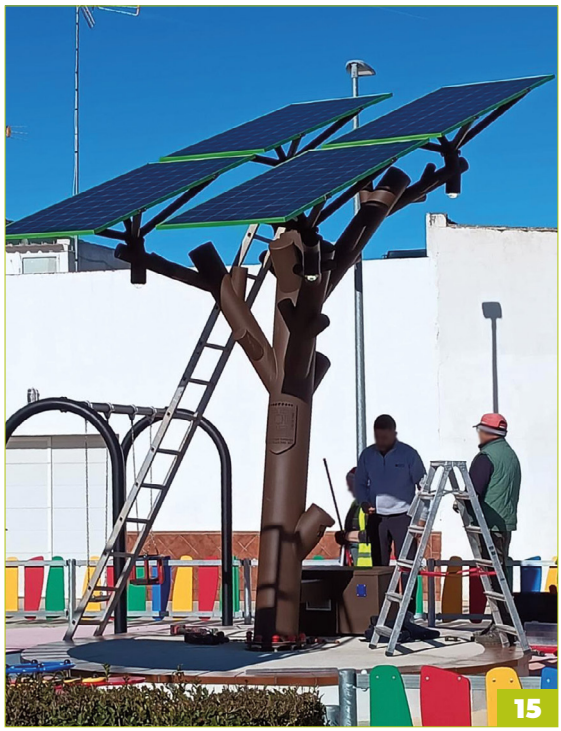
09. **FS-MPG-2** (60W)
EL GRINE TUNEZ

10. **FSB-MPG-2** (60W)
PROYECTO LTP ENERGIAS QUANTUM
LUNDA SUL ANGOLA

Projects in the world

11. **S-TREE**
Ourense
SPAIN

12. **S-TREE**
Moledo
PORTUGAL



13. **S-TREE**
Zamora
SPAIN

14. **S-TREE**
Ochavillo del Rio
CORDOBA - SPAIN

15. **S-TREE**
Ochavillo del Rio
CORDOBA - SPAIN

APPLIED TECHNOLOGY

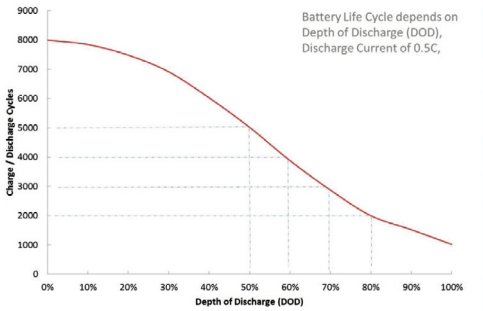
It is a composition of iron and lithium phosphate especially dedicated to lighting and energy storage systems and is characterized by its safety, performance, durability, reliability and cost-effectiveness..

- Non-toxic composition material
- Less sensitive to extreme temperatures
- High chemical stability
- Provides full power until discharge
- Cycle life exceeding 7,000 cycles

OTHER TECHNOLOGIES

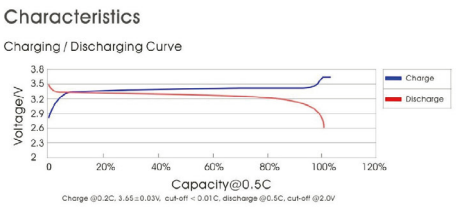
This battery contains a lithium-based cathode and a carbon anode in a solvent that acts as a lithium-based electrolyte.

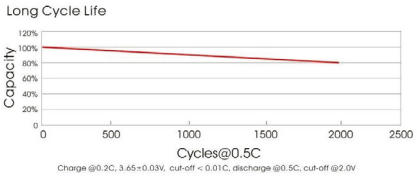
- High energy density
- Low resting discharge rate
- Small size
- Risks of insecurity when damaged
- Fast charging can cause a short circuit
- Warms up quickly and is more flammable (As regardsLifePO4)
- Low thermal stability
- 1.,500 cycle life cycle



FEATURES

- Safer lithium chemistry than that.
- High energy density, 120-130kWh/Kg.
- Efficient and durable up to more than 7,000 cycles.
- Good performance at high temperatures.
- Good high-speed discharge performance.
- Excellent stability.
- Typical cell: IFR32700.
- VOLTAGE: 3.2 V.
- Capacity: 2Ah ~ 6.5Ah.
- Output: 6.4 ~ 20Wh, maximum discharge to 3C.



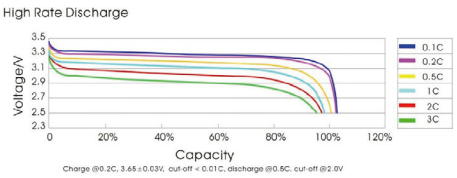


READY FOR MOUNTING THE BATTERY PACK

- Variety of cell models available.
- Several cells assembled with protective circuit board (PCB), cable and connector available.
- Battery modules or units available for a variety of applications.

REPLACEMENT

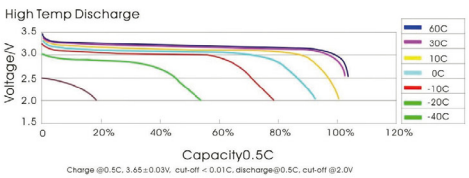
- Replacement Plug & Play at battery level for maintenance.



APPLICATIONS

The battery is applicable for industrial, commercial or residential use. The modules or battery units are connected from Wh to MWh for renewable energy system.

- Energy storage system.
- Solar energy storage.
- Solar street lighting.
- Electric vehicle (EV).
- Medical.
- Telecom.
- Robotics.
- UPS.



Model	Nominal voltage (V)	Nominal Capacity (Ah)	Energy (Wh)	Rated Charge Current (mA)	Rated Discharge Current (mA)	Max Discharge Current (A)	Charging Voltage (V)	Discharging Cut-off Voltage (V)	Internal Resistence (m)	Max Diameter (mm)	Max Height (mm)	Approx. Weight (g)
IFR32700N60	3.2	6.00	19.2	1200	1200	18.0	3.65	2.0	8.0	32.5	70.9	145.0

SOLUTIONS
INNOVATIVE

BEFORE

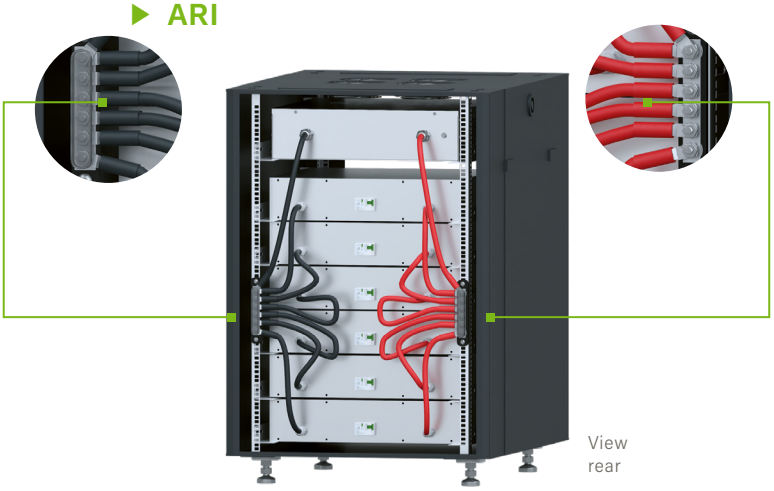
AFTER

Muddy connection system for AR, ARI and ARV rack cabinets

ARI

View front

ARI



View rear

In this catalogue all our battery connection systems with inverters and electrical panels are made from the rear with a **BUSBAR** with positive and negative; so that the connections are well fixed and we avoid the continuous failures that can give the portable connectors when the intensity is a little higher.

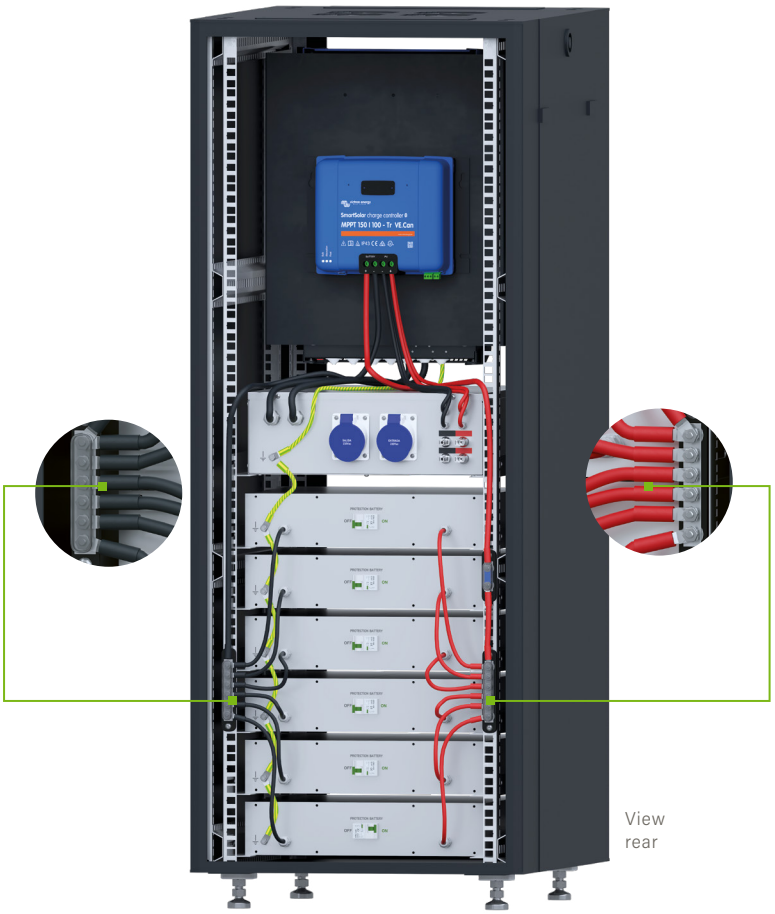
The connection is done with the appropriate section and special multi-flexible cables for direct current and with the same length for each of the batteries.

From the **BUSBAR** [positive and negative] we take out the power for the inverter that was located at the top [*all our cabinets include front and back door*] which makes them a very structural and professional system.

ARV

View front

ARV



View rear

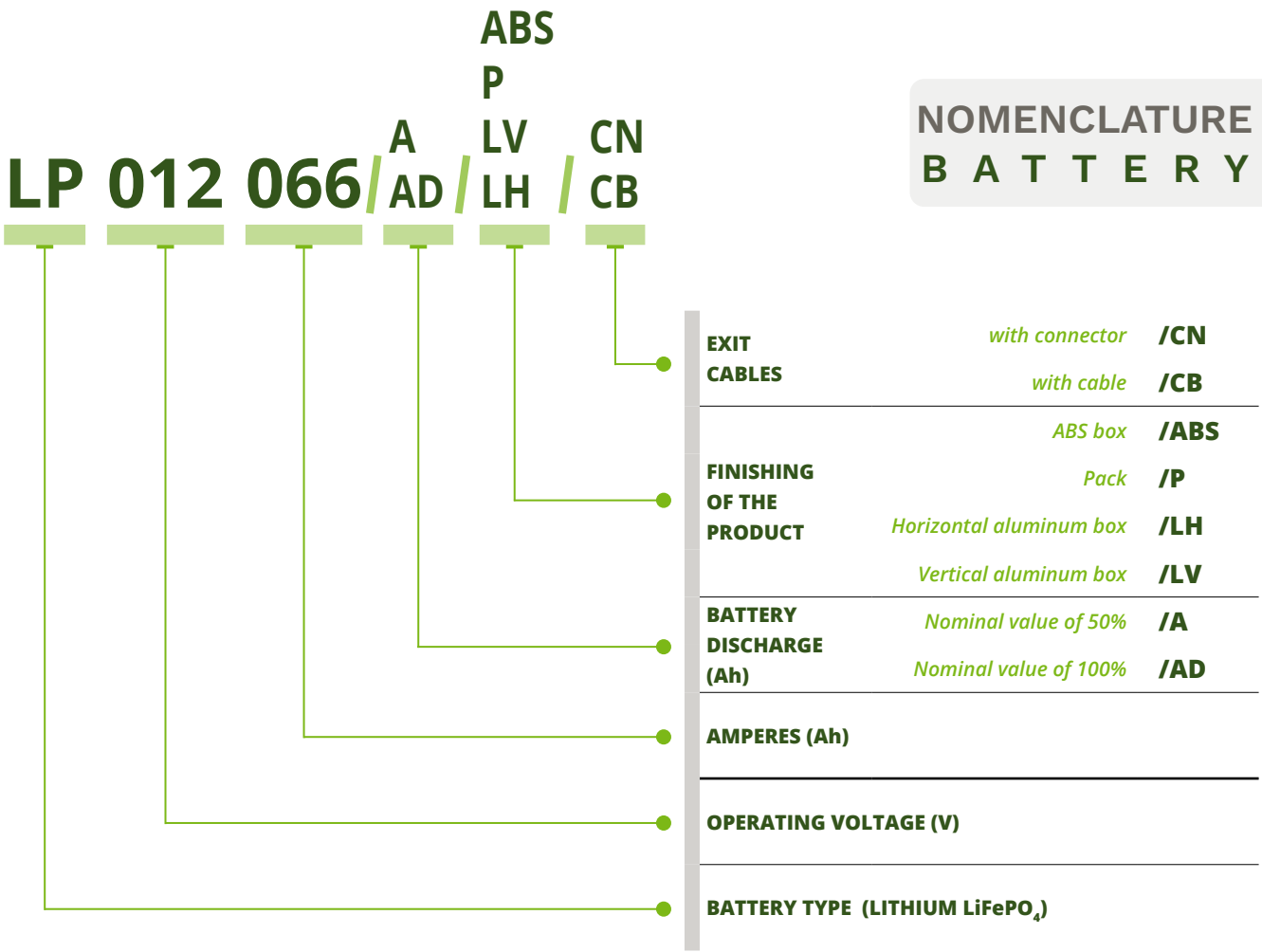
BATTERYS

▶ NOMENCLATURE

Every day that passes, the role of batteries will become even more crucial in everyone's lives. For this reason, at **MicroPlus Germany**, we strive to manufacture our batteries with the most advanced and up-to-date technology available on the market.

Despite potential short-term gains being smaller, we are convinced that our customers will appreciate this decision in the future.

The $LiFePO_4$ lithium batteries we offer are notably more reliable and durable, which will benefit everyone in the long run.

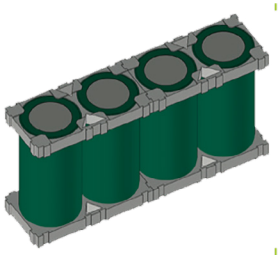


MICRO PLUS Germany

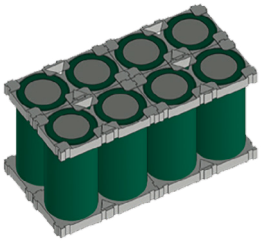
LP012/B

▶ 12.8V [6 - 12A]

LiFePO4 batteries in ***ABS*** enclosure with ***50%*** and ***100%*** nominal capacity discharge.



LP012006A A/B



LP012012A A/B

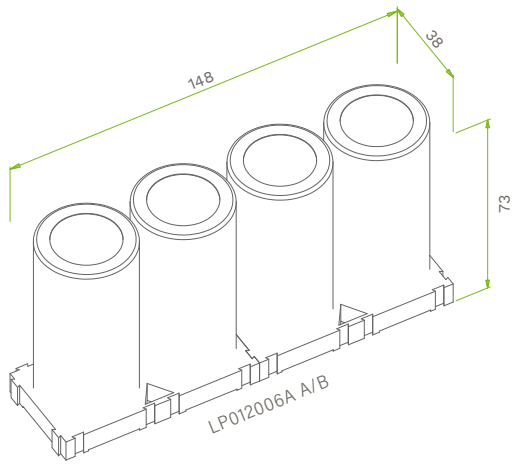
These batteries are manufactured as packs or in **ABS** enclosures using LiFePO4 *CELLS 32700*.

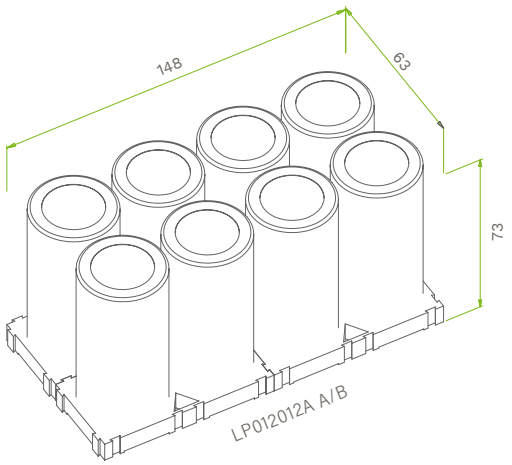
They include a **BMS** (*Battery Management System*) for monitoring charge and voltage in each cell.

In this A/B series, primarily designed **for lighting** with lower discharge needs, the **BMS** allows up to **50% discharge** per hour of its **nominal value**. The AD/B series allows up to **100% discharge** of its **nominal value**.

They come with an **IP68** connector (*JNM15 2P 10A*) according to the output power (*refer to the table*).

Batteries with **50%** and **100%** nominal capacity discharge





MODEL /REF		LP012006A/B	LP012006AD/B	LP012012A/B	LP012012AD/B
ELECTRICAL CHARACTERISTICS					
Nominal voltage (*V*)		12.8			
Nominal capacity (*Ah*)		**6**		**12**	
Nominal discharge in Ah (%)		50 %	100 %	50 %	100 %
Operating voltage (*V*)		12.8			
Battery energy at 25°C / -10°C (*Wh*)		76.8		153.6	
Continuous discharge current (*A*)		3	6		12
Max. current (*recommended*) (*A*)		6	8	12	36
Recommended charge voltage		11 - 14.6			
Storage temperature (°C)		< 35			
Self-discharge (*% per month*)		≤ 5			
Cycle life		< 7.000 cycles - 30% SoH 0.5C			
PROTECTION					
Short circuit protection		YES			
Short circuit protection recovery		LOAD OFF			
Protection temperature / Protection reset temperature (°C)		70 / 50 ±5			
Internal resistance (*mΩ*)		60			
Cell size		32700			
GENERAL					
Package only	Dimensions (*mm*)	148 x 38 x 73		148 x 63 x 73	
	Weight (*kg*)	0.60Kg		1.20Kg	
Complete with ABS enclosure	Dimensions (*mm*)	180 x 75 x 83			
	Weight (*kg*)	0.97Kg		1.57Kg	

MICRO PLUS Germany

LP012

▶ 12.8V [18 - 216Ah]

Batteries with **50%** and **100%** nominal capacity discharge.

PACK
18 - 216 Ah

HORIZONTAL ALUMINUM BOX18 - 84 Ah

BOX VERTICAL ALUMINUM
18 - 84 Ah

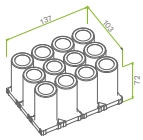
The **LP012** batteries with **12.8V** are manufactured as packs or in aluminum enclosures using LiFePO$_4$ *CELLS 32700*.

They include a **BMS** (*Battery Management System*) for monitoring charge and voltage in each cell. This series, primarily designed **for lighting** with lower discharge needs, allows up to **50% or 100% discharge** per hour of its **nominal value**.

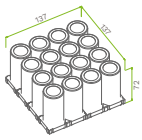
They are supplied with an **IP68** connector (*JN M15 2P 10A or JN M19 2P 20A*) depending on the output power (*refer to the tables*).

Batteries with 50% and 100% of their nominal capacity discharge

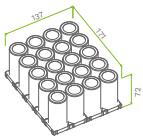
NOMINAL DISCHARGE (Ah) OF THE BATTERY	
100%	AD
50%	A
PRODUCT FINISH	
PACK	/P
VERTICAL ALUMINUM	/LV
HORIZONTAL ALUMINUM	/LH
OUPUT	
CONNECTOR	/CN
CABLE	/CB



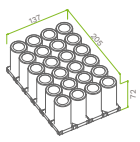
LP012018A



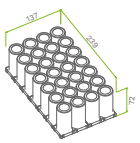
LP012024A



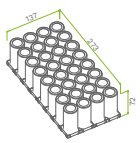
LP012030A



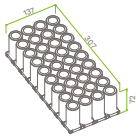
LP012036A



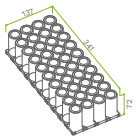
LP012042A



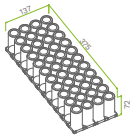
LP012048A



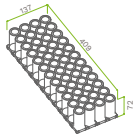
LP012054A



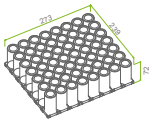
LP012060A



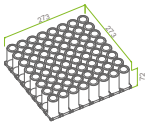
LP012066A



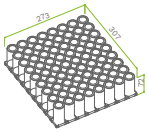
LP012072A



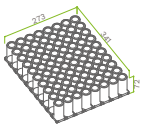
LP012084A



LP012096A



LP012108A



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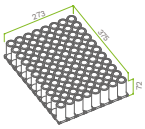
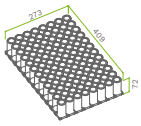
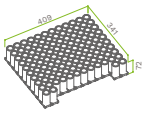


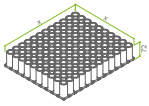
LP012132A



LP012144A



LP012168A



LP012216A

▶ 12.8V [18 - 36Ah]

MODEL /REF	LP012018A	LP012018AD	LP012024A	LP012024AD	LP012030A	LP012030AD	LP012036A	LP012036AD
ELECTRICAL CHARACTERISTICS								
Nominal voltage (V)	12.8							
Nominal capacity (Ah)	18		24		30		36	
Operating voltage (V)	12.8							
Battery energy at 25°C / -10°C (Wh)	230,4		307,2		384		460,8	
Nominal discharge in Ah (%)	50 %	100 %	50 %	100 %	50 %	100 %	50 %	100 %
Continuous discharge current (A)	9	18	12	27	15	30	18	36
Max. current (recommended) (A)	18	54	24	72	30	90	36	108
Recommended charge voltage	11 – 14.4							
Storage temperature (°C)	< 35							
Self-discharge (% per month)	≤ 5							
Cycle life	< 7,000 cycles - 30% SoH 0.5C							
PROTECTION								
Short circuit protection	YES							
Short circuit protection recovery	LOAD OFF							
Protection: Temperature / recovery (°C)	70 / 50 ±5							
Internal resistance (mΩ)	60							
Cell size	32700							
GENERAL								
Package only – Dimensions (mm)	147 x 118 x 75		147 x 152 x 75		147 x 186 x 75		147 x 220 x 75	
Package only – Weight (kg)	1.8		2.4		3		3.7	
Complete with aluminum enclosure – Dimensions (mm)	195 x 90 x 144		195 x 90 x 178		195 x 90 x 213		195 x 90 x 247	
Complete with aluminum enclosure – Weight (kg)	3		3.8		4.53		5.30	

MICRO PLUS Germany

LP012

Batteries with 50% and 100% of their nominal capacity discharge

▶ 12.8V [42 - 60Ah]

MODEL /REF		LP012042A	LP012042AD	LP012048A	LP012048AD	LP012054A	LP012054AD	LP012060A	LP012060AD
ELECTRICAL CHARACTERISTICS									
Nominal voltage (V)		12.8							
Nominal capacity (Ah)		42		48		54		60	
Operating voltage (V)		12.8							
Battery energy at 25°C / -10°C (Wh)		537,6		614,4		691,2		768	
Nominal discharge in Ah (%)		50 %	100 %	50 %	100 %	50 %	100 %	50 %	100 %
Continuous discharge current (A)		21	42	24	48	27	54	30	60
Max. current (recommended) (A)		42	126	48	124	54	162	60	180
Recommended charge voltage		11 – 14.4							
Storage temperature (°C)		< 35							
Self-discharge (% per month)		≤ 5							
Cycle life		< 7,000 cycles - 30% SoH 0.5C							
PROTECTION									
Short circuit protection		YES							
Short circuit protection recovery		LOAD OFF							
Protection: Temperature / recovery (°C)		70 / 50 ±5							
Internal resistance (mΩ)		60							
Cell size		32700							
GENERAL									
Package only	Dimensions (mm)	147 x 254 x 75		147 x 288 x 75		137 x 307 x 72		137 x 341 x 72	
	Weight (kg)	4.3		4.9		5.4		6	
Complete with aluminum enclosure	Dimensions (mm)	195 x 90 x 282		195 x 90 x 316		195 x 90 x 351		195 x 90 x 385	
	Weight (kg)	6.0		6.8		7.6		8.4	

▶ 12.8V [66 - 96Ah]

MODEL /REF		LP012066A	LP012066AD	LP012072A	LP012072AD	LP012084A	LP012084AD	LP012096A	LP012096AD
ELECTRICAL CHARACTERISTICS									
Nominal voltage (V)		12.8							
Nominal capacity (Ah)		66		72		84		96	
Operating voltage (V)		12.8							
Battery energy at 25°C / -10°C (Wh)		844.8		921.6		1.075.2		1.228.8	
Nominal discharge in Ah (%)		50 %	100 %	50 %	100 %	50 %	100 %	50 %	100 %
Continuous discharge current (A)		33	66	36	72	42	84	48	96
Max. current (recommended) (A)		66	198	72	216	84	252	96	288
Recommended charge voltage		11 – 14.4							
Storage temperature (°C)		< 35							
Self-discharge (% per month)		≤ 5							
Cycle life		< 7.000 cycles - 30% SoH 0.5C							
PROTECTION									
Short circuit protection		YES							
Short circuit protection recovery		LOAD OFF							
Protection: Temperature / recovery (°C)		70 / 50 ±5							
Internal resistance (mΩ)		60							
Cell size		32700							
GENERAL									
Package only	Dimensions (mm)	137 x 375 x 72		137 x 409 x 72		273 x 239 x 72		273 x 273 x 72	
	Weight (kg)	6.6		7.2		8.4		9.6	
Complete with aluminum enclosure	Dimensions (mm)	195 x 90 x 420		195 x 90 x 454		295 x 98 x 307		295 x 98 x 341	
	Weight (kg)	9.1		9.9		11.1		12.6	

MADE IN EUROPE

LP012

Batteries with 50% and 100% of their nominal capacity discharge

▶ 12.8V [108 - 144Ah]

MODEL /REF		LP012108A	LP012108AD	LP012120A	LP012120AD	LP012132A	LP012132AD	LP012144A	LP012144AD
ELECTRICAL CHARACTERISTICS									
Nominal voltage (V)		12.8							
Nominal capacity (Ah)		108		120		132		144	
Operating voltage (V)		12.8							
Battery energy at 25°C / -10°C (Wh)		1,382.4		1,536		1,689.6		1,843.2	
Nominal discharge in Ah (%)		50 %	100 %	50 %	100 %	50 %	100 %	50 %	100 %
Continuous discharge current (A)		54	108	60	120	66	132	72	144
Max. current (recommended) (A)		108	324	120	360	132	396	144	432
Recommended charge voltage		11 – 14,4							
Storage temperature (°C)		< 35							
Self-discharge (% per month)		≤ 5							
Cycle life		< 7,000 cycles - 30% SoH 0.5C							
PROTECTION									
Short circuit protection		YES							
Short circuit protection recovery		LOAD OFF							
Protection: Temperature / recovery (°C)		70 / 50 ±5							
Internal resistance (mΩ)		60							
Cell size		32700							
GENERAL									
Package only	Dimensions (mm)	283 x 322 x 75		283 x 356 x 75		283 x 390 x 75		283 x 424 x 75	
	Weight (kg)	11.1		12.3		13.6		14.8	
Complete with aluminum enclosure	Dimensions (mm)	295 x 98 x 376		295 x 98 x 410		295 x 98 x 445		295 x 98 x 479	
	Weight (kg)	14		15.4		16.7		18.3	

▶ 12.8V [168 - 216Ah]

MODEL /REF		LP012168A	LP012168AD	LP012216A	LP012216AD
ELECTRICAL CHARACTERISTICS					
Nominal voltage (V)		12.8			
Nominal capacity (Ah)		168		216	
Operating voltage (V)		12.8			
Battery energy at 25°C / -10°C (Wh)		2,150		2,764	
Nominal discharge in Ah (%)		50 %	100 %	50 %	100 %
Continuous discharge current (A)		84	168	108	214
Max. current (recommended) (A)		168	498	216	534
Recommended charge voltage		11 – 14.4			
Storage temperature (°C)		< 35			
Self-discharge (% per month)		≤ 5			
Cycle life		< 7,000 cycles - 30% SoH 0.5C			
PROTECTION					
Short circuit protection		YES			
Short circuit protection recovery		LOAD OFF			
Protection: Temperature / recovery (°C)		70 / 50 ±5			
Internal resistance (mΩ)		60			
Cell size		32700			
GENERAL					
Package only	Dimensions (mm)	419 x 356 x 75		419 x 445 x 75	
	Weight (kg)	17.3		22.2	
Complete with aluminum enclosure	Dimensions (mm)	295 x 98 x 548		295 x 98 x 583	
	Weight (kg)	21.2		22.6	

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LP024

▶ 25.6V [6 - 108Ah]

Batteries with *50%* and *100%* of their nominal capacity discharge

PACK
6 - 108 Ah

HORIZONTAL ALUMINUM BOX12 - 42 Ah

BOX VERTICAL ALUMINUM
12 - 42 Ah

BOX ABS
30 - 36 Ah

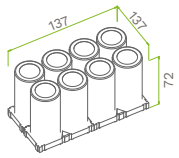
The **LP024** batteries with **25.6V** are manufactured as packs or in aluminum enclosures using LiFePO$_4$ *CELLS 32700*.

They include a **BMS** (*Battery Management System*) for monitoring charge and voltage in each cell. This series, primarily designed **for lighting** with lower discharge needs, allows up to **50% or 100% discharge** per hour of its **nominal value**.

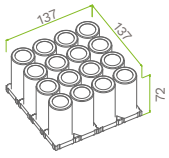
They are supplied with an **IP68** connector (*JNM15 2P 10A or JNM19 2P 20A*) depending on the output power (*refer to the tables*).

Batteries with 50% and 100% of their nominal capacity discharge

NOMINAL DISCHARGE (Ah) OF THE BATTERY	
100%	AD
50%	A
PRODUCT FINISH	
PACK	/P
VERTICAL ALUMINUM	/LV
HORIZONTAL ALUMINUM	/LH
OUTPUT	
CONNEC-TOR	/CN
CABLE	/CB



LP024006A



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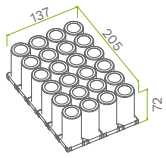

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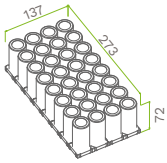

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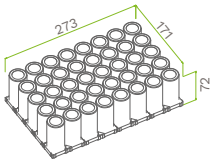

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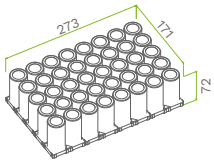

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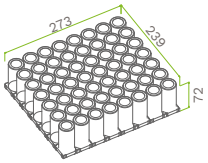

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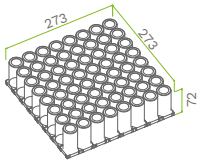

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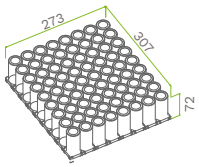

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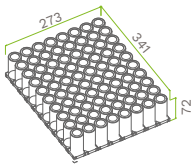

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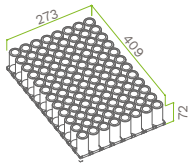

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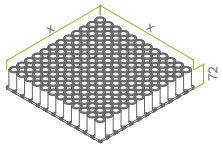

LP024108A

▶ 25.6V [6 - 12Ah]

MODEL /REF		LP024006A	LP024006AD	LP024012A	LP024012AD
ELECTRICAL CHARACTERISTICS					
Nominal voltage (V)		25.6			
Nominal capacity (Ah)		6		12	
Operating voltage (V)		24 - 26			
Battery energy at 25°C / -10°C (Wh)		153.6		307.2	
Nominal discharge in Ah (%)		50 %	100 %	50 %	100 %
Continuous discharge current (A)		3	6	6	12
Max. current (recommended) (A)		6	18	12	36
Recommended charge voltage		24 – 28.8			
Storage temperature (°C)		< 35			
Self-discharge (% per month)		≤ 5			
Cycle life		< 7.000 cycles - 30% SoH 0.5C			
PROTECTION					
Short circuit protection		YES			
Short circuit protection recovery		LOAD OFF			
Protection: Temperature / recovery (°C)		70 / 50 ±5			
Internal resistance (mΩ)		60			
Cell size		32700			
GENERAL					
Package only	Dimensions (mm)	147 x 84 x 75		147 x 152 x 75	
	Weight (kg)	1.2		2.4	
Complete with aluminum enclosure	Dimensions (mm)	ABS 148 x 38 x 73		195 x 90 x 178	
	Weight (kg)	1.57		3.7	

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Batteries with 50% and 100% of their nominal capacity discharge

▶ 25.6V [18 - 24Ah]

MODEL /REF		LP024018A	LP024018AD	LP024024A	LP024024AD
ELECTRICAL CHARACTERISTICS					
Nominal voltage (V)		25.6			
Nominal capacity (Ah)		18		24	
Operating voltage (V)		24 - 26			
Battery energy at 25°C / -10°C (Wh)		460.8		614.4	
Nominal discharge in Ah (%)		50 %	100 %	50 %	100 %
Continuous discharge current (A)		9	18	12	24
Max. current (recommended) (A)		18	54	24	72
Recommended charge voltage		24 – 28.8			
Storage temperature (°C)		< 35			
Self-discharge (% per month)		≤ 5			
PROTECTION					
Cycle life		< 7.000 cycles - 30% SoH 0.5C			
Short circuit protection		YES			
Short circuit protection recovery		LOAD OFF			
Protection: Temperature / recovery (°C)		70 / 50 ±5			
Internal resistance (mΩ)		60			
Cell size		32700			
GENERAL					
Package only	Dimensions (mm)	147 x 220 x 75		147 x 288 x 75	
	Weight (kg)	3.6		4.9	
Complete with aluminum enclosure	Dimensions (mm)	195 x 90 x 247		195 x 90 x 316	
	Weight (kg)	5.3		6.8	

▶ 25.6V [30 - 36Ah]

MODEL /REF		LP024030A	LP024030AD	LP024036A	LP024036AD
ELECTRICAL CHARACTERISTICS					
Nominal voltage (V)		25.6			
Nominal capacity (Ah)		30		36	
Operating voltage (V)		24 - 26			
Battery energy at 25°C / -10°C (Wh)		768		921.6	
Nominal discharge in Ah (%)		50 %	100 %	50 %	100 %
Continuous discharge current (A)		15	30	18	36
Max. current (recommended) (A)		30	90	36	108
Recommended charge voltage		24 – 28.8			
Storage temperature (°C)		< 35			
Self-discharge (% per month)		≤ 5			
Cycle life		< 7,000 cycles - 30% SoH 0.5C			
PROTECTION					
Short circuit protection		YES			
Short circuit protection recovery		LOAD OFF			
Protection: Temperature / recovery (°C)		70 / 50 ±5			
Internal resistance (mΩ)		60			
Cell size		32700			
GENERAL					
Complete with ABS enclosure	Dimensions (mm)	320 x 220 x 85			
	Weight (kg)	8.4		9.9	

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Batteries with 50% and 100% of their nominal capacity discharge

▶ 25.6V [42 - 54Ah]

MODEL /REF		LP024042A	LP024042AD	LP024048A	LP024048AD	LP024054A	LP024054AD
ELECTRICAL CHARACTERISTICS							
Nominal voltage (V)		25.6					
Nominal capacity (Ah)		42		48		54	
Operating voltage (V)		24 - 26					
Battery energy at 25°C / -10°C (Wh)		1,075		1,229		1,382	
Nominal discharge in Ah (%)		50 %	100 %	50 %	100 %	50 %	100 %
Continuous discharge current (A)		21	42	24	48	27	54
Max. current (recommended) (A)		42	126	48	144	54	162
Recommended charge voltage		24 – 28.8					
Storage temperature (°C)		< 35					
Self-discharge (% per month)		≤ 5					
Cycle life		< 7,000 cycles - 30% SoH 0.5C					
PROTECTION							
Short circuit protection		YES					
Short circuit protection recovery		LOAD OFF					
Protection: Temperature / recovery (°C)		70 / 50 ±5					
Internal resistance (mΩ)		60					
Cell size		32700					
GENERAL							
Package only	Dimensions (mm)	283 x 254 x 75		283 x 288 x 75		283 x 322 x 75	
	Weight (kg)	8.5		9.8		11.0	
Complete with aluminum enclosure	Dimensions (mm)	295 x 98 x 307		295 x 98 x 341		295 x 98 x 376	
	Weight (kg)	11.1		12.5		14	

▶ 25.6V [60 - 108Ah]

MODEL /REF		LP024060A	LP024060AD	LP024072A	LP024072AD	LP024108A	LP024108AD
ELECTRICAL CHARACTERISTICS							
Nominal voltage (V)		25.6					
Nominal capacity (Ah)		60		72		108	
Operating voltage (V)		24 - 26					
Battery energy at 25°C / -10°C (Wh)		1,536		1,843		2,764	
Nominal discharge in Ah (%)		50 %	100 %	50 %	100 %	50 %	100 %
Continuous discharge current (A)		30	60	36	72	56	108
Max. current (recommended) (A)		60	180	72	216	108	324
Recommended charge voltage		24 – 28.8					
Storage temperature (°C)		< 35					
Self-discharge (% per month)		≤ 5					
Cycle life		< 7,000 cycles - 30% SoH 0.5C					
PROTECTION							
Short circuit protection		YES					
Short circuit protection recovery		LOAD OFF					
Protection: Temperature / recovery (°C)		70 / 50 ±5					
Internal resistance (mΩ)		60					
Cell size		32700					
GENERAL							
Package only	Dimensions (mm)	283 x 356 x 75		283 x 424 x 75		419 x 424 x 75	
	Weight (kg)	12.3		14.8		22.2	
Complete with aluminum enclosure	Dimensions (mm)	295 x 98 x 410		295 x 98 x 479		436 x 98 x 479	
	Weight (kg)	15.4		18.3		27.8	

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▶ 51.2V [6 - 54Ah]

Batteries with *50%* and *100%* of their nominal capacity discharge

PACK
6 - 54 Ah

HORIZONTAL ALUMINUM BOX6 - 24 Ah

BOX VERTICAL ALUMINUM
6 - 24 Ah

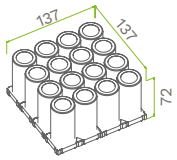
The **LP048** batteries with **51.2V** are manufactured as packs or in aluminum enclosures using LiFePO$_4$ *CELLS 32700*.

They include a **BMS** (*Battery Management System*) for monitoring charge and voltage in each cell. This series, primarily designed **for lighting** with lower discharge needs, allows up to **50% or 100% discharge** per hour of its **nominal value**.

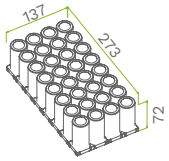
They are supplied with an **IP68** connector (*JNM15 2P 10A*) depending on the output power (*refer to the tables*).

Batteries with 50% and 100% of their nominal capacity discharge

NOMINAL DISCHARGE (Ah) OF THE BATTERY	
100%	AD
50%	A
PRODUCT FINISH	
PACK	/P
VERTICAL ALUMINUM	/LV
HORIZONTAL ALUMINUM	/LH
OUTPUT	
CONNECTOR	/CN
CABLE	/CB



LP048006A



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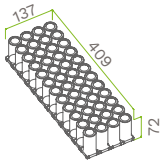
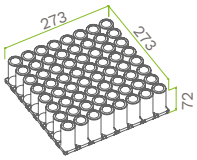


LP048018A



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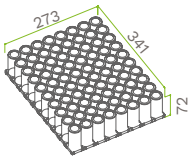

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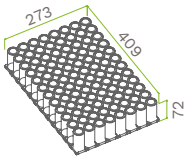

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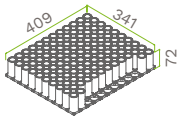

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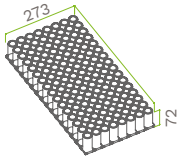

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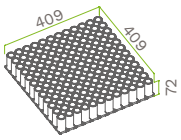

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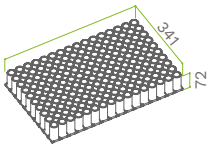

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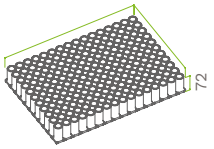

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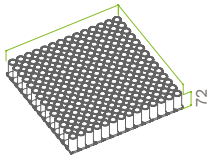

LP048072A

▶ 51.2V [6 - 12Ah]

MODEL /REF		LP048006A	LP048006AD	LP048012A	LP048012AD
ELECTRICAL CHARACTERISTICS					
Nominal voltage (V)		51.2			
Nominal capacity (Ah)		6		12	
Operating voltage (V)		44.8 - 57.6			
Battery energy at 25°C / -10°C (Wh)		307.2		614.4	
Nominal discharge in Ah (%)		50 %	100 %	50 %	100 %
Continuous discharge current (A)		3	6	6	12
Max. current (recommended) (A)		6	16	12	36
Recommended charge voltage		57.6			
Storage temperature (°C)		< 35			
Self-discharge (% per month)		≤ 5			
Cycle life		< 7,000 cycles - 30% SoH 0.5C			
PROTECTION					
Short circuit protection		YES			
Short circuit protection recovery		LOAD OFF			
Protection: Temperature / recovery (°C)		70 / 50 ±5			
Internal resistance (mΩ)		60			
Cell size		32700			
GENERAL					
Package only	Dimensions (mm)	147 x 152 x 75		147 x 288 x 75	
	Weight (kg)	2.4		4.9	
Complete with aluminum enclosure	Dimensions (mm)	195 x 90 x 178		195 x 90 x 316	
	Weight (kg)	3.8		6.8	

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Batteries with 50% and 100% of their nominal capacity discharge

▶ 51.2V [18 - 24Ah]

MODEL /REF		LP048018A	LP048018AD	LP048024A	LP048024AD
ELECTRICAL CHARACTERISTICS					
Nominal voltage (V)		51.2			
Nominal capacity (Ah)		18		24	
Operating voltage (V)		44.8 - 57.6			
Battery energy at 25°C / -10°C (Wh)		921,6		1,229	
Nominal discharge in Ah (%)		50 %	100 %	50 %	100 %
Continuous discharge current (A)		9	18	12	24
Max. current (recommended) (A)		18	54	24	72
Recommended charge voltage		57.6			
Storage temperature (°C)		< 35			
Self-discharge (% per month)		≤ 5			
Cycle life		< 7,000 cycles - 30% SoH 0.5C			
PROTECTION					
Short circuit protection		YES			
Short circuit protection recovery		LOAD OFF			
Protection: Temperature / recovery (°C)		70 / 50 ±5			
Internal resistance (mΩ)		60			
Cell size		32700			
GENERAL					
Package only	Dimensions (mm)	147 x 424 x 75		283 x 288 x 75	
	Weight (kg)	7.4		9.8	
Complete with aluminum enclosure	Dimensions (mm)	195 x 90 x 454		295 x 98 x 341	
	Weight (kg)	9.9		12.6	

▶ 51.2V [30 - 36Ah]

MODEL /REF		LP048030A	LP048030AD	LP048036A	LP048036AD
ELECTRICAL CHARACTERISTICS					
Nominal voltage (V)		51.2			
Nominal capacity (Ah)		30		36	
Operating voltage (V)		44.8 - 57.6			
Battery energy at 25°C / -10°C (Wh)		1,536		1,843	
Nominal discharge in Ah (%)		50 %	100 %	50 %	100 %
Continuous discharge current (A)		15	30	18	36
Max. current (recommended) (A)		30	90	36	108
Recommended charge voltage		57.6			
Storage temperature (°C)		< 35			
Self-discharge (% per month)		≤ 5			
Cycle life		< 7,000 cycles - 30% SoH 0.5C			
PROTECTION					
Short circuit protection		YES			
Short circuit protection recovery		LOAD OFF			
Protection: Temperature / recovery (°C)		70 / 50 ±5			
Internal resistance (mΩ)		60			
Cell size		32700			
GENERAL					
Package only	Dimensions (mm)	283 x 356 x 75		283 x 424 x 75	
	Weight (kg)	12.3		14.8	
Complete with aluminum enclosure	Dimensions (mm)	295 x 98 x 410		295 x 98 x 479	
	Weight (kg)	15.4		18.3	

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Batteries with 50% and 100% of their nominal capacity discharge

▶ 51.2V [42 - 48Ah]

MODEL /REF		LP048042A	LP048042AD	LP048048A
ELECTRICAL CHARACTERISTICS				
Nominal voltage (V)		51.2		
Nominal capacity (Ah)		42		48
Operating voltage (V)		44.8 - 57.6		
Battery energy at 25°C / -10°C (Wh)		2,150		2,457
Nominal discharge in Ah (%)		50 %	100 %	50 %
Continuous discharge current (A)		21	42	24
Max. current (recommended) (A)		42	126	48
Recommended charge voltage		57.6		
Storage temperature (°C)		< 35		
Self-discharge (% per month)		≤ 5		
Cycle life		< 7,000 cycles - 30% SoH 0.5C		
PROTECTION				
Short circuit protection		YES		
Short circuit protection recovery		LOAD OFF		
Protection: Temperature / recovery (°C)		70 / 50 ±5		
Internal resistance (mΩ)		60		
Cell size		32700		
GENERAL				
Package only	Dimensions (mm)	421 x 356 x 75		421 x 390 x 75
	Weight (kg)	17.3		19.7
Complete with aluminum enclosure	Dimensions (mm)	436 x 98 x 430		436 x 98 x 465
	Weight (kg)	22.6		25.3

▶ 51.2V [48 - 54Ah]

MODEL /REF		LP048048AD	LP048054A	LP048054AD
ELECTRICAL CHARACTERISTICS				
Nominal voltage (V)		51.2		
Nominal capacity (Ah)		48	54	
Operating voltage (V)		44.8 - 57.6		
Battery energy at 25°C / -10°C (Wh)		2,457	2,764	
Nominal discharge in Ah (%)		100 %	50 %	100 %
Continuous discharge current (A)		48	27	54
Max. current (recommended) (A)		144	54	162
Recommended charge voltage		57.6		
Storage temperature (°C)		< 35		
Self-discharge (% per month)		≤ 5		
Cycle life		< 7,000 cycles - 30% SoH 0.5C		
PROTECTION				
Short circuit protection		YES		
Short circuit protection recovery		LOAD OFF		
Protection: Temperature / recovery (°C)		70 / 50 ±5		
Internal resistance (mΩ)		60		
Cell size		32700		
GENERAL				
Package only	Dimensions (mm)	421 x 390 x 75	421 x 424 x 75	
	Weight (kg)	19.7	22.2	
Complete with aluminum enclosure	Dimensions (mm)	436 x 98 x 465	436 x 98 x 499	
	Weight (kg)	25.3	28	

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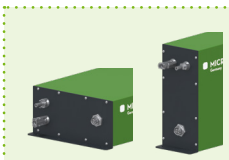
BLI

▶ 12.8V [12 - 60Ah]
25.6V [12 - 36Ah]

Special batteries for lighting with built-in controller

BOX VERTICAL ALUMINUM

BOX HORIZONTAL ALUMINUM



OPTIONAL
WITHOUT DISPLAY

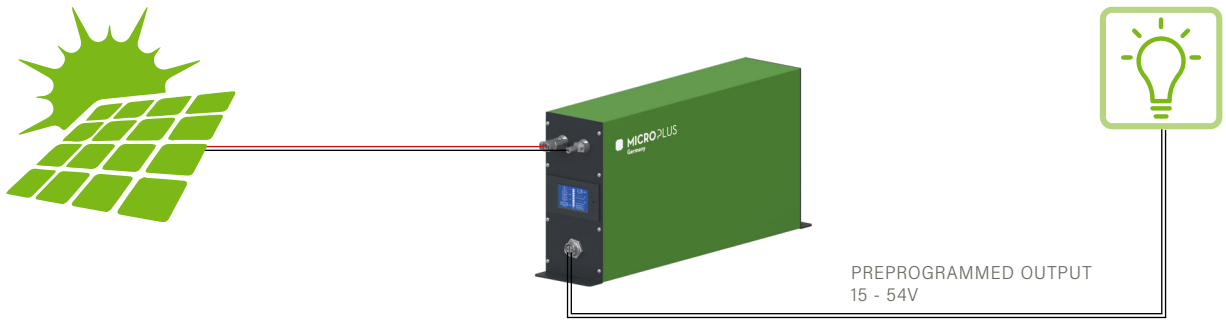
Estos Models de baterías **BLI** se fabrican dentro de una caja de aluminio con entrada de conectores **MC4** para paneles.

Incorpora batería de litio LiFePO$_4$ y controlador de carga (*gama DM*) que se puede programar para salida de **iluminación**.

Especial para farolas solares o diferentes sistemas de **iluminación** a través de la energía solar.

▶ 12.8V [12 - 60Ah]

MODEL /REF	BLI-12-012A	BLI-12-018A	BLI-12-024A	BLI-12-030A	BLI-12-036A	BLI-12-048A	BLI-12-060A
Operating voltage (V)	12.8						
Nominal capacity (Ah)	12	18	24	30	36	48	60
Battery energy at 25°C / -10°C (Wh)	153.6	230.4	307.2	384	460	537	614
Battery Model	LP012012A	LP012018A	LP012024A	LP012030A	LP012036A	LP012048A	LP012060A
Controller	DM60			DM120		DM160	
PV Connector	MC4						
Output Voltage (V)	< 40			< 60			
Maximum Solar Panel (W)	100			130		200	
Charging Current (A)	8			10		15	
Cycle life	< 7,000 cycles - 30% SoH 0.5C						
Lamp Output Connector	JNM15-2P10					JNM19-2P20	
Model Voltage Display	LZEM-15						
Dimensions (mm)	195 x 90 x 144	195 x 90 x 144	195 x 90 x 178	195 x 90 x 213	195 x 90 x 247	195 x 90 x 316	195 x 90 x 385
Weight (kg)	3.1	3.3	3.9	4.73	5.56	7	8.7



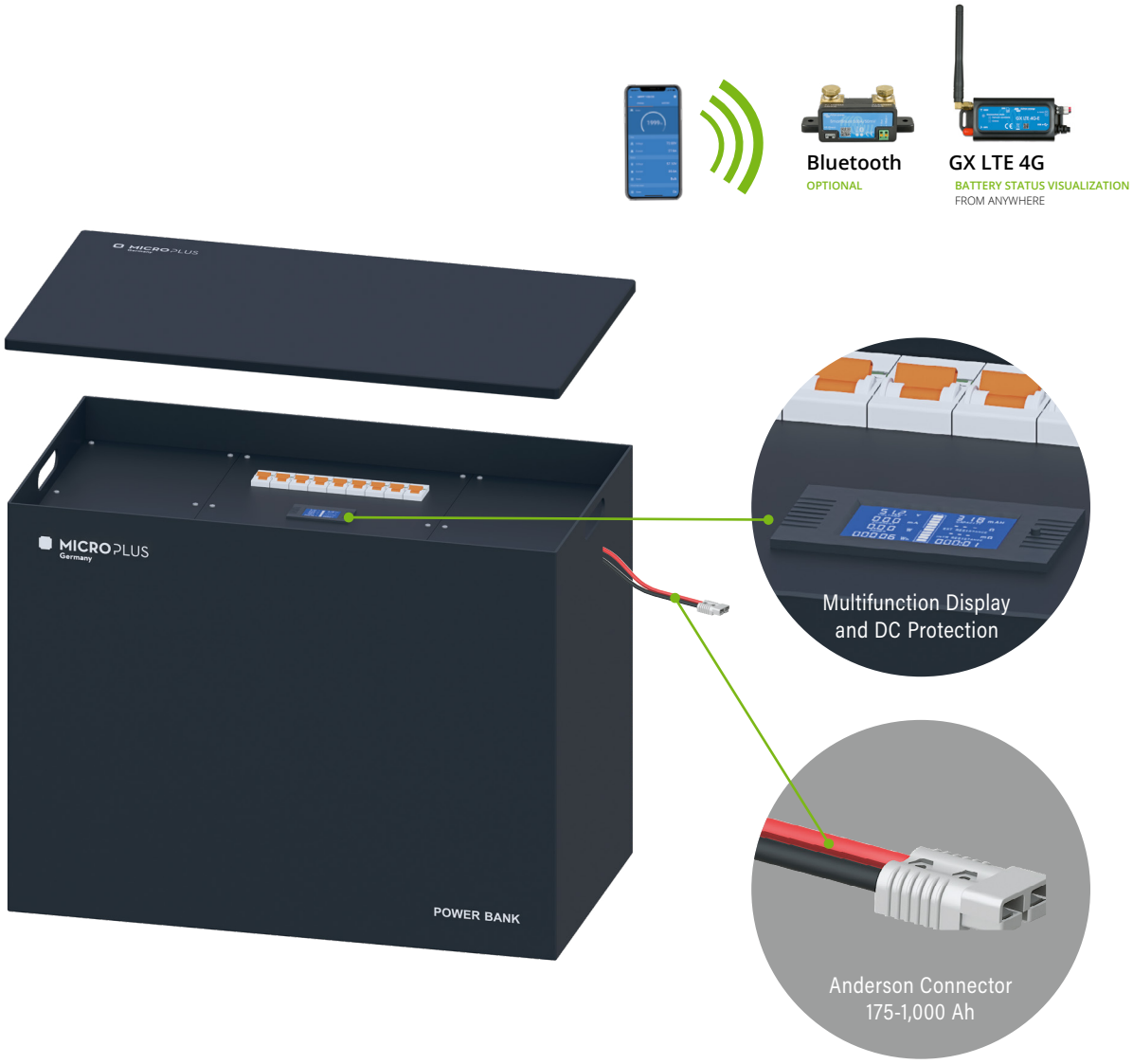
▶ 25.6V [12 - 36Ah]

MODEL /REF	BLI-24-012A	BLI-24-018A	BLI-24-030A	BLI-24-036A
Operating voltage (V)	25.6			
Nominal capacity (Ah)	12	18	30	36
Battery energy at 25°C / -10°C (Wh)	307	460	768	921
Battery Model	LP0125012A	LP024018A	LP024030A	LP024036A
Controller	DM120			DM160
PV Connector	MC4			
Output Voltage (V)	< 60			
Maximum Solar Panel (W)	260			
Charging Current (A)	10			
Cycle life	< 7,000 cycles - 30% SoH 0.5C			
Lamp Output Connector	JNM15-2P10			
Model Voltage Display	LZEM-15			
Dimensions (mm)	195 x 90 x 178	195 x 90 x 247	195 x 90 x 385	195 x 90 x 454
Weight (kg)	3.9	5.6	8.7	10.2

POWERBANK

▶ 51.2V *[11 - 27,6kWh]*

Metallic **BOX**, battery for electric trolley or other applications



Banco de *baterías de litio* LiFePO$_4$ para sustituir en la carretilla eléctrica u otro tipo de máquinas, sutituyendo las antiguas de ácido de 2V ó de AGM / GEL.

Tiene aplicaciones para cualquier sector industrial como acumulación de energía up to 28kWh a **51.2V**, pudiendose acoplar cualquier inversor para convertirlo en corriente alterna.

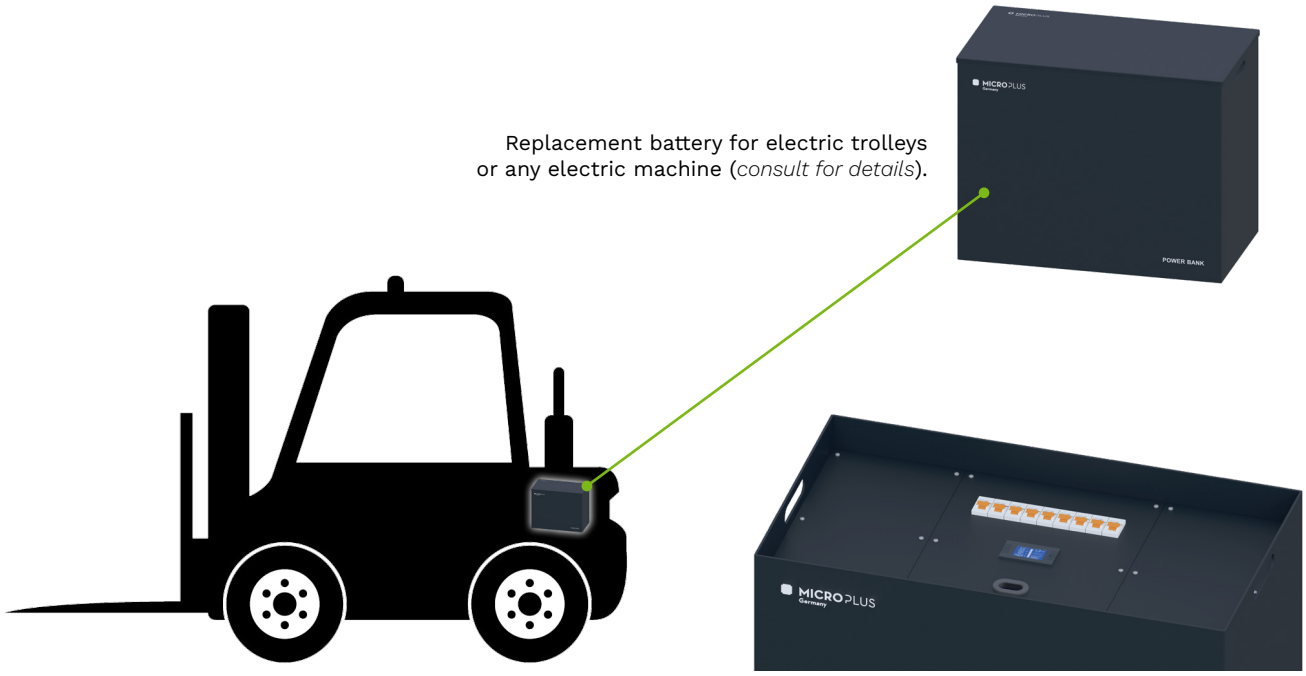
Incorpora disyuntores Vdc y medidor multifunción para la medición de los parámetros de la batería.

Se pueden fabricar las baterías a medida, box optional, listo para acoplar a la maquina existente.

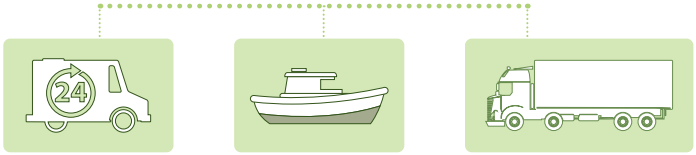
Se suministra con **conector Anderson** entre 175 y 1.000Ah.

En muchos casos se suministran los **MODULE**s de baterías y se introducen en el propio espacio donde estaban ubicadas las antiguas baterías (*solo hay que compensar el peso*).

Replacement battery for electric trolleys
or any electric machine (*consult for details*).



APPLICATIONS



OTHER SOLUTIONS with the **BP** range in parallel

MODEL /REF	POWERBANK-011	POWERBANK-016	POWERBANK-022	POWERBANK-028
BATTERY				
Pack Model	LP048054AD			
Number of Packs (*units*)	4	6	8	10
Stored Energy (*Wh*)	**11,060**	**16,588**	**22,116**	**27,644**
Connector for External Connection	ANDERSON + 2P — 175A - 1.000A			
Internal Battery Connection	BUSBAR			
BOX				
Front Side	Galvanized and Epoxy Painted			
Back Side	Galvanized and Epoxy Painted			
Enclosure Material	Galvanized and Epoxy Painted			
Enclosure Color	OPTIONAL			
DIMENSIONS				
Box (*width x length x height*) (*mm*)	630 x 450 x 450	630 x 450 x 650	630 x 450 x 850	630 x 450 x 1,050
Approximate Weight (*kg*)	120	180	240	300

CRV

▶ 12.8V *[1,382 - 2,764Wh]*

Special battery for caravans

OTHER SOLUTIONS
with the **BP** range in parallel and other voltages
CONSULT

CRV battery range, **12.8V** and 108 - 216 Ah. Manufactured in anodized aluminum enclosures, with high resistance to salinity and chemical agents, available in vertical/horizontal format. Features **AMPHENOL** connectors (*positive and negative*) and a DC circuit breaker on the rear for protection and ON/OFF control of the battery.

Up to 10 units can be connected in parallel. Easy connection to the inverter or system in the caravan.

This battery can be discharged up to 100% of its nominal current.

It can also be manufactured with cable outputs and the terminal required by the customer, as everything is customized to meet specific needs.

Optionally, the battery status can be viewed via mobile phone using Bluetooth (*iOS and Android*).

victron energy

SMARTHUNT

BMV-712 SMART

ORION 12/24/48

COLOR CONTROL GX

SMARTSOLAR

MULTIPLUS

ACCESSORIES

MODEL /REF		CRV-LP012108AD	CRV-LP012120AD	CRV-LP012168AD	CRV-LP012216AD
ELECTRICAL CHARACTERISTICS					
Nominal voltage (*V*)		12.8			
Nominal capacity (*Ah*)		**108**	**120**	**168**	**216**
Operating voltage (*V*)		12.8			
Battery energy at 25°C / -10°C (*Wh*)		1,382,4	1,536	2,150	2,764
Nominal discharge in Ah (%)		100 %	100 %	100 %	100 %
Continuous discharge current (*A*)		108	120	168	214
Max. current (*recommended*) (*A*)		324	360	498	534
Recommended charge voltage (*V*)		11 – 14.4			
Storage temperature (*°C*)		< 35			
Self-discharge (*% per month*)		≤ 5			
Cycle life		< 7,000 cycles - 30% SoH 0.5C			
PROTECTION					
Short circuit protection		Protection: DC unipolar circuit breaker (*magnetothermal*)			
Protection: Temperature / recovery (*°C*)		70 / 50 ±5			
Internal resistance (*mΩ*)		60			
Cell size		32700			
GENERAL					
Connection Output		Amphenol Connectors (*2 male + 2 female*)			
		CABLE OUTPUT WITH REQUIRED TERMINAL			
Complete with aluminum enclosure	Dimensions (*mm*)	436 x 425 x 100		436 x 475 x 100	436 x 525 x 100
	Weight (*kg*)	14	15.4	20	22.6

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RLPN

- 12.8V [216Ah — 2,730Wh]
- 25.6V [108Ah — 2,730Wh]
- 51.2V [54Ah — 2,730Wh]

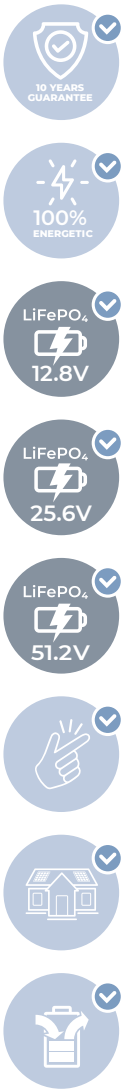
Rack Module LiFePO4 - with Busbar Output and ***Optional Communication***

RLPN/51.2-054

without communication

RLPN/51.2-054C

with communication

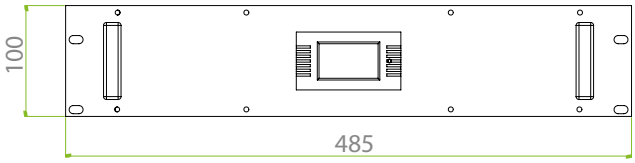


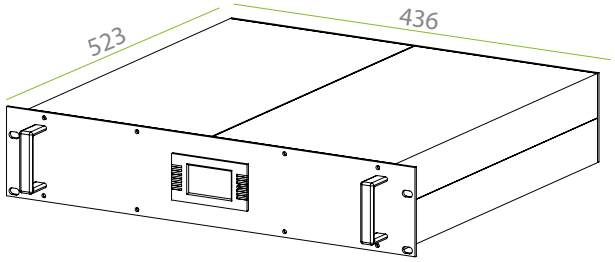
This innovative **RLPN MODULE**, featuring a futuristic yet fully functional design, is constructed within a durable aluminum enclosure. This device is equipped with a versatile multifunction meter that allows for the measurement of various battery parameters. The battery itself consists of LiFePO4 *CELLS 32700* and is managed by a state-of-the-art Battery Management System (**BMS**). Additionally, the **MODULE** includes RS485 and CAN outputs for easy communication and integration into larger systems.

On the back of the **MODULE**, a direct current (*DC*) circuit breaker is incorporated to provide additional protection. It also features a ground connection and multi-wire cable outputs with terminals for easy connection to a **rack** cabinet or other devices.

> *This device not only stands out for its cutting-edge design but also for its functionality and safety, making it an ideal choice for applications that require high performance and reliability in battery management.*

Rack Module with Busbar Cable Output





Busbar Connection Cables

MODEL /REF	RLPN/12.8-216	RLPN/12.8-216C	RLPN/25.6-108	RLPN/25.6-108C	RLPN/51.2-054	RLPN/51.2-054C
GENERAL SPECIFICATIONS						
Nominal voltage (*V*)	12.8		25.6		51.2	
Nominal capacity (*Ah*)	**216**		**108**		**54**	
Minimum Capacity (*Ah*)	213		106		52	
Cell Model	cylindrical 32700 - 6A - $LiFePO_4$					
Nominal Energy (*kWh*)	**2.76**					
Communication Port	NO	RS485 — CAN	NO	RS485 — CAN	NO	RS485 — CAN
Dimensions (*W, D, H*) (*mm*)	436 x 523 x 100	436 x 523 x 110	436 x 523 x 100	436 x 523 x 110	436 x 523 x 100	436 x 523 x 110
Approximate Weight (kilograms	28.9		28.8		28.7	
ELECTRICAL CHARACTERISTICS						
Operating Voltage Range (*V*)	11 - 14.4		22 - 28.8		44 - 57.6	
Recommended charge voltage (*V*)	14 - 14.8		26 - 29.6		56 - 57.6	
Maximum Charging Current (*A*)	106		54		30	
Parallel Charging Current Limit (*ON / OFF programmed*) (*A*)	10					
Maximum Continuous Discharge Current (*A*)	100		50		30	
Maximum Peak Discharge Current (*A <3S*)	110		60		40	
Cut-off Discharge Voltage (*V*)	8		18		44	
Faradaic Charge Efficiency (%)	98					
Energy Charge Efficiency (%	92					
Internal Resistance (*mΩ*)	65		64		140	
Self-Discharge (%)	≤ 3.5 %					
Cycle life (*25°C, 0,2c, 80% SoH*)	< 7,000 cycles 30% SoH 0.5C					
OPERATING CONDITIONS						
Operating Temperature — Charge	0°C ~ 45°C					
Operating Temperature — Discharge	-10°C ~ 45°C					
Storage Temperature	-20°C ~ 45°C					
Storage Duration	12 Months 20°C ~ 25°C					
Safety Standard	UL 1642 at cell level					
Dust and Water Resistance	IP30					
Parallel Function (*units*)	6		12		18	
Certifications	CE - IEC 62619 - UNUN 38.3 - ROSH					

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RLPN

▶ 51.2V [100Ah — 5,120Wh]

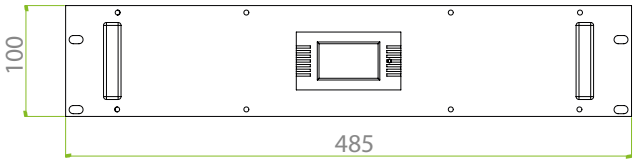
LiFePO4 Rack Module - with Busbar Output and ***Optional Communication***

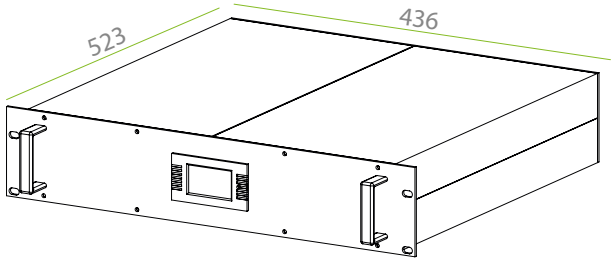
This innovative **RLPN MODULE**, with a futuristic design yet fully functional today, is constructed in a robust aluminum enclosure. This device is equipped with a versatile multifunction meter that allows for the measurement of various battery parameters. It is built with 100A *PRISMATIC CELLS* and LiFePO4 and is controlled by a state-of-the-art Battery Management System (**BMS**). Additionally, it features RS485 and CAN outputs to facilitate communication and integration into larger systems.

On the back of the **MODULE**, a DC circuit breaker has been incorporated to provide additional protection. It also includes a ground connection and multi-wire cable outputs with terminals that allow for easy connection to the **rack** cabinet or other devices.

> *This device not only stands out for its cutting-edge design but also for its functionality and safety, making it an ideal choice for applications that require high performance and reliability in battery management.*

Rack Module with Busbar Connection Cables





Busbar Connection Cables

MODEL /REF		RLPN/51.2-100	RLPN/51.2-100C
GENERAL SPECIFICATIONS			
Nominal voltage (*V*)		51.2	
Nominal capacity (*Ah*)		**100**	
Minimum Capacity (*Ah*)		98	
Cell Model		PRISMATIC CELLS 100A - $LiFePO_4$	
Nominal Energy (*kWh*)		**5.12**	
Communication Port		NO	RS485 — CAN
Dimensions (*W, D, H*) (*mm*)		436 x 523 x 145	436 x 523 x 145
Approximate Weight (kilograms		40,8	
ELECTRICAL CHARACTERISTICS			
Operating Voltage Range (*V*)		44 - 57,6	
Recommended charge voltage (*V*)		56 - 57,6	
Maximum Charging Current (*A*)		50	
Parallel Charging Current Limit (*ON / OFF programmed*) (*A*)		20	
Maximum Continuous Discharge Current (*A*)		50	
Maximum Peak Discharge Current (*A <3S*)		55	
Cut-off Discharge Voltage (*V*)		44	
Faradaic Charge Efficiency (%)		98	
Energy Charge Efficiency (%		92	
Internal Resistance (*mΩ*)		140	
Self-Discharge (%)		≤ 3.5 %	
Cycle life (*25°C, 0,2c, 80% SoH*)		< 8.000 ciclos 30% SoH 0,5C	
OPERATING CONDITIONS			
Operating Temperature	Charge	0°C ~ 45°C	
	Discharge	-10°C ~ 45°C	
Storage Temperature		-20°C ~ 45°C	
Storage Duration		12 Months 20°C ~ 25°C	
Safety Standard		UL 1642 at cell level	
Dust and Water Resistance		IP30	
Parallel Function (*units*)		10	
Certifications		CE - IEC 62619 - UNUN 38.3 - ROSH	

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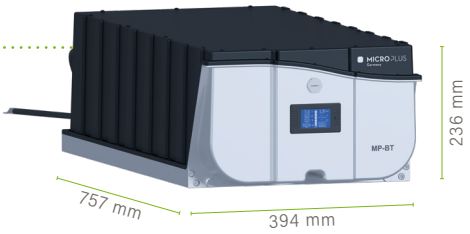
MP-BT

- **12.8V** *[1,120Ah]*
- **25.6V** *[558Ah]*
- **51.2V** *[280Ah]*

PRISMATIC CELLS LiFePO$_4$ Module - ***LOW VOLTAGE with Communication***

PRISMATIC CELLS
280A



This *PRISMATIC CELLS* LiFePO$_4$ MODULE has been designed with the following configurations:

- **12.8V** - ***[4P - 4S]*** with a capacity of 14.3 kWh.
- **25.6V** - ***[2P - 8S]*** with a capacity of 14.3 kWh.
- **51.2V** - ***[1P - 16S]*** with a capacity of 14.3 kWh.

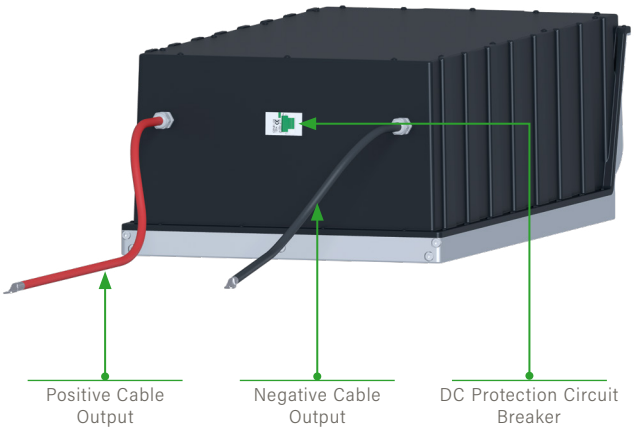
To ensure optimal thermal conductivity and heat dissipation, a specific gel is used to enhance the thermal transfer from the cells to the heat sink. This system maintains the temperature within ideal ranges, thereby extending the battery's lifespan and allowing high-power discharges without issues.

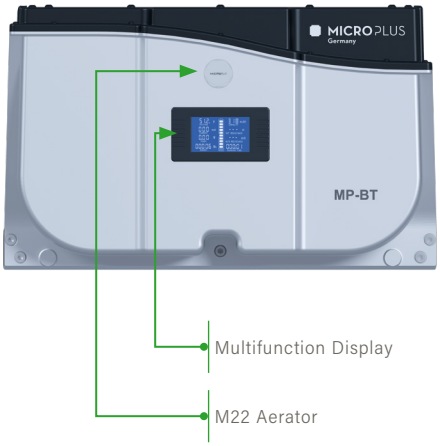
This **MODULE** features a state-of-the-art **BMS** (*Battery Management System*), ensuring perfect management of charging and discharging processes, as well as precise cell balancing throughout the **MODULE**. It includes positive and negative connectors with cable outputs, along with two RJ45 connectors for easy communication. An air vent is also included to prevent condensation inside the **MODULE**.

The plates that connect the cells in series are welded using laser technology, and the aluminum pieces at the front and rear are designed for a perfect fit with the optional cooling system, providing the necessary rigidity to the assembly. The top section includes a double-body system with cell separators and mounting, patented for increased efficiency.

> *In summary, this product offers an effective and efficient solution for high-capacity and high-power PRISMATIC CELLS* LiFePO$_4$ *configurations, with a long lifespan and the ability to adapt to the specific needs of our customers.*

PRISMATIC CELLS LiFePO$_4$ Module - LOW VOLTAGE with Communication





MODEL /REF		MP-BT/12.8-1120	MP-BT/25.6-0558	MP-BT/51.2-0280
GENERAL SPECIFICATIONS				
Nominal voltage (*V*)		**12.8**	**25.6**	**51.2**
Nominal capacity (*Ah*) (*Prismatic Cell*)			**280**	
Nominal Energy (*kWh*)			**14.3**	
Capacity (*Ah*)		1.120	558	280
Configuration (*Prismatic LFP Cell 280Ah*)		4P — 4S	2P — 8S	1P — 16S
Dimensions (*W, D, H*) (*mm*)			394 x 757 x 236	
Approximate Weight (kilograms			95	
ELECTRICAL CHARACTERISTICS				
Operating Voltage Range (*V*)		11 - 14.4	22.8 - 26	44 - 57.6
Maximum Charging Current (*A*)		500	250	140
Maximum Continuous Discharge Current (*A*)		500	250	140
Cut-off Discharge Voltage (*V*)		< 10	< 22	< 40
Efficiency (%)			98	
Self-Discharge (%)			≤ 3.5% per month	
BMS (*Vdc*)		12.8	25.6	51.2
(*Positive and negative*) output connectors			60cm Multistrand Cable	
Connection strips			Laser Welding	
Cycle life (*25°C, 0,5C, 70% SoH*)			≤ 8,000	
MECHANICAL CHARACTERISTICS				
Module Structural Base			Anodized Aluminum	
Air Vent			M22	
Module Front and Enclosure			Aluminum Front and Injected ABS Enclosure	
OPERATING CONDITIONS				
Operating Temperature	Charge		0°C ~ 60°C	
	Discharge		-20°C ~ 60°C	
Storage Temperature			-20°C ~ 35°C	
Communication				
Dust and Water Resistance			IP65	
Series Function (*Units*)			Parallel Only	
Certifications			CE - IEC62619	

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BP/12.8

▶ **12.8V** *[50 - 320Ah]*
[640 - 4,096Wh]

LiFePO$_4$ Prismatic MONOBLOCK Battery - With optional communication *(CAN or Bluetooth)*

Stackable **System**

APPLICATIONS

12.8V monobloc battery with a polycarbonate/**ABS** enclosure featuring UV and V0 flame retardant protection.

Inside, it houses prismatic cells of various amperages, as detailed in the attached table, connected via nickel or aluminum plates. These are fastened with screws and include a high-quality Battery Management System (**BMS**) to balance the cells and provide protection against short circuits and polarity inversion.

The battery offers various outputs, either M8 or plug-in connectors, and can also include Anderson connectors or cable outputs to achieve an **IP68** rating.

Communication is optional, with connections available via CAN and Bluetooth. Additionally, a multifunctional option with a battery meter to measure voltage, charge level, watts, etc., can be provided.

These batteries are stackable and come in various enclosure colors with customization options to meet specific customer needs.

> *They stand out for their ease of handling, high impact resistance, and are ideal for marine applications, golf carts, industrial machinery, and domestic use.*

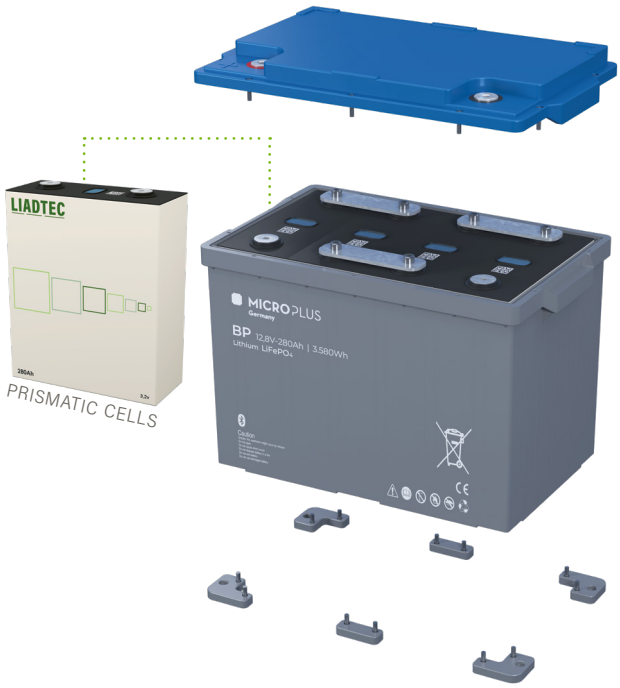
12.8V LiFePO$_4$ Prismatic MONOBLOCK Battery - Optional Communication *(CAN or Bluetooth)*

Output Terminal **M8** [/M8]

Output Connector **350A** [/CR]

Output Terminal **ANDERSON** [/CA]

Output Terminal **TERMINAL** [/CT]



MODEL /REF	BP/12.8-0050	BP/12.8-0100	BP/12.8-0150	BP/12.8-0240	BP/12.8-0280	BP/12.8-0320
GENERAL SPECIFICATIONS						
Nominal voltage (*V*)	12.8					
Nominal Energy (*Wh*)	640	1,280	1,920	3,072	3,580	4,096
Nominal Capacity at 25°C (*Ah*)	50	100	150	240	280	320
Configuration (*Prismatic Cell*)	50A [1P – 4S]	100A [1P – 4S]	150A [1P – 4S]	240A [1P – 4S]	280A [1P – 4S]	320A [1P – 4S]
Dimensions (*W, D, H*) (*mm*)	197 x 165 x 170	321 x 197 x 240				
Approximate Weight (kilograms	6.3	10.25	18.70	19	24	24.5
ELECTRICAL CHARACTERISTICS						
Operating Voltage Range (*V*)	11 - 14,4					
Maximum Charging Current (*A*)	30	50	70	120	140	160
Maximum Continuous Discharge Current (*A*)	50	100	150	240	280	320
Cut-off Discharge Voltage (*V*)	< 10					
Internal Resistance (*mΩ*)	≤ 0.6		≤ 0.3			
Efficiency (%)	98					
Self-Discharge (%)	≤ 3.5% per month					
BMS (*Vdc*)	12.8					
(*Positive and negative*) output connectors	M8					
Connection strips	By Screw					
Cycle life (*25°C, 0,5C, 70% SoH*)	≤ 8,000					
MECHANICAL CHARACTERISTICS						
Structural Base of the Box	Polycarbonate / ABS with V0 and UV Protection					
OPERATING CONDITIONS						
Operating Temperature – Charge	0°C ~ 60°C					
Operating Temperature – Discharge	-20°C ~ 60°C					
Storage Temperature	-20°C ~ 35°C					
Optional Communication	CAN or Bluetooth					
Dust and Water Resistance	IP55 - IP68					
Series Function (*Units*)	Parallel Only					
Certifications	CE - IEC62619					

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BP/25.6

▶ **25.6V** *[100 - 320Ah]*
[2,560 - 8,192Wh]

LiFePO$_4$ Prismatic MONOBLOCK Battery - With optional communication *(CAN or Bluetooth)*

BLUETOOTH
OPTIONAL

Stackable **System**

APPLICATIONS

25.6V Monobloc Battery with a polycarbonate/**ABS** case featuring UV and V0 flame retardant protection.

It contains prismatic cells of different amperages, connected with nickel or aluminum plates and secured with screws. The battery is equipped with a high-quality Battery Management System (**BMS**) for cell balancing and protection against short circuits and polarity reversal.

It offers various output options including M8 terminals, plug connectors, Anderson connectors, or cable output for **IP68** rating. Optional communication via CAN and Bluetooth is available.

It can also come with a multifunctional battery meter to measure voltage, charge level, and watts.

The batteries are stackable and come in different colors with customization options to meet specific customer needs.

> *They stand out for their ease of handling, high impact resistance, and are ideal for marine applications, golf carts, industrial machinery, and domestic use.*

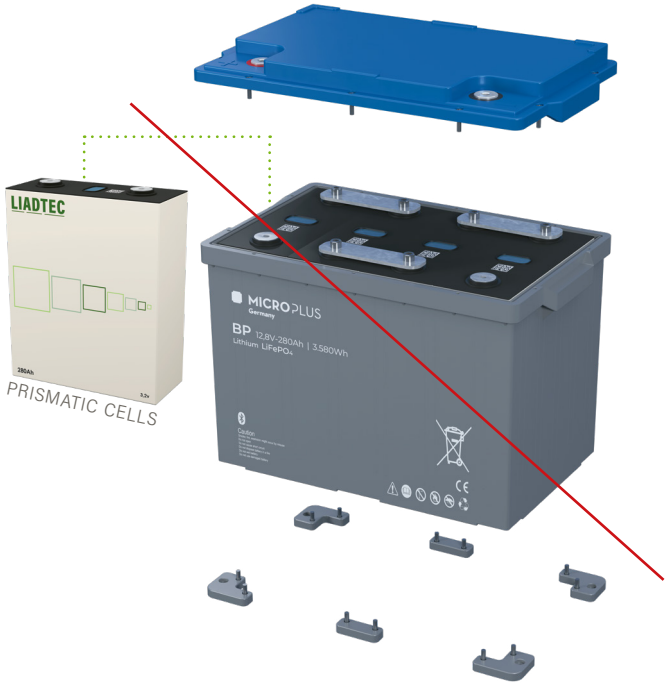
25.6V Monobloc Prismatic LiFePO$_4$ Battery - with optional communication *(CAN or Bluetooth)*

Output Terminal **M8** [/M8]

Output Connector **350A** [/CR]

Output Terminal **ANDERSON** [/CA]

Output Terminal **TERMINAL** [/CT]



MODEL /REF	BP/25.6-0100	BP/25.6-0150	BP/25.6-0240	BP/25.6-0280	BP/25.6-0320
GENERAL SPECIFICATIONS					
Nominal voltage (*V*)	25.6				
Nominal Energy (*Wh*)	2.560	3.840	6.144	7.160	8.192
Nominal Capacity at 25°C (*Ah*)	100	150	240	280	320
Configuration (*Prismatic Cell*)	100A [1P – 8S]	150A [1P – 8S]	240A [1P – 8S]	280A [1P – 8S]	320A [1P – 8S]
Dimensions (*W. D. H*) (*mm*)	321 x 197 x 240	660 x 220 x 240			
Approximate Weight (kilograms	18.6	37.5	38	47	48
ELECTRICAL CHARACTERISTICS					
Operating Voltage Range (*V*)	22 - 28.8				
Maximum Charging Current (*A*)	50	70	120	140	160
Maximum Continuous Discharge Current (*A*)	100	150	240	280	320
Cut-off Discharge Voltage (*V*)	< 10				
Internal Resistance (*mΩ*)	≤ 0.6		≤ 0.3		
Efficiency (%)	98				
Self-Discharge (%)	≤ 3.5% per month				
BMS (*Vdc*)	25.6				
(*Positive and negative*) output connectors	M8				
Connection strips	By Screw				
Cycle life (*25°C. 0.5C. 70% SoH*)	≤ 8,000				
MECHANICAL CHARACTERISTICS					
Structural Base of the Box	Polycarbonate / ABS with V0 and UV Protection				
OPERATING CONDITIONS					
Operating Temperature – Charge	0°C ~ 60°C				
Operating Temperature – Discharge	-20°C ~ 60°C				
Storage Temperature	-20°C ~ 35°C				
Optional Communication	CAN or Bluetooth				
Dust and Water Resistance	IP55 - IP68				
Series Function (*Units*)	Parallel Only				
Certifications	CE - IEC62619				

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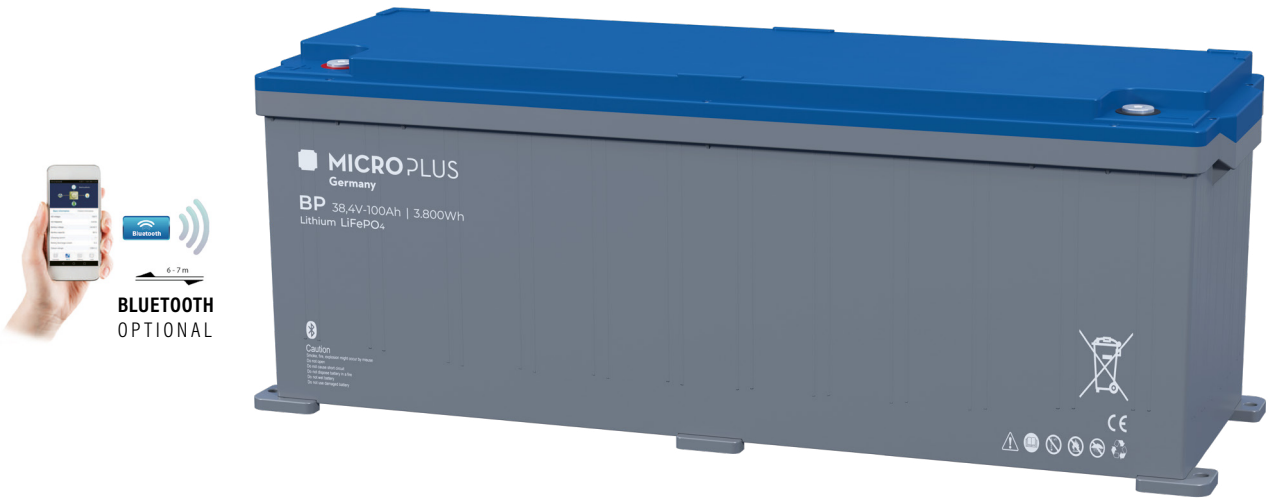
BP/38.4

▶ **38.4V** *[100 - 320Ah]*
[3,800 - 12,288Wh]

LiFePO$_4$ Prismatic MONOBLOCK Battery - With optional communication *(CAN or Bluetooth)*



APPLICATIONS

38.4V MONOBLOCK PRISMATIC LiFePO$_4$ BATTERY - with optional communication (*CAN or BLUETOOTH*)

The **38.4V** monoblock battery features a polycarbonate / **ABS** case with UV and VO protection that ensures flame resistance. Inside, it houses prismatic cells of varying amperages, as detailed in the attached table, connected via nickel or aluminum busbars. These are secured with tightening screws and equipped with a high-quality Battery Management System (**BMS**) to balance the cells and provide protection against short circuits and polarity inversion.

The battery offers various outputs, either M8 or plug connectors, and can also include Anderson connectors or cable output to achieve an IP 68 rating. Optional communication allows connections via CAN and Bluetooth.

Additionally, it can be supplied with a multifunctional battery meter to measure voltage, charge level, watts, etc.

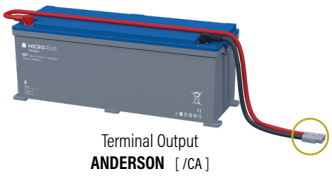
These batteries are stackable and available in different case colors with customization options to meet specific customer needs.

> *They stand out for their ease of handling, high impact resistance, and are ideal for marine applications, golf carts, industrial machinery, and domestic use.*

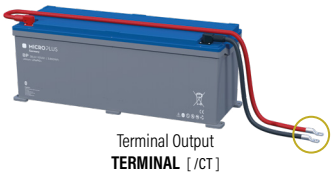
Batería **38.4V** MONOBLOCK PRISMATICA LiFePO$_4$ - with communication optional *(CAN ò BLUETOOTH)*

Terminal Output
M8 [/M8]

Connector Output
350A [/CR]



Terminal Output
ANDERSON [/CA]



Terminal Output
TERMINAL [/CT]

MODEL /REF	BP/38.4-0100	BP/38.4-0150	BP/38.4-0240	BP/38.4-0280	BP/38.4-0320
GENERAL SPECIFICATIONS					
Nominal voltage (*V*)	38.4				
Nominal Energy (*Wh*)	3.800	5.760	9.216	10.750	12.288
Nominal Capacity at 25°C (*Ah*)	100	150	240	280	320
Configuration (*Prismatic Cell*)	100A [1P – 12S]	150A [1P – 12S]	240A [1P – 12S]	280A [1P – 12S]	320A [1P – 12S]
Dimensions (*W. D. H*) (*mm*)	660 x 220 x 240			625 x 350 x 240	
Approximate Weight (kilograms	28.2	54.1	55.2	69	71
ELECTRICAL CHARACTERISTICS					
Operating Voltage Range (*V*)	33 - 43				
Maximum Charging Current (*A*)	50	70	120	140	160
Maximum Continuous Discharge Current (*A*)	100	150	240	280	320
Cut-off Discharge Voltage (*V*)	< 34				
Internal Resistance (*mΩ*)	≤ 0.6		≤ 0.3		
Efficiency (%)	98				
Self-Discharge (%)	≤ 3.5% per month				
BMS (*Vdc*)	38.4				
(*Positive and negative*) output connectors	M8				
Connection strips	By Screw				
Cycle life (*25°C. 0.5C. 70% SoH*)	≤ 8.000				
MECHANICAL CHARACTERISTICS					
Structural Base of the Box	Polycarbonate / ABS with V0 and UV Protection				
OPERATING CONDITIONS					
Operating Temperature – Charge	0°C ~ 60°C				
Operating Temperature – Discharge	-20°C ~ 60°C				
Storage Temperature	-20°C ~ 35°C				
Optional Communication	CAN or Bluetooth				
Dust and Water Resistance	IP55 - IP68				
Series Function (*Units*)	Parallel Only				
Certifications	CE - IEC62619				

MICRO PLUS Germany

BP/51.2

▶ 51.2V *[50 - 320Ah]*
[2,560 - 16,384Wh]

LiFePO$_4$ Prismatic MONOBLOCK Battery - With optional communication *(CAN or Bluetooth)*

BLUETOOTH
OPTIONAL

Stackable **System**

APPLICATIONS

The **51.2V** monoblock battery features a polycarbonate/**ABS** casing with UV and VO protection, ensuring resistance to flame propagation. Inside, it contains prismatic cells of various amperages, as detailed in the attached table, connected with nickel or aluminum plates. These are fastened with screws and include a high-quality Battery Management System (**BMS**) to balance the cells and provide protection against short circuits and polarity inversion.

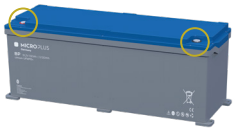
The battery offers various outputs, including M8 or plug connectors, and can also be equipped with Anderson connectors or cable outputs to achieve an **IP68** rating. Optional communication features include CAN and Bluetooth connections.

Additionally, it can be supplied with multifunction capabilities, including a battery meter to measure voltage, charge level, and watts.

These batteries are stackable and available in different casing colors with customization options to meet specific client needs.

> *They stand out for their ease of handling, high impact resistance, and are ideal for marine applications, golf carts, industrial machinery, and domestic use.*

51.2V MONOBLOCK PRISMATIC LiFePO$_4$ Battery - Optional Communication *(CAN or Bluetooth)*

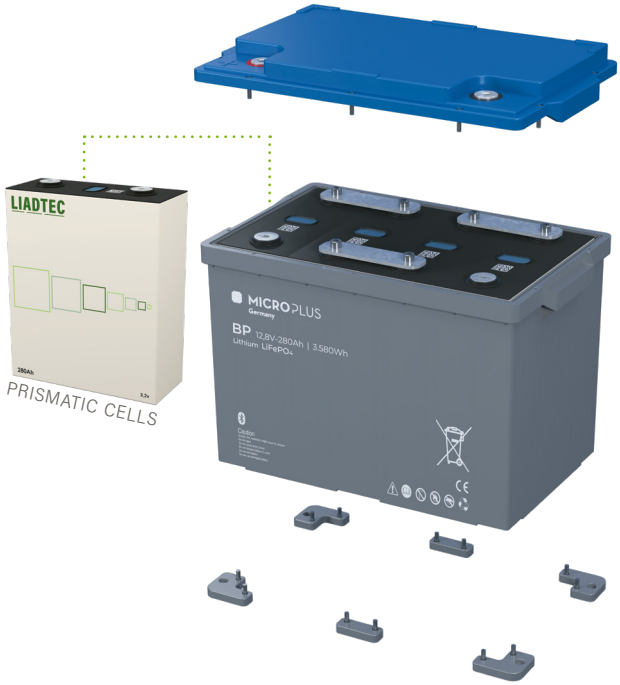


Terminal Output
M8 [/M8]

Connector Output
350A [/CR]

Terminal Output
ANDERSON [/CA]

Terminal Output
TERMINAL [/CT]



MODEL /REF	BP/51.2-0050	BP/51.2-0100	BP/51.2-0150	BP/51.2-0240	BP/51.2-0280	BP/51.2-0320
GENERAL SPECIFICATIONS						
Nominal voltage (*V*)	51.2					
Nominal Energy (*Wh*)	2,560	5,120	7,680	12,288	14,336	16,384
Nominal Capacity at 25°C (*Ah*)	50	100	150	240	280	320
Configuration (*Prismatic Cell*)	50A [1P – 16S]	100A [1P – 16S]	150A [1P – 16S]	240A [1P – 16S]	280A [1P – 16S]	320A [1P – 16S]
Dimensions (*W, D, H*) (*mm*)	660 x 220 x 240		625 x 350 x 240			
Approximate Weight (kilograms	22	36.4	71.9	73	90.8	91.4
ELECTRICAL CHARACTERISTICS						
Operating Voltage Range (*V*)	44 - 57.6					
Maximum Charging Current (*A*)	30	50	70	120	140	160
Maximum Continuous Discharge Current (*A*)	50	100	150	240	280	320
Cut-off Discharge Voltage (*V*)	< 44					
Internal Resistance (*mΩ*)	≤ 0.6			≤ 0.3		
Efficiency (%)	98					
Self-Discharge (%)	≤ 3.5% per month					
BMS (*Vdc*)	51.2					
(*Positive and negative*) output connectors	M8					
Connection strips	By Screw					
Cycle life (*25°C, 0,5C, 70% SoH*)	≤ 8,000					
MECHANICAL CHARACTERISTICS						
Structural Base of the Box	Polycarbonate / ABS with V0 and UV Protection					
OPERATING CONDITIONS						
Operating Temperature – Charge	0°C ~ 60°C					
Operating Temperature – Discharge	-20°C ~ 60°C					
Storage Temperature	-20°C ~ 35°C					
Optional Communication	CAN or Bluetooth					
Dust and Water Resistance	IP55 - IP68					
Series Function (*Units*)	Parallel Only					
Certifications	CE - IEC62619					

CHARGERPLUS

▶ Charger with Storage (Hybrid)

MANUFACTURED victron energy BLUE POWER

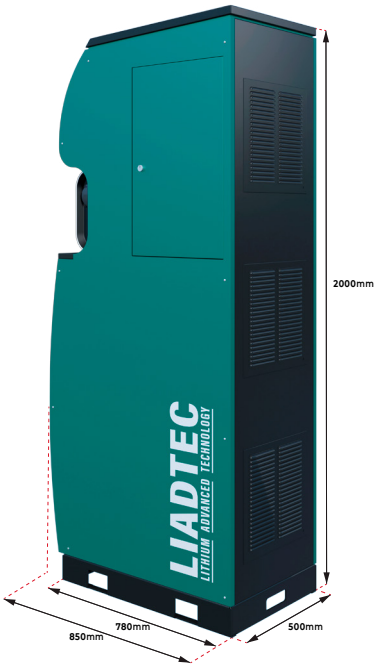
For the charging of electric cars and motorcycles, with energy storage in batteries and an inverter.

The **CHARGERPLUS** model is an advanced automobile charging system that integrates battery accumulators with a voltage of **51.2V** and a storage capacity ranging between 40 and 54 kWh, depending on the model and specifications detailed in the attached table. This system incorporates an innovative design, including a 10 or 15 kWh Victron inverter, complemented by a charge controller and protection devices for batteries and photovoltaic panels, allowing for both grid connection and off-grid operation.

The **CHARGERPLUS** system is designed to generate renewable energy, facilitating its use in residential, industrial, and commercial applications. Its ability to charge one or two electric vehicles without increasing the contracted electrical power makes it an efficient and sustainable solution. It is especially suitable for installations in solar canopies, where its design has been optimized.

Available in a variety of colors and three-phase configurations, the **CHARGERPLUS** can be equipped with a specific inverter for high-demand applications. Additionally, it includes a state-of-the-art Circutor charger, with an output of 7.2 kWh or 2 x 7.2 kWh, and a hose prepared for charging electric vehicles. It also supports the installation of single-phase outlets, compatible with various car models.

> *The CHARGERPLUS model provides a comprehensive and technologically advanced solution for electric vehicle charging and efficient renewable energy management in multiple environments.*



MODEL /REF		CHARGERPLUS/043	CHARGERPLUS/057
SOLAR. PANEL			
Total panel power (*Wp*)		11,500	23,000
ENERGY STORAGE			
Lithium battery voltage (*Vdc*)		51.2	
Module model		BP/51.2-0280	
No. of modules (*units*)		3	4
Energy stored in batteries (*kWh*)		**43.08**	**57.34**
INVERTER / CONTROLLER			
Inverter model		MULTIPLUS 48/10000/140-100	MULTIPLUS 48/15000/200-100
Inverter units (*units*)		1	
Inverter power	Peak power (*W*)	18,000	25,000
	Nominal (*VA*)	**10,000**	**15,000**
Output voltage (*Vac*)		230 Vac - 50Hz	
Photovoltaic controller		RS450/200	2 x RS450/200
CHARGER			
Charger model		E-NEXT (*CIRCUTOR*)	
Output power (*kW*)		[1 outlet] — 7,5	[2 outlets] — 7,5
DIMENSIONS			
Dimensions (*L x W x H*) (*mm*)		2,000 x 780 x 500	
Weight (*kg*)		485	690
STANDARDS			
Safety rating		Category III - 300 V AC (*EN 61010*) - Electric shock protection by double insulation Class II	
Standards		EN 61851-1, ISO 14443A	

MICRO PLUS Germany

AR/12.8

▶ 12.8V *[5.5 - 13.8kWh]*

Rack cabinet with 12.8V modules

MODEL	NOMINAL VOLTAGE (V)	RACK BATTERY **RLPN/12.8-216** (Units)	NOMINAL CAPACITY TOTAL (AH)	NOMINAL ENERGY TOTAL (WH)	MAXIMUM CHARGING CURRENT (A)	CABINET UNITS	CABINET MODEL	TOTAL WEIGHT (kG)	RACK CONNECTION	PARALLEL BATTERY CONNECTION	STORAGE TEMPERATURE	DISCHARGE CUTOFF/ SHUTDOWN (V)
AR/12.8-0432	**12.8**	2	**432**	**5.529**	216	1	ARM6818	106	BUSBAR / EMBARRADO	YES	-10°C – +45°C	10,8
AR/12.8-0648		3	**648**	**8.294**	324			136				
AR/12.8-0864		4	**864**	**11.059**	432			176				
AR/12.8-1080		5	**1.080**	**13.824**	540			207				

El sistema AR/12.8 se compone de un armario **rack** con puerta delantera de cristal templado desmontable, igual que una puerta trasera desmontable y sus laterales.

En el techo se instalan 2 o 4 extractores para la recirculación del aire.

En su interior van ubicados **MODULE**s de litio LiFePO$_4$ de 216Ah a **12.8V** conectadas entre si por cables directamente a un embarrado situado en la partes trasera, con pletina de cobre y magnetotérmicos de protección DC si se requiere.

> *A este sistema se le puede dar diferentes versiones que pueden ir con inversores tipo **rack** ó standar y con todas las conexiones necesarias para que la instalación sea lo mas fácil posible (ver tabla).*

AR/25.6

▶ 25.6V [5,5 - 16,5kWh]

Cabinet Rack con modules 25.6V

MODEL	NOMINAL VOLTAGE (V)	RACK BATTERY RLPN/25.6-108 (Units)	NOMINAL CAPACITY TOTAL (AH)	NOMINAL ENERGY TOTAL (WH)	MAXIMUM CHARGING CURRENT (A)	CABINET		TOTAL WEIGHT (KG)	RACK CONNECTION	PARALLEL BATTERY CONNECTION	STORAGE TEMPERATURE	DISCHARGE CUTOFF/ SHUTDOWN (V)
						UNITS	MODEL					
AR/25.6-0216	25.6	2	**216**	**5.520**	108	1	ARM6818	106	BUSBAR / EMBARRADO	YES	-10°C – +45°C	22
AR/25.6-0324		3	**324**	**8.280**	162			136				
AR/25.6-0432		4	**432**	**11.040**	216			176				
AR/25.6-0540		5	**540**	**11.059**	270			207				
AR/25.6-0648		6	**648**	**16.560**	324			238				

El sistema AR/25.6 se compone de un armario **rack** con puerta delantera de cristal templado desmontable, igual que una puerta trasera desmontable y sus laterales.

En el techo se instalan 2 o 4 extractores para la recirculación del aire.

En su interior van ubicados **MODULE**s de litio $LiFePO_4$ de 108Ah a **25.6V** conectadas entre si por cables directamente a un embarrado situado en la partes trasera, con pletina de cobre y magnetotérmicos de protección DC si se requiere.

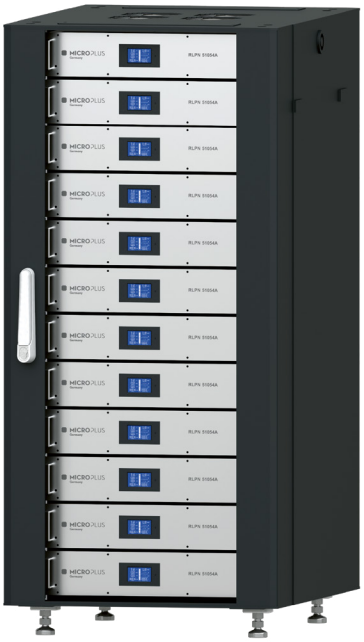
> *A este sistema se le puede dar diferentes versiones que pueden ir con inversores tipo* **rack** *ó standar y con todas las conexiones necesarias para que la instalación sea lo mas fácil posible (ver tabla).*

MICRO PLUS Germany

AR/51.2

▶ 51.2V [2,7 - 49,7kWh]

Cabinet Rack de modules 51.2V

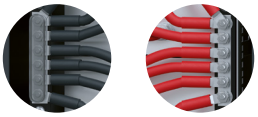


The **AR/51.2** system consists of a **rack** cabinet with a removable front door made of tempered glass, as well as a removable rear door and sides.

The ceiling is equipped with 2 or 4 extractors for air re-circulation.

Inside, $LiFePO_4$ lithium **MODULE**s of 54Ah at **51.2V** are located, connected to each other with cables directly to a busbar situated at the rear, with copper plates and DC protection circuit breakers if required.

*This system can be provided in different versions, which may include **rack**-mounted or standard inverters, and come with all necessary connections to make the installation as easy as possible (see following tables).*



Battery busbar connection

MODEL	NOMINAL VOLTAGE (V)	RACK BATTERY RLPN51054A (Units)	NOMINAL CAPACITY TOTAL (Ah)	NOMINAL ENERGY TOTAL (Wh)	MAXIMUM CHARGING CURRENT (A)	CABINET UNITS	CABINET MODEL	TOTAL WEIGHT (kG)	RACK CONNECTION	PARALLEL BATTERY CONNECTION	STORAGE TEMPERATURE	DISCHARGE CUTOFF/ SHUTDOWN (V)
AR/51.2-0162	51.2	3	**162**	**8.294**	80	1	ARM6818	136	Busbar connection or busbar output cables	YES	-10°C – +45°C	44,8
AR/51.2-0216		4	**216**	**11.059**	105			166				
AR/51.2-0270		5	**270**	**13.824**	130			207				
AR/51.2-0324		6	**324**	**16.588**	160			237				
AR/51.2-0378		7	**378**	**19.353**	185		ARM6827	275				
AR/51.2-0432		8	**432**	**22.118**	215			305				
AR/51.2-0486		9	**486**	**24.883**	240			336				
AR/51.2-0540		10	**540**	**27.648**	265	2	ARM6818	412				
AR/51.2-0594		11	**594**	**30.412**	295			442				
AR/51.2-0648		12	**648**	**33.177**	320			473				
AR/51.2-0702		13	**702**	**35.942**	345		ARM6822	506				
AR/51.2-0756		14	**756**	**38.707**	375			539				
AR/51.2-0810		15	**810**	**41.472**	400			574				
AR/51.2-0864		16	**864**	**44.236**	425			605				
AR/51.2-0918		17	**918**	**47.001**	450			639				
AR/51.2-0972		18	**972**	**49.766**	475			675				

MADE IN EUROPE

ARP/51.2

▶ **51.2V** *[28.6 - 100.3kWh]*

Rack cabinet for PRISMATIC LiFePO4 MODULES - 51.2V

The **ARP** rack cabinet with low voltage doors is made from high-quality metal sheet and is CLASS II, suitable for both indoor and outdoor use. Inside, it houses 2 to 7 **MODULE**s in parallel, MP-BT/51.2-0280C, with a voltage of **51.2V**, storing from 28.6 to 100 kWh.

Cooling is achieved through natural convection, and the cabinet is designed for mild environments such as indoor spaces or climate-controlled areas.

These battery systems are modular, allowing for the grouping of units in parallel to achieve desired storage capacities.

> *As manufacturers, we can design any type of dimensions, both for cabinet structures and for various power and voltage requirements.*

ARP/51.2-1120

ARP/51.2-1960

MODEL /REF	ARP/ 51.2-0560	ARP/ 51.2-0840	ARP/ 51.2-1120	ARP/ 51.2-1400	ARP/ 51.2-1680	ARP/ 51.2-1960
MODULE FEATURES						
Model	MP-BT/51.2-0280C					
Nominal voltage (*V*)	51.2					
Nominal capacity Prismatic Cells (*Ah*)	280					
ELECTRICAL CHARACTERISTICS						
Total nominal capacity (*Ah*)	560	840	1.120	1.400	1.680	1.960
Configuration in cabinet	2P - 1S	3P - 1S	4P - 1S	5P - 1S	6P - 1S	7P - 1S
Nominal Energy (*kWh*)	**28,6**	**43**	**57,3**	**71,6**	**86**	**100,3**
Operating Voltage Range (*V*)	45 - 56					
Maximum Charging Current (*A*)	280	420	560	700	840	980
Maximum Continuous Discharge Current (*A*)	280	420	560	700	840	980
GENERAL SPECIFICATIONS						
Cut-off Discharge Voltage (*V*)	< 45					
Energy charging efficiency (%)	98					
Self-Discharge (%)	≤ 3.5% per month					
BMS (*Vdc*)	≤ 60					
(*Positive and negative*) output connectors	Multi-core cable					
Cycle life (*25°C, 0,5C, 70% SoH*)	≤ 8,000					
Communication	2 x RJ45					
Certifications	CE - IEC62619					
OPERATING CONDITIONS						
Operating temperature Charge / Discharge	0 ~ 60°C / -20 ~ 60°C					
Storage Temperature	-20 ~ 35°C					
MECHANICAL CHARACTERISTICS						
Cooling system	Natural convection					
Cooling dissipation to cells	Special thermal gel					
Module Front and Enclosure	Aluminum Front and Injected ABS Enclosure					
Metal cabinet	Galvanized and painted steel - IP55 - IK10 *(TYPE 12)*					
Dimensions (*W, D, H*) (*mm*)	600 x 1,000 x 1,200	600 x 1,000 x 1,600		600 x 1,000 x 2,000		
Approximate weight (*kg*)	245	370	465	620	710	820

MICRO PLUS Germany

ARI25C

▶ **25.6V** *[5,520 - 8,280Wh — stored in batteries]*

[10,800 - 16,200W — generated per day in photovoltaic systems]

MANUFACTURED Voltronic Power

Rack cabinet for LiFePO$_4$ modules + inverter + panel

Battery connection with busbar

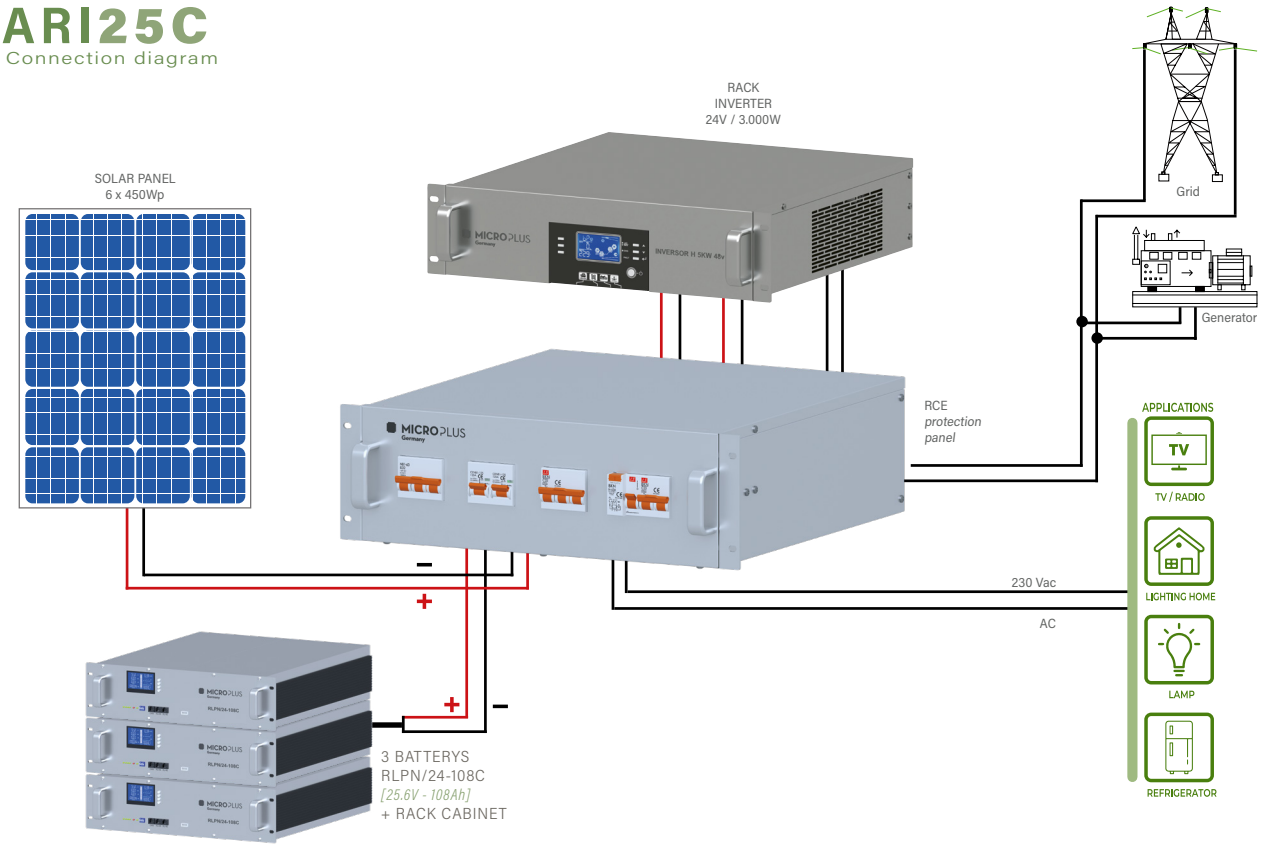
White color, optional

The **ARI25C** system consists of a **rack** cabinet with a tempered glass front door, a perforated metal rear door, and removable side panels. The ceiling is equipped with 2 or 4 extractors for air recirculation.

Inside, *PRISMATIC CELLS* LiFePO$_4$ **MODULE**s of **25.6V** (*according to the attached table*) are installed, connected in a cable version directly to a busbar located at the rear, with copper plates and DC protection circuit breakers.

This kit includes a multifunction hybrid inverter of 24V (*see attached table*) in **MODULE** form, connected to the batteries and equipped with **MC4** connectors for panel input, as well as AC (*Vac*) connections and a **protection electrical panel** in **MODULE** form. This provides a fully equipped product with no additional components required.

ARI25C
Connection diagram



MODEL /REF		ARI25C-005	ARI25C-008
SOLAR PANEL			
No. of panels (*units*) 450Wp		6	
Total panel power (*Wp*)		2,700	
Daily solar generation	Minimum 4 hours (*Wp*)	10,800	
	Maximum 6 hours (*Wp*)	**16,200**	
ENERGY STORAGE			
Lithium battery voltage (*Vdc*)		25.6	
Module model		RLPN/24-108A	
No. of lithium modules (*units*)		2	3
Energy stored in batteries (*Wh*)		**5,520**	**8,280**
INVERTER / CONTROLLER			
Inverter model + charge controller (*units*)		INR 24/3000	
Inverter power	Maximum (*W*)	6,000	
	Nominal (*W*)	3,000	
Output voltage (*Vac*)		230	
Current	Maximum solar charging (*A*)	80	
	Maximum AC charging AC (*A*)	60	
DIMENSIONS			
Cabinet racks	Model	ARM 6818	
	Dimensions (*L x W x H*) (*mm*)	600 x 800 x 987	
Weight of the kit without solar panels (*kg*)		120	150

MICRO PLUS Germany

ARI51C

▶ 51.2V *[8,292 - 38,640Wh — stored in batteries]*

[32,600 - 48,600W — generated per day in photovoltaic systems]

MANUFACTURED Voltronic Power

Rack cabinet for LiFePO$_4$ modules + inverter + panel

White color, optional

Battery connection with busbar

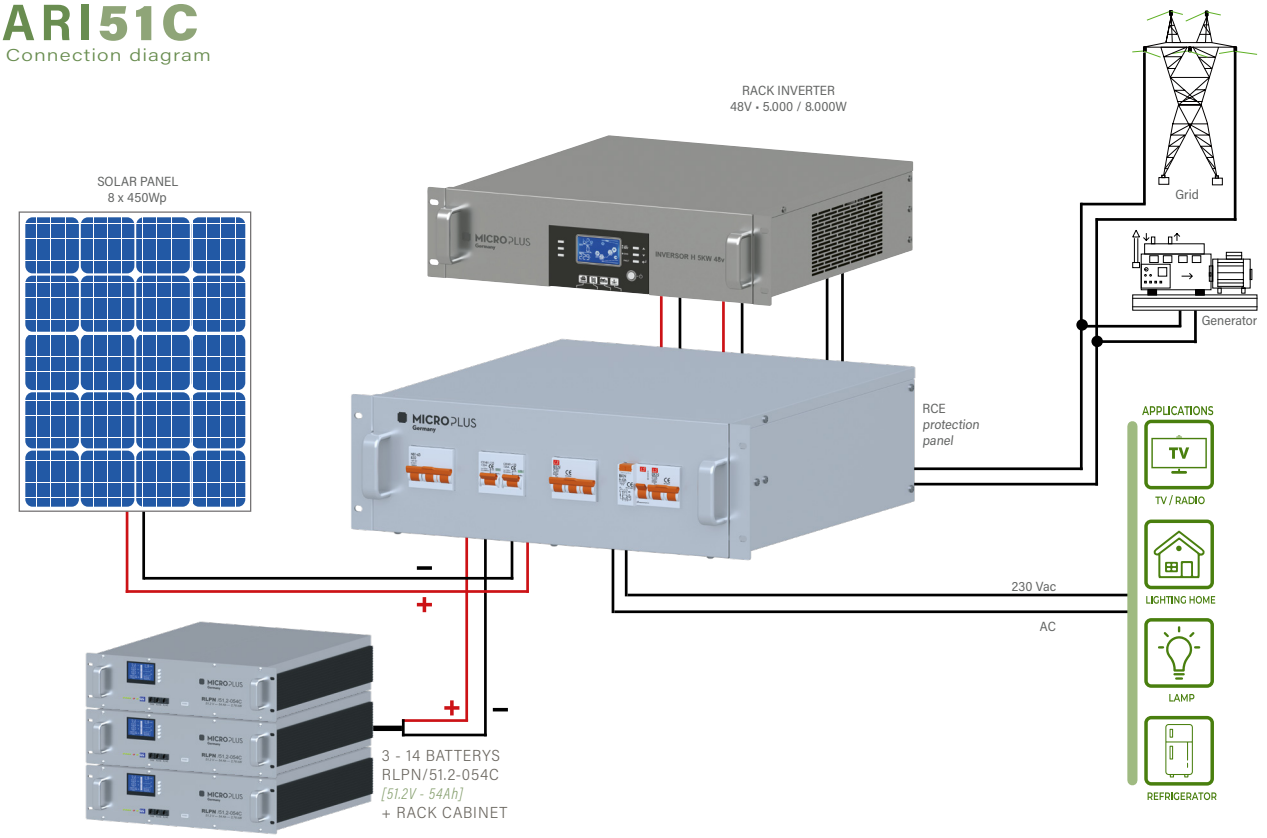
The **ARI51C** system consists of a **rack** cabinet with a tempered glass front door, a perforated metal rear door, and removable side panels. The ceiling is equipped with 2 or 4 extractors for air recirculation.

Inside, *PRISMATIC CELLS* LiFePO$_4$ **MODULE**s of 54Ah at **51.2V** DC are installed, connected to each other with cables directly to a busbar located at the rear, with copper plates and DC protection circuit breakers.

This kit includes a multifunction hybrid inverter of 5-8kW at **51.2V** in **MODULE** form, connected to the batteries and equipped with **MC4** connectors for panel input, as well as AC (*VAC*) connections and an **RCE protection electrical panel** in **MODULE** form, providing a fully equipped product with no additional components required.

ARI51C

Connection diagram



MODEL /REF		ARI51C -008	ARI51C -011	ARI51C -014	ARI51C -016	ARI51C -019	ARI51C -022	ARI51C -025	ARI51C -027	ARI51C -030	ARI51C -033	ARI51C -036	ARI51C -038
SOLAR PANEL													
No. of panels (*units*) 450Wp		12					18						
Total panel power (*Wp*)		5,400					8,100						
Daily solar generation	Minimum 4 hours (*Wp*)	21,600					32,400						
	Maximum 6 hours (*Wp*)	**32,400**					**48,600**						
ENERGY STORAGE													
Lithium battery voltage (*Vdc*)		51.2											
Module model		RLPN/51.2-054C											
No. of lithium modules (*units*)		3	4	5	6	7	8	9	10	11	12	13	14
Energy stored in batteries (*Wh*)		**8,292**	**11,040**	**13,800**	**16,500**	**19,300**	**22,080**	**24,840**	**27,600**	**30,360**	**33,120**	**35,880**	**38,640**
INVERTER / CONTROLLER													
Inverter model + charge controller (*units*)		INRC-48 / 5000					INRC-48 / 8000						
Inverter power	Máxima (*kW*)	10					16						
	Nominal (*kW*)	5					8						
Output voltage (*Vac*)		230											
Current	Maximum solar charging (*A*)	80					120						
	Maximum AC charging AC (*A*)	60					120						
DIMENSIONS													
Cabinet racks	Model	ARM 6818		ARM 6822			1 x ARM 6827		2 x ARM 6818			2 x ARM 6822	
	Dimensions (*L x W x H*) (*mm*)	600 x 800 x 987		600 x 800 x 1,164			600 x 800 x 1,387		600 x 800 x 987			600 x 800 x 1,164	
Weight of the kit without solar panels (*kg*)		152	182	222	262	302	345	378	459	490	520	550	592

MICRO PLUS Germany

CSV12C

▶ 12.8V *[537 - 3,584Wh — stored in batteries]*

[1,600 - 5,400W — generated per day in photovoltaic systems]

MANUFACTURED victron energy BLUE POWER

COMPACT KIT, ready to use by simply connecting to the solar panels

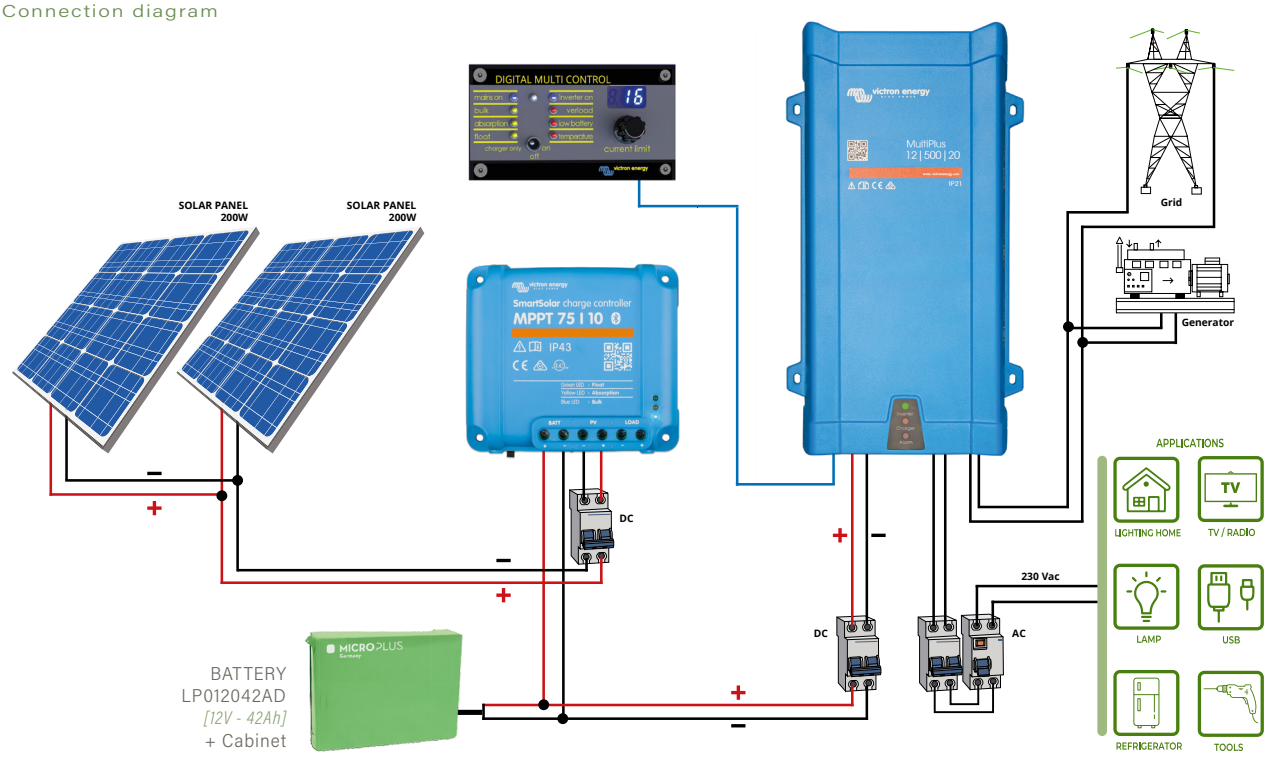
The **CSV12C** kit is a compact system that includes 1 **VICTRON ENERGY** inverter/charger (*see specifications in the attached table*), 1 *SMART SOLAR* **MPPT** controller, and a **12.8V** $LiFePO_4$ battery with 100% depth of discharge, all housed within a galvanized and painted steel cabinet with epoxy paint in the color of the customer's choice.

The kit includes **MC4** connectors for panel input, protected by a 2-pole DC circuit breaker, as well as a differential and circuit breaker for the AC output. Optionally, a *MULTICONTROL 200/200AGX* digital display can be included, and a Bluetooth system for controlling system parameters can also be incorporated.

The kit also includes solar panels and 10 meters of red and black 4mm solar cable.

CSV12C

Connection diagram



All components are inside a cabinet except for the panels *(super-easy connection)*

MODEL /REF	CSV12C/01	CSV12C/02	CSV12C/06
SOLAR PANEL			
No, of panels (*units*)	1 x SN-P270 Wp	2 x SN-P270 Wp	2 x 450 Wp
Total panel power (*Wp*)	270	540	900
Minimum daily generation: 4 hours of sunlight (*Wp*)	1,080	2,160	3,600
Maximum daily generation: 6 hours of sunlight (*Wp*)	**1,600**	**3,240**	**5,400**
STORED ENERGY			
Lithium battery voltage (*Vdc*)	12,8		
Lithium packs (*Ah*)	LP012042AD	LP012072AD	PRISMATICA 280A - [1P 4S]
No, of lithium packs (*units*)	1		
Energy stored in batteries (*Wh*)	**537**	**921**	**3,584**
INVERTER / CONTROLLER			
Inverter model	MULTIPLUS 12/500		MULTIPLUS 12/1200/50
Maximum inverter power (*peak W*)	900		2,400
Nominal inverter power (*W*)	500		1,200
Output voltage (*Vac*)	230		
Charging current of the regulator (*ADC*)	Smart 75/10	Smart 100/30	Smart 150/70
Max, output current (*A*)	10	30	70
DIMENSIONS			
Kit (*width x length x height*) (*mm*)	500 x 260 x 120	550 x 400 x 120	600 x 540 x 150
Weight of the kit without solar panels (*kg*)	11.2	14.3	39

Includes VICTRON 200/200A GX Digital Multicontrol Display

MICRO PLUS Germany

CSV24C

▶ 25.6V *[1,843 - 5,530Wh — stored in batteries]*

[6,400 - 16,200W — generated per day in photovoltaic systems]

MANUFACTURED victron energy BLUE POWER

COMPACT KIT, ready to use by simply connecting to the solar panels

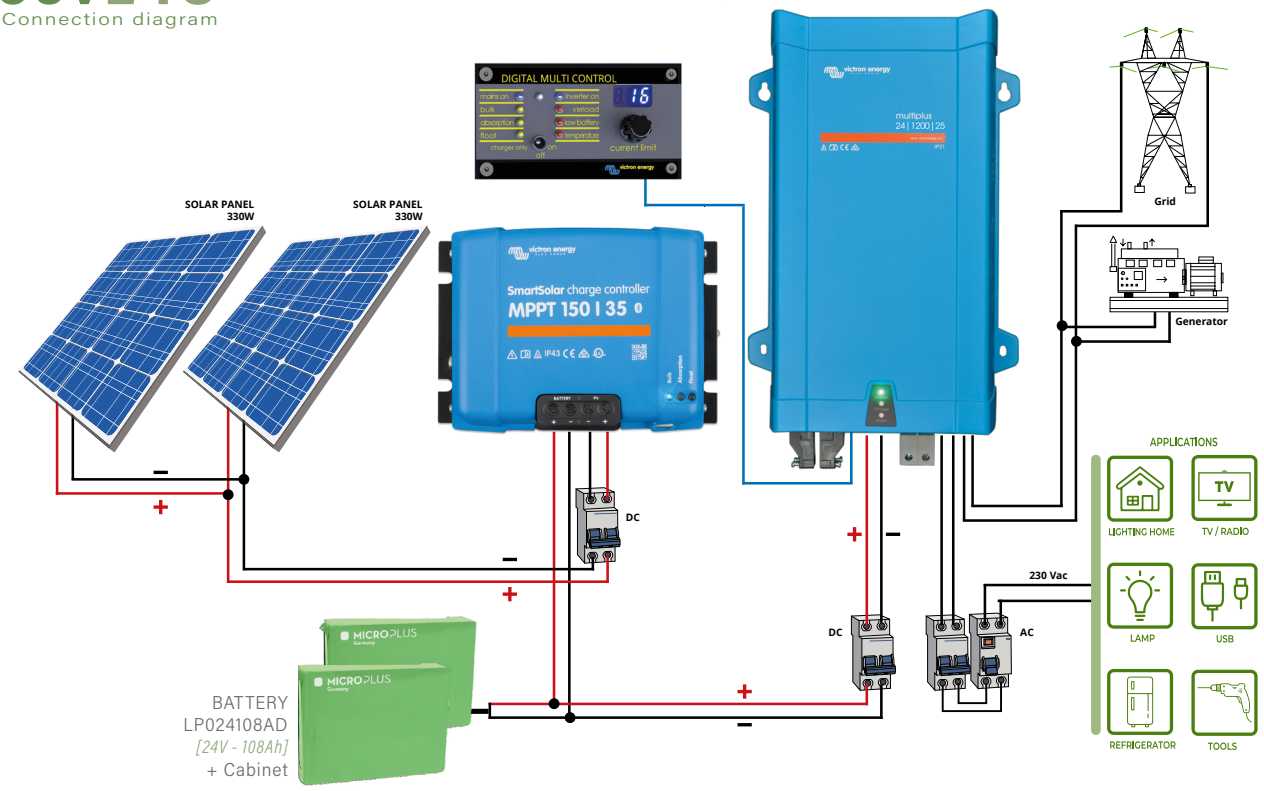
The **CSV24C** kit is a compact system that includes 1 **VICTRON ENERGY** inverter/charger (*see specifications in the attached table*), 1 *SMART SOLAR* **MPPT** controller, and a **25.6V** $LiFePO_4$ battery with 100% depth of discharge, all housed within a galvanized and painted steel cabinet with epoxy paint in the color of the customer's choice.

The kit includes **MC4** connectors for panel input, protected by a 2-pole DC circuit breaker, and a differential and circuit breaker for the AC output. Optionally, a *MULTICONTROL 200/200AGX* digital display can be included, and a Bluetooth system for controlling system parameters can also be incorporated.

The kit also comes with solar panels and 10 meters of red and black 4mm solar cable.

CSV24C

Connection diagram



All components are inside a cabinet except for the panels *(super-easy connection)*

MODEL /REF	CSV24C/05	CSV24C/07	CSV24C/09	CSV24C/15
SOLAR PANEL				
No. of panels (*units*)	4 x 270 Wp	6 x 270 Wp	8 x 270 Wp	6 x 450 Wp
Total panel power (*Wp*)	1,080	1,620	2,160	2,700
Minimum daily generation: 4 hours of sunlight (*Wp*)	4,320	6,480	8,640	10,800
Maximum daily generation: 6 hours of sunlight (*Wp*)	**6,400**	**9,720**	**12,960**	**16,200**
STORED ENERGY				
Lithium battery voltage (*Vdc*)	25.6			
Lithium packs (*Ah*)	LP024072AD	LP024108AD	LP024072AD	LP024108AD
No. of lithium packs (*units*)	1		2	
Energy stored in batteries (*Wh*)	**1,843**	**2,764**	**3,686**	**5,530**
INVERTER / CONTROLLER				
Inverter model	Multiplus 24/500		Multiplus 24/800	Multiplus 24/1200
Maximum inverter power (*peak W*)	900		1,600	2,400
Nominal inverter power (*W*)	500		800	1,200
Output voltage (*Vac*)	230			
Charging current of the regulator (*ADC*)	Smart 100/30	Smart 100/50	Smart 150/60	Smart 150/85
Max. output current (*A*)	30	50	60	85
DIMENSIONS				
Kit (*width x length x height*) (*mm*)	620 x 450 x 150	620 x 970 x 190	625 x 450 x 150	620 x 970 x 190
Weight of the kit without solar panels (*kg*)	27.7	38	46	65

Includes VICTRON 200/200A GX Digital Multicontrol Display

MICRO PLUS Germany

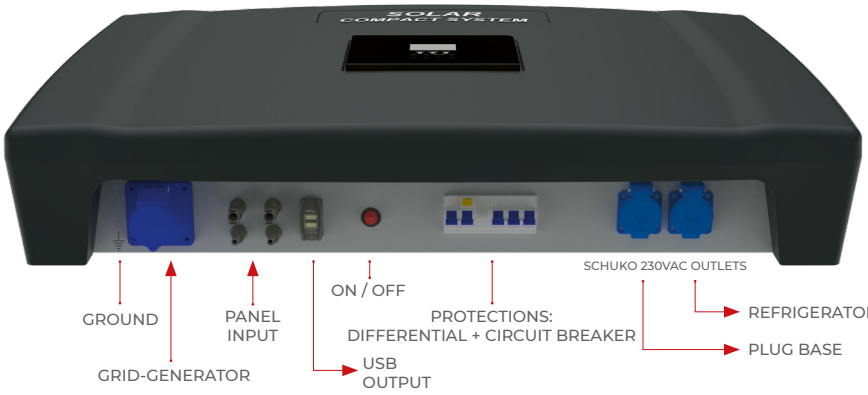
CSV51C

▶ 51.2V *[1,728 - 5,530Wh — stored in batteries]*

[10,800 - 27,000W — generated per day in photovoltaic systems]

MANUFACTURED victron energy BLUE POWER

COMPACT KIT, ready to use by simply connecting to the solar panels



The **CSV51C** kit is a compact system that includes 1 **VICTRON ENERGY** inverter/charger (*see specifications in the attached table*), 1 *SMART SOLAR* **MPPT** controller, and 1 or 2 **51.2V** $LiFePO_4$ batteries with 100% depth of discharge, all housed within a galvanized steel cabinet (*model csv51-08*) painted with epoxy, or other models with an **ABS** cover and color options to choose from.

The kit includes **MC4** connectors for panel input, protected by a 2-pole DC circuit breaker, and a differential and circuit breaker for the AC output. Optionally, a *MULTICONTROL 200/200AGX* digital display can be included, and a Bluetooth system for controlling system parameters can also be incorporated.

The kit also comes with solar panels and 10 meters of red and black 4mm solar cable.

CSV51C

with different applications

Prefabricated houses

Marine applications

Houses

Schools

Field hospitals

Range of colors
to
choose from

MICRO PLUS
Germany

CSV51C

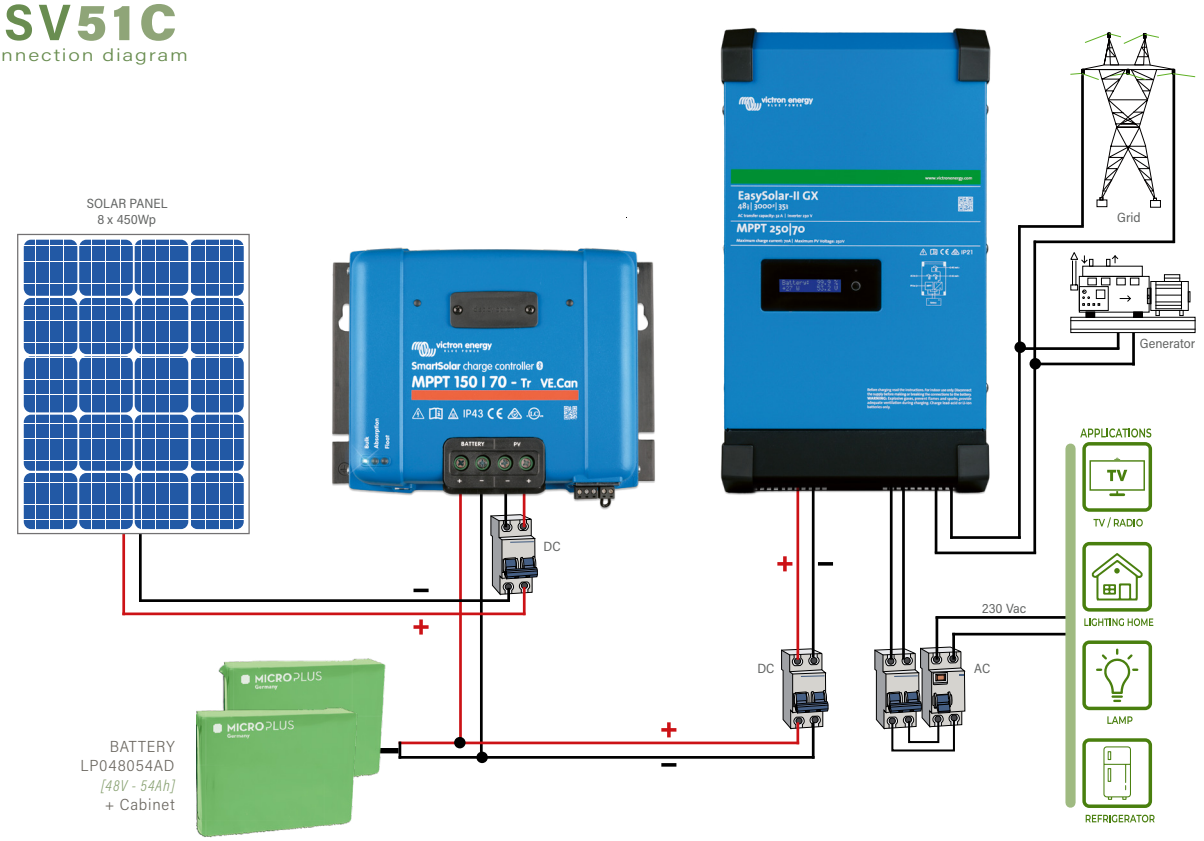
COMPACT
SYSTEM
SOLAR

for a multitude
of situations

MADE IN EUROPE

CSV51C

Connection diagram



All elements are inside a cabinet except the panels *(super easy connection)*

MODEL /REF	CSV51C/08	CSV51C/11	CSV51C/17	CSV51C/21	CSV51C/23
SOLAR PANEL					
No. of panels (*units*) 450Wp	4	6	8	10	
Total panel power (*Wp*)	1,800	2,700	3,600	4,500	
Minimum daily generation: 4 hours of sunlight (*Wp*)	7,200	10,800	14,400	18,000	
Maximum daily generation: 6 hours of sunlight (*Wp*)	**10,800**	**16,200**	**21,600**	**27,000**	
STORED ENERGY					
Lithium battery voltage (*Vdc*)	51.2				
Lithium Model Pack	LP048036AD	LP048054AD			
Number of lithium battery packs (*pcs*)	1		2		
Energy stored in batteries (*Wh*)	**1,728**	**2,764**	**5,530**		
INVERTER / CONTROLLER					
Inverter model	MULTIPLUS 48/500/6	MULTIPLUS 48/800/9	MULTIPLUS 48/1200/13	MULTIPLUS 48/1600/20	EASYSOLAR 48/3000GX
Maximum inverter power (*peak W*)	900	1,600	2,400	2,800	5,500
Nominal inverter power (*W*)	500	800	1,200	1,600	3,000
Output voltage (*Vac*)	230				
Charging current of the regulator (*ADC*)	Smart 100/20	Smart 150/35	Smart 150/45	Smart 150/70	Smart 250/70
Max. output current (*A*)	20	35	45	70	
DIMENSIONS					
Kit (*width x length x height*) (*mm*)	620 x 450 x 150	620 x 970 x 190			
Weight of the kit without solar panels (*kg*)	27.8	39	65	66.5	69.8

Includes VICTRON 200/200A GX Digital Multicontrol Display

MICRO PLUS Germany

ARV51C

▶ 51.2V *[8.292 - 16.584Wh — stored in batteries]*

[27.000W — generated per day in photovoltaic systems]

MANUFACTURED victron energy BLUE POWER

Cabinet Rack of modules + inverter and controller

optional with communication

The **ARV51C** system consists of a **rack** cabinet with a tempered glass front door, a perforated metal rear door, and removable side panels. The ceiling is equipped with 2 or 4 extractors for air recirculation.

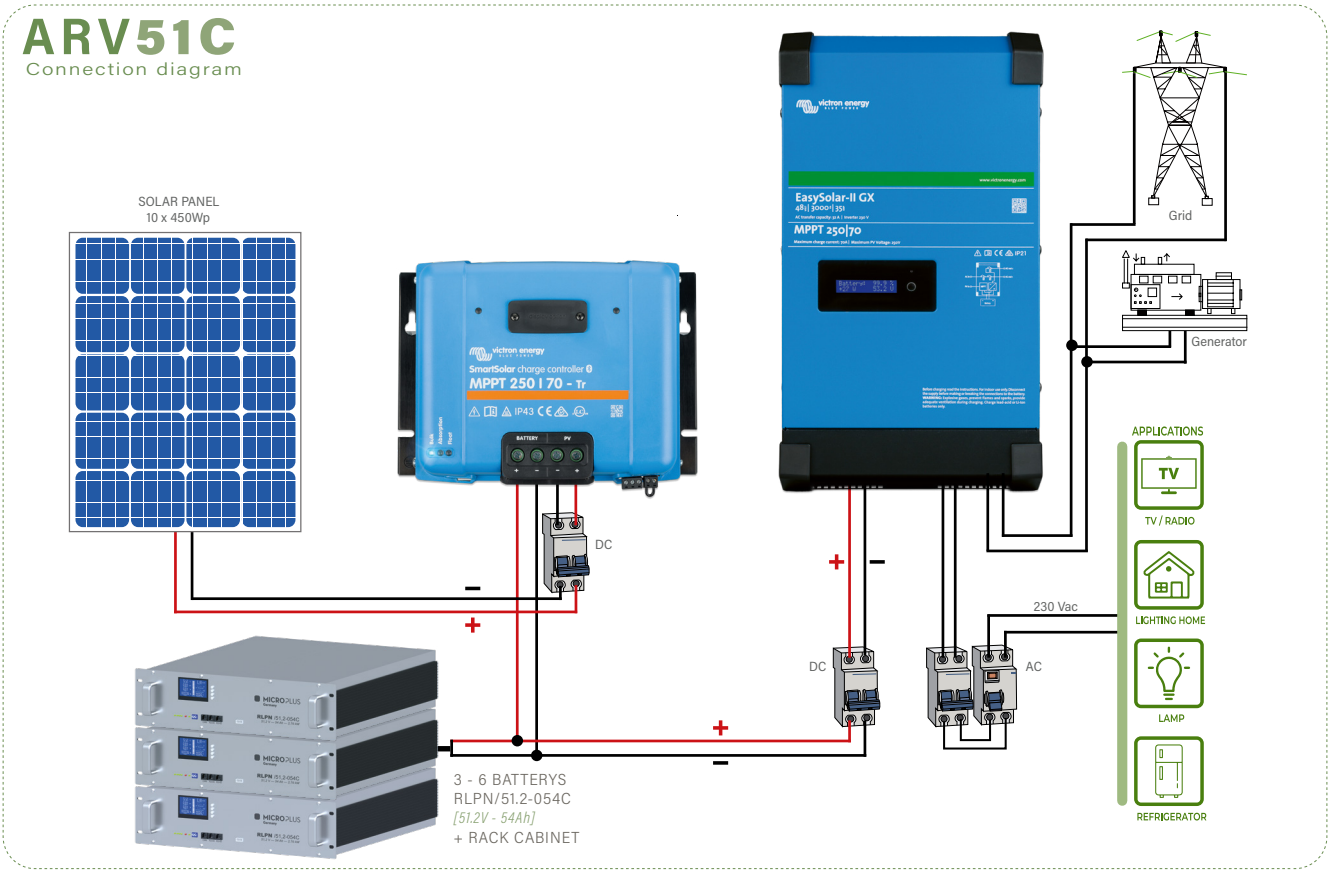
Inside, *PRISMATIC CELLS* LiFePO$_4$ **MODULE**s of 54Ah at **51.2V** DC are installed, connected to each other with cables directly to a busbar located at the rear, with copper plates.

This kit includes a **VICTRON ENERGY** inverter (*EASY SOLAR - II 48/3000/35*) and a *SMART SOLAR* controller, with optional Bluetooth connection (*remote GX device console*).

It also includes a modular electrical protection panel for both DC and AC, with **MC4** connectors for panel input, as well as AC input and output connections.

ARV51C

Connection diagram



All elements are inside a cabinet except the panels *(super easy connection)*

MODEL /REF	ARV51C/023	ARV51C/023A	ARV51C/023B	ARV51C/023D
SOLAR PANEL				
No. of panels (*units*) 450Wp	10(*Panels in series*)			
Total panel power (*Wp*)	4,500			
Minimum daily generation: 4 hours of sunlight (*Wp*)	18,000			
Maximum daily generation: 6 hours of sunlight (*Wp*)	**27,000**			
STORED ENERGY				
Lithium battery voltage (*Vdc*)	51.2			
Module model litio	RLPN/51.2-054C			
No. of lithium modules (*units*)	3	4	5	6
Energy stored in batteries (*Wh*)	**8,292**	**11,056**	**13,820**	**16,584**
INVERTER / CONTROLLER				
Inverter model	EASY SOLAR - || 48 / 3000 / 35			
Maximum inverter power (*peak W*)	5,500			
Nominal inverter power (*W*)	3,000			
Output voltage (*Vac*)	230			
Charging current of the regulator (*ADC*)	Smart Solar MPPT 250 / 70 TR			
Max. output current (*A*)	70			
DIMENSIONS				
Cabinet racks (*ancho x largo x alto*) (*mm*)	ARM 6822 (*600 x 800 x 1,164*)		ARM 6827 (*600 x 800 x 1,387*)	
Weight of the kit without solar panels (*kg*)	120	147	174	199

All equipment includes an RCE electrical panel

MICRO PLUS Germany

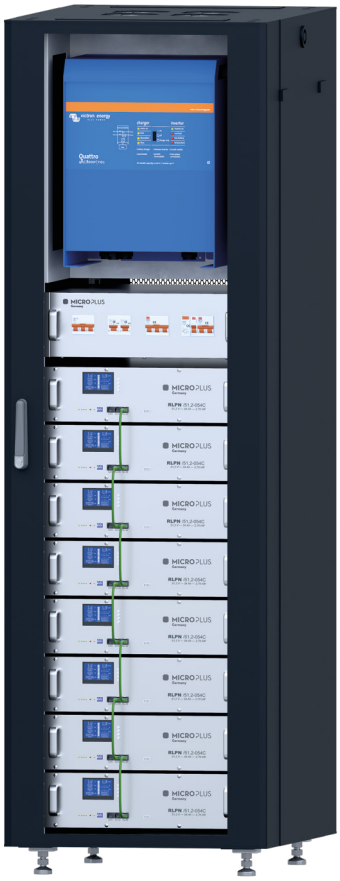
ARV51C

▶ 51.2V *[11,056 - 22,112Wh — stored in batteries]*

[32,400W — generated per day in photovoltaic systems]

MANUFACTURED victron energy BLUE POWER

Cabinet Rack of modules + inverter and controller



optional with communication

The **ARV51C** system consists of a **rack** cabinet with a tempered glass front door, a perforated metal rear door, and removable side panels. The ceiling is equipped with 2 or 4 extractors for air recirculation.

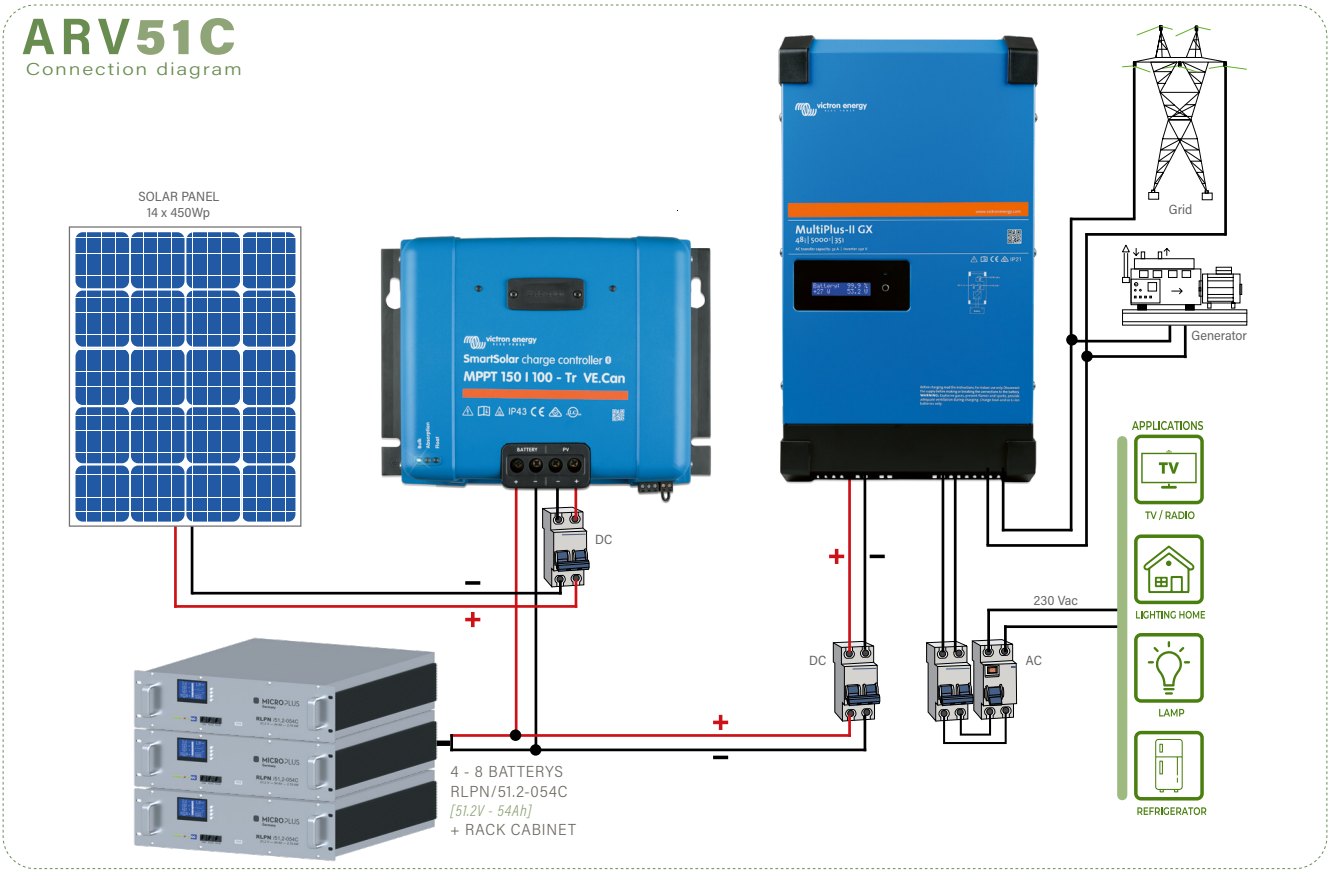
Inside, *PRISMATIC CELLS* LiFePO$_4$ **MODULE**s of 54Ah at **51.2V** DC are installed, connected to each other with cables directly to a busbar located at the rear, with copper plates.

This kit includes a **VICTRON ENERGY** *MULTIPLUS 48/5000/70-50GX* inverter and a *SMART SOLAR* controller, with optional Bluetooth connection (*remote GX device console*).

It also features a modular electrical protection panel for both DC and AC, with **MC4** connectors for panel input, as well as AC input and output connections.

ARV51C

Connection diagram



All elements are inside a cabinet except the panels *(super easy connection)*

MODEL /REF	ARV51C/031	ARV51C/035	ARV51C/035A	ARV51C/035B
SOLAR PANEL				
No. of panels (*units*) 450Wp	12	12		12
Total panel power (*Wp*)	5,400			
Minimum daily generation: 4 hours of sunlight (*Wp*)	21,600			
Maximum daily generation: 6 hours of sunlight (*Wp*)	**32,400**			
STORED ENERGY				
Lithium battery voltage (*Vdc*)	51.2			
Module model litio	RLPN/51.2-054C			
No. of lithium modules (*units*)	4	5	6	8
Energy stored in batteries (*Wh*)	**11,056**	**13,820**	**16,584**	**22,112**
INVERTER / CONTROLLER				
Inverter model	MULTIPLUS || 48/ 5000 / 70 - 50 GX			
Maximum inverter power (*peak W*)	9,000			
Nominal inverter power (*W*)	5,000			
Output voltage (*Vac*)	230			
Charging current of the regulator (*ADC*)	SMARTSOLAR MPPT 150-100 - TR VE.CAM			SMARTSOLAR MPPT 250-100
Max. output current (*A*)	100			
DIMENSIONS				
Cabinet racks (*ancho x largo x alto*) (*mm*)	ARM 6827 (*600 x 800 x 1,387*)		ARM 6832 (*600 x 800 x 2,054*)	
Weight of the kit without solar panels (*kg*)	219	247	310	365

All equipment includes an RCE electrical panel

MICRO PLUS Germany

ARV51C

▶ 51.2V *[16,584 - 33,168Wh — stored in batteries]*

[59,400 - 70,200W — generated per day in photovoltaic systems]

MANUFACTURED victron energy BLUE POWER

Cabinet Rack of modules + inverter and controller

optional with communication

The **ARV51C** system consists of a **rack** cabinet with a tempered glass front door, a perforated metal rear door, and removable side panels. The ceiling is equipped with 2 or 4 extractors for air recirculation.

Inside, *PRISMATIC CELLS* LiFePO$_4$ **MODULE**s of 54Ah at **51.2V** DC are installed, connected to each other with cables directly to a busbar located at the rear, with copper plates.

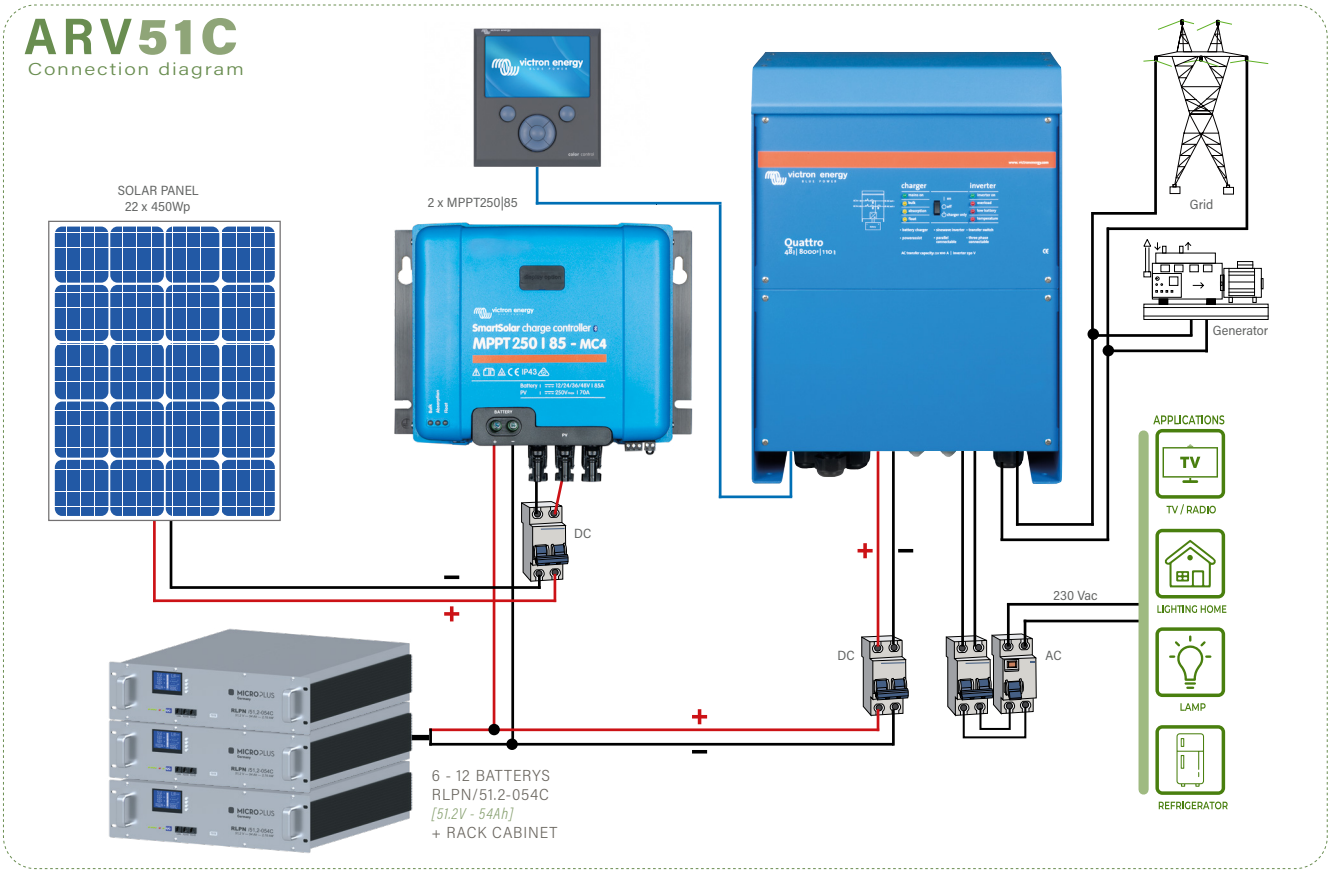
This kit includes a **VICTRON ENERGY** *QUATRO 48/8000/110* inverter and a *SMART SOLAR* controller, with optional Bluetooth connection (*remote GX device console*).

It also features a modular electrical protection panel for both DC and AC, with **MC4** connectors for panel input, as well as AC input and output connections.

COMPACT KIT *(ready to connect to the solar panels)*

ARV51C

Connection diagram



All elements are inside a cabinet except the panels *(super easy connection)*

MODEL /REF	ARV51C/059	ARV51C/059A	ARV51C/071	ARV51C/071A
SOLAR PANEL				
No. of panels (*units*) 450Wp	22		26	
Total panel power (*Wp*)	9,900		11,700	
Minimum daily generation: 4 hours of sunlight (*Wp*)	39,600		46,800	
Maximum daily generation: 6 hours of sunlight (*Wp*)	**59,400**		**70,200**	
STORED ENERGY				
Lithium battery voltage (*Vdc*)	51.2			
Module model litio	RLPN/51.2-054C			
No. of lithium modules (*units*)	6	8	10	12
Energy stored in batteries (*Wh*)	**16,584**	**22,112**	**27,640**	**33,168**
INVERTER / CONTROLLER				
Inverter model	QUATRO 48/8000/110			
Maximum inverter power (*peak W*)	16,000			
Nominal inverter power (*W*)	8,000			
Output voltage (*Vac*)	230			
Charging current of the regulator (*ADC*)	2 x SMARTSOLAR MPPT 250-85		2 x SMARTSOLAR MPPT 250-100	
Max. output current (*A*)	170		200	
DIMENSIONS				
Cabinet racks (*ancho x largo x alto*) (*mm*)	ARM 6842 (*600 x 800 x 2,054*)		2 x ARM 6827 (*600 x 800 x 1,387*)	
Weight of the kit without solar panels (*kg*)	279	333	393	453

All equipment includes an RCE electrical panel

MICRO PLUS Germany

ARV51C

▶ 51.2V *[16,584 - 38,696Wh — stored in batteries]*

[70,200 - 108,000W — generated per day in photovoltaic systems]

MANUFACTURED victron energy BLUE POWER

Cabinet Rack of modules + inverter and controller

The **ARV51C** system consists of a **rack** cabinet with a tempered glass front door, a perforated metal rear door, and removable side panels. The ceiling is equipped with 2 or 4 extractors for air recirculation.

Inside, *PRISMATIC CELLS* LiFePO$_4$ **MODULE**s of 54Ah at **51.2V** DC are installed, connected to each other with cables directly to a busbar located at the rear, with copper plates.

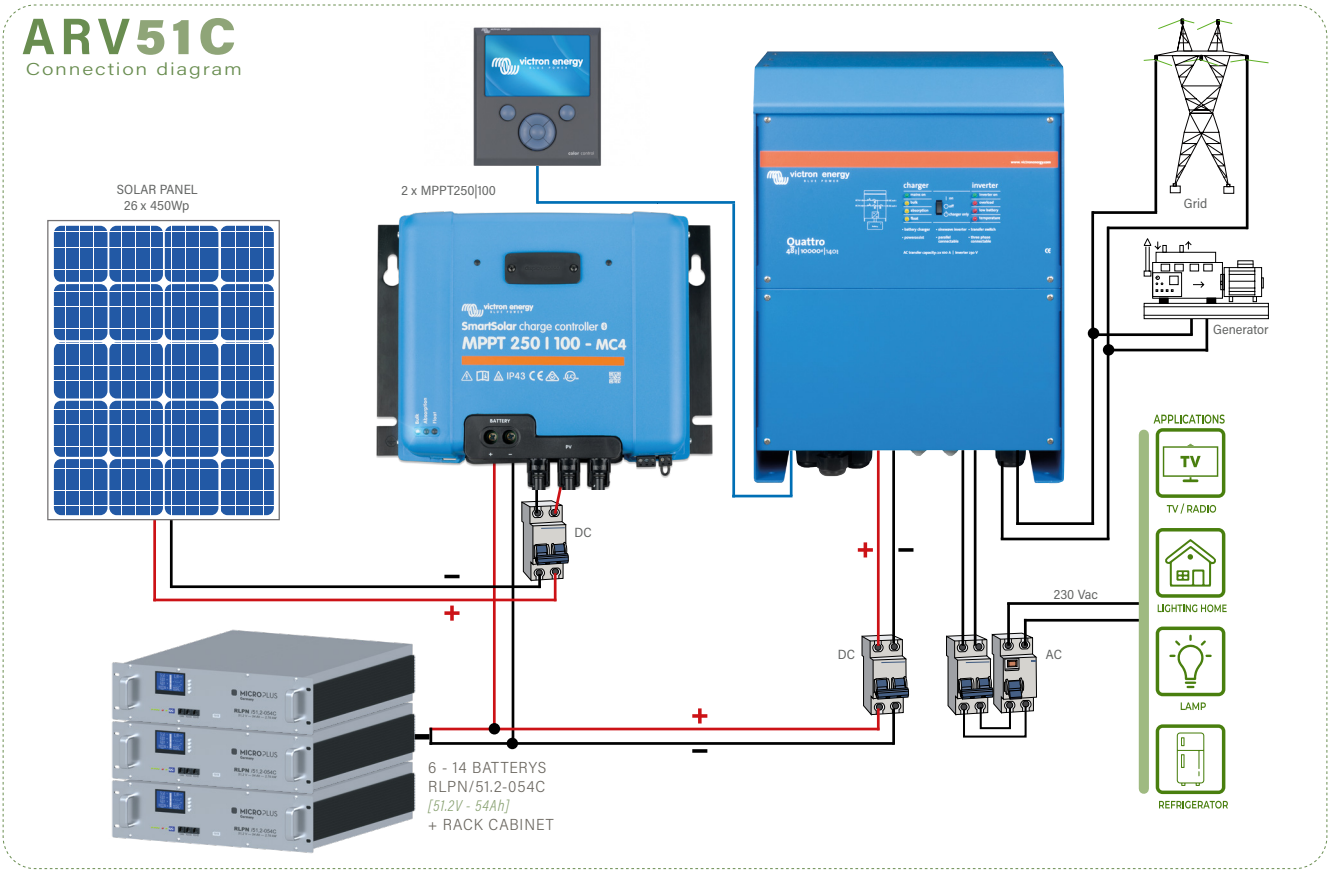
This kit includes a **VICTRON ENERGY** *QUATRO 48/10,000/140/100* inverter and a *SMART SOLAR* controller, with optional Bluetooth connection (*remote GX device console*).

It also features a modular electrical protection panel for both DC and AC, with **MC4** connectors for panel input, as well as AC input and output connections.

COMPACT KIT *(ready to connect to the solar panels)*

ARV51C

Connection diagram



All elements are inside a cabinet except the panels *(super easy connection)*

MODEL /REF	ARV51C/073	ARV51C/073A	ARV51C/106	ARV51C/106A
SOLAR PANEL				
No. of panels (*units*) 450Wp	26		40	
Total panel power (*Wp*)	11,700		18,000	
Minimum daily generation: 4 hours of sunlight (*Wp*)	46,800		72,000	
Maximum daily generation: 6 hours of sunlight (*Wp*)	**70,200**		**108,000**	
STORED ENERGY				
Lithium battery voltage (*Vdc*)	51.2			
Module model litio	RLPN/51.2-0054			
No. of lithium modules (*units*)	6	8	10	14
Energy stored in batteries (*Wh*)	**16,584**	**22,112**	**27,640**	**38,696**
INVERTER / CONTROLLER				
Inverter model	QUATRO 48/10.000/140/100			
Maximum inverter power (*peak W*)	20,000			
Nominal inverter power (*W*)	10,000			
Output voltage (*Vac*)	230			
Charging current of the regulator (*ADC*)	2 x SMARTSOLAR MPPT 250-100		3 x SMARTSOLAR MPPT 250-100	
Max. output current (*A*)	200		300	
DIMENSIONS				
Cabinet racks (*ancho x largo x alto*) (*mm*)	ARM 6842 (*600 x 800 x 2,054*)		2 x ARM 6827 (*600 x 800 x 1,387*)	
Weight of the kit without solar panels (*kg*)	285	340	400	460

All equipment includes an RCE electrical panel

MICRO PLUS Germany

ARV51C

▶ 51.2V *[33,168 - 71,500Wh — stored in batteries]*

[108,000 - 140,400W — generated per day in photovoltaic systems]

MANUFACTURED victron energy BLUE POWER

Cabinet Rack of modules + inverter and controller

GX LTE 4G
BATTERY STATUS VISUALIZATION FROM ANYWHERE

WIFI
OPTIONAL

ARV51C/107
ARV51C/107A

ARV51C/142
ARV51C/142A

The **ARV51C** system consists of a **rack** cabinet with a tempered glass front door, a perforated metal rear door, and removable side panels. The ceiling is equipped with 2 or 4 extractors for air recirculation.

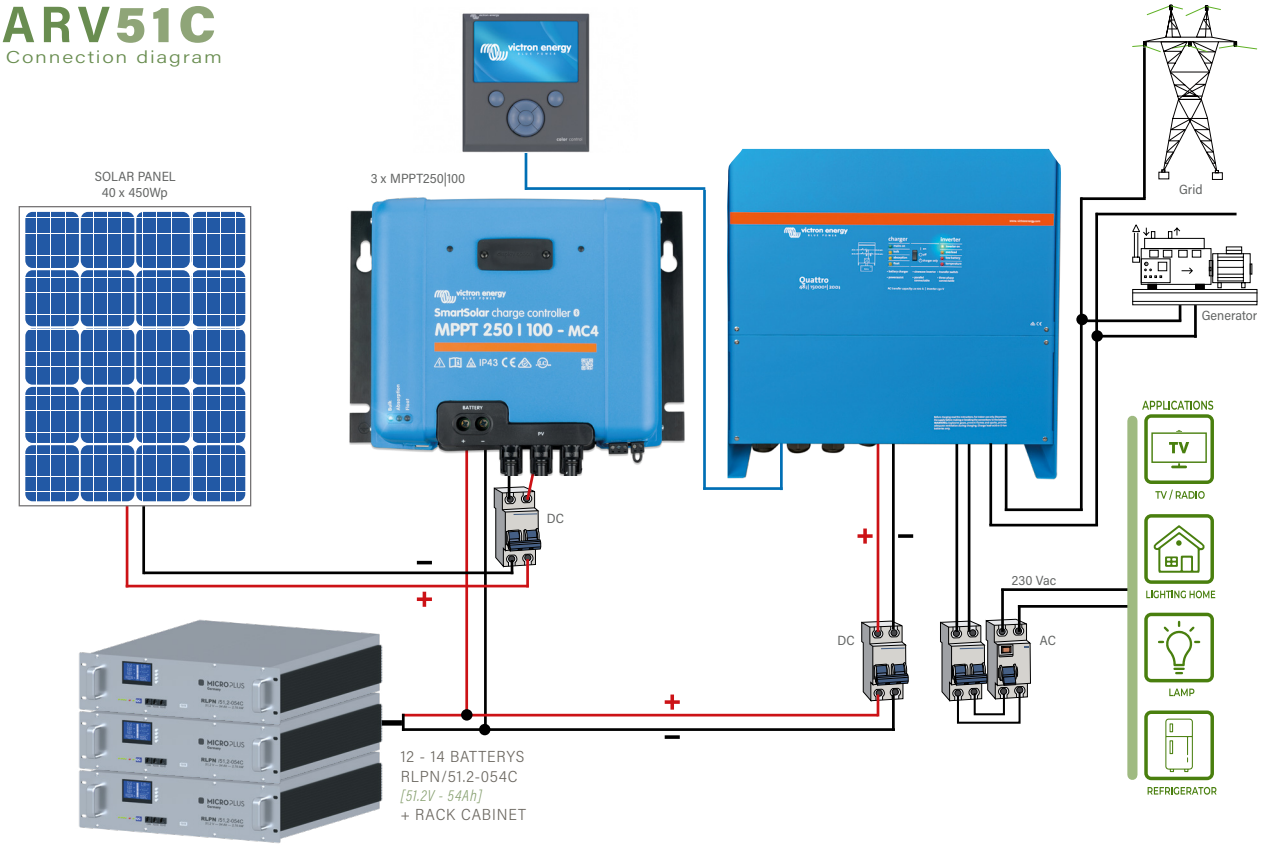
Inside, *PRISMATIC CELLS* LiFePO$_4$ **MODULE**s of 54Ah at **51.2V** DC are installed, connected to each other with cables directly to a busbar located at the rear, with copper plates.

This kit includes a **VICTRON ENERGY** *QUATRO 48/15,000/200/100* inverter and a *SMART SOLAR* controller, with optional Bluetooth connection (*remote GX device console*).

It also features a modular electrical protection panel for both DC and AC, with **MC4** connectors for panel input, as well as AC input and output connections.

ARV51C

Connection diagram



All elements are inside a cabinet except the panels *(super easy connection)*

MODEL /REF	ARV51C/107	ARV51C/107A	ARV51C/142	ARV51C/142A
SOLAR PANEL				
No. of panels (*units*) 450Wp	40		52	
Total panel power (*Wp*)	18,000		23,400	
Minimum daily generation: 4 hours of sunlight (*Wp*)	72,000		93,600	
Maximum daily generation: 6 hours of sunlight (*Wp*)	**108,000**		**140,400**	
STORED ENERGY				
Lithium battery voltage (*Vdc*)	51.2			
Module model	RLPN/51-054		MP-BT/51.2-0280	
No. of modules (*units*)	12	16	4	5
Energy stored in batteries (*Wh*)	**33,168**	**44,224**	**57,200**	**71,500**
INVERTER / CONTROLLER				
Inverter model	QUATRO 48/15.000/200/100			
Maximum inverter power (*peak W*)	25,000			
Nominal inverter power (*W*)	15,000			
Output voltage (*Vac*)	230			
Charging current of the regulator (*ADC*)	3 x SMARTSOLAR MPPT 250-100		4 x SMARTSOLAR MPPT 250-100	
Max. output current (*A*)	300		400	
DIMENSIONS				
Cabinet racks (*ancho x largo x alto*) (*mm*)	2 x ARM 6832 (*600 x 800 x 1,609*)		1,000 x 1,000 x 2,000	
Weight of the kit without solar panels (*kg*)	460	580	690	830

All equipment includes an RCE electrical panel

MICRO PLUS Germany

3X-ARV51C

▶ 51.2V *[11,056 - 57,200Wh — stored in batteries]*

[43,200 - 108,000W — generated per day in photovoltaic systems]

MANUFACTURED victron energy BLUE POWER

Cabinet Rack of modules + inverter and controller

THREE-PHASE SYSTEM

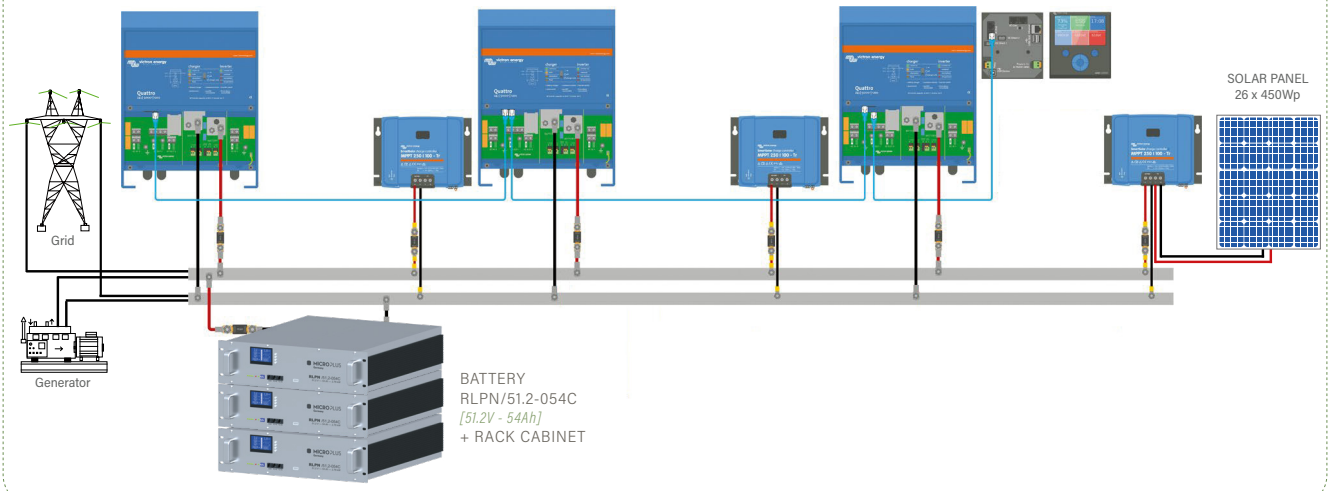
The **3X-ARV51C** system consists of multiple **rack** cabinets with a tempered glass front door, a perforated metal rear door, and removable side panels. The ceiling is equipped with 2 or 4 extractors for air recirculation.

Inside, *PRISMATIC CELLS* LiFePO$_4$ **MODULE**s of 54Ah at **51.2V** DC are installed, connected to each other with cables directly to a busbar located at the rear, with copper plates.

This kit includes 3 **VICTRON ENERGY** MULTIPLUS inverters (*48/2000-3000-5000*) and several *SMART SOLAR* controllers. It also features a *COLOR CONTROL GX* display.

The system includes a modular electrical protection panel for both DC and AC, with **MC4** connectors for panel input, as well as AC input and output connections for the three-phase system.

3x-ARV51C
Connection diagram



All elements are inside a cabinet except the panels *(super easy connection)*

MODEL /REF		3X-ARV51C/043	3X-ARV51C/044	3X-ARV51C/059	3X-ARV51C/060	3X-ARV51C/070	3X-ARV51C/071	3X-ARV51C/098	3X-ARV51C/099
SOLAR PANEL									
No. of panels (*units*) 450Wp		16		22		26		40	
Total panel power (*W*)		7,200		9,900		11,700		18,000	
Daily solar generation	Minimum 4 hours (*Wp*)	28,800		39,600		46,800		72,000	
	Maximum 6 hours (*Wp*)	**43,200**		**59,400**		**70,200**		**108,000**	
STORED ENERGY									
Lithium battery voltage (*Vdc*)		51.2							
Module model		RLPN/51-054						MP-BT/51.2-0280	
No. of modules (*units*)		4	5	6	8	10	12	3	4
Energy stored in batteries (*Wh*)		**11,056**	**13,820**	**16,584**	**22,112**	**27,640**	**33,168**	**42,900**	**57,200**
INVERTER / CONTROLLER									
Inverter model		3 x MULTIPLUS 48/1600/20-16		3 x MULTIPLUS II 48/3000/35-32 GX				3 x MULTIPLUS II 48/5000/70-50 GX	
Inverter power	Maximum (*Wp*)	2,800 (*per phase*)		5,500 (*per phase*)				9,000 (*per phase*)	
	Nominal (*W*)	4,800 (*3 phases*)		9,000 (*3 phases*)				15,000 (*3 phases*)	
Output voltage (*Vac*)		L1 L2 L3 + N 230Vac							
Regulator charging current (*ADC*)		2 x SMART 150-70		2 x SMART 250-85		2 x SMART 250-100		3 x SMART 250-100	
Max. output current (*A*)		140		170		200		300	
DIMENSIONS									
Cabinet racks	Units	2						1	
	Model	ARM 6832			ARM 6842			-	
	Dimensions (*W x L x H*) (*mm*)	1,200 x 1,604 x 800			1,200 x 2,054 x 800			1,600 x 1,000 x 1,800	
Weight of the KIT without solar panels (*Kg*)		310	364	390	440	495	545	590	680

All equipment includes an RCE electrical panelthree-phase

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3X-ARV51C

▶ 51.2V *[42.9 - 171.6kWh — stored in batteries]*

[108 - 318kWh — generated per day in photovoltaic systems]

MANUFACTURED victron energy BLUE POWER

Cabinet Rack of modules + inverter and controller

THREE-PHASE SYSTEM

The **3X-ARV51C** system consists of multiple **rack** cabinets with a front door made of tempered glass, a perforated sheet metal rear door, and removable side panels.

The top has 2 or 4 fans for air circulation. Inside, there are *PRISMATIC CELLS* LiFePO$_4$ **MODULE**s of 280Ah at **51.2V** DC connected to each other with cables directly to a busbar at the rear, with a copper bar.

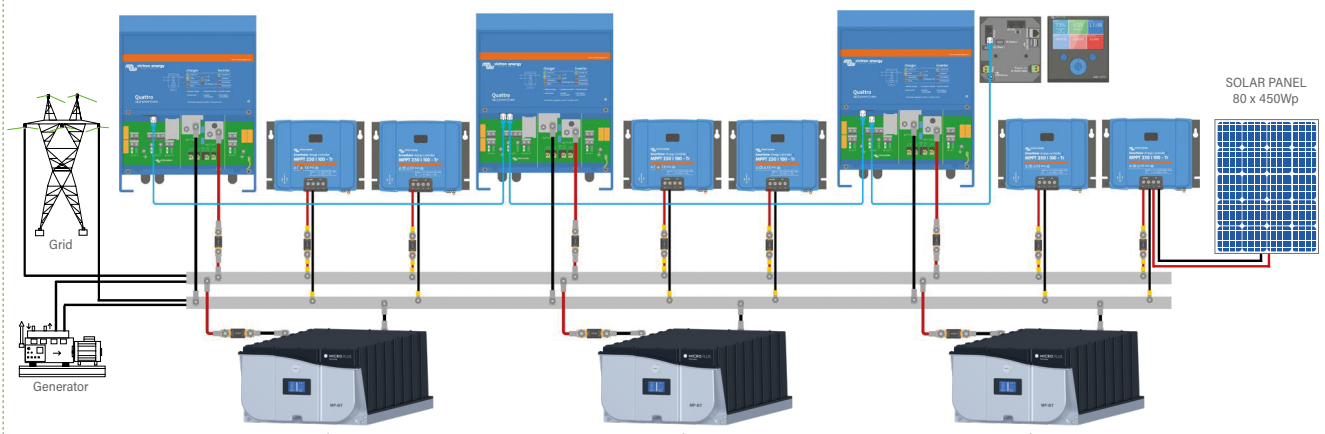
This kit includes 3 **VICTRON ENERGY** *MULTIPLUS 48/5.000-15.000* inverters and several *SMART SOLAR* controllers. It also includes a *COLOR CONTROL GX* display.

Additionally, it has a modular DC and AC electrical protection panel with **MC4** connectors for panel input as well as the connections for AC input and output (*Vac*) for the three-phase system.

Cabinet Rack de baterías + 3 inversores y controladores

3x-ARV51C

Connection diagram



MÓDULO
MP-BT/51.2-0280C
[51.2V - 280Ah]
+ RACK CABINET

MÓDULO
MP-BT/51.2-0280C
[51.2V - 280Ah]
+ RACK CABINET

MÓDULO
MP-BT/51.2-0280C
[51.2V - 280Ah]
+ RACK CABINET

All elements are inside a cabinet except the panels *(super easy connection)*

MODEL /REF		3X-ARV51C/107	3X-ARV51C/107A	3X-ARV51C/178	3X-ARV51C/178A	3X-ARV51C/214	3X-ARV51C/214A	3X-ARV51C/320	3X-ARV51C/320A
SOLAR PANEL									
No. of panels (*units*) 450Wp		40		66		80		118	
Total panel power (*W*)		18,000		29,700		36,000		53,100	
Daily solar generation	Minimum 4 hours (*Wp*)	72,000		118,800		144,000		212,400	
	Maximum 6 hours (*Wp*)	**108,000**		**178,200**		**216,000**		**318,600**	
STORED ENERGY									
Lithium battery voltage (*Vdc*)		51.2							
Module model		MP-BT/51.2-0280							
No. of modules (*units*)		3	6	4	7	6	8	9	12
Energy stored in batteries (*kWh*)		**42.9**	**85.8**	**57.2**	**100.1**	**85.8**	**114.4**	**128.7**	**171.6**
INVERTER / CONTROLLER									
Inverter model		3 x MULTIPLUS 48/5000		3 x MULTIPLUS 48/8000		3 x MULTIPLUS 48/10000		3 x MULTIPLUS 48/15000	
Inverter power	Maximum (*Wp*)	9,000		16,000		20,000		25,000	
	Nominal (*W*)	5,000		8,000		10,000		15,000	
Output voltage (*Vac*)		L1 L2 L3 + N 230Vac							
Regulator charging current (*ADC*)		3 x MPPT 250-100		6 x MPPT 250-85		6 x MPPT 250-100		9 x MPPT 250-100	
Max. output current (*A*)		300		510		600		900	
DIMENSIONS									
Dimensions (*W x L x H*) (*mm*)		1,600 x 1,000 x 1,800		2,400 x 1,000 x 2,000				3,600 x 1,000 x 2,000	
Weight of the KIT without solar panels (*Kg*)		590	890	785	1,085	1,003	1,205	1,416	1,740

All equipment includes an RCE electrical panelthree-phase

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IPB

▶ 51.2V *[57 - 114kWh — stored in batteries]*

MANUFACTURED victron energy BLUE POWER

Industrial Power Bank, with **SINGLE-PHASE OUTPUT**

The **IPB** has been designed to provide a power sou**RCE** with a single-phase output that meets both domestic and industrial needs. This device stores energy and replaces conventional diesel generators, which are noisy, highly polluting, and require constant maintenance.

This clean energy system uses a low-voltage lithium battery storage system with 15 kW Victron inverters, allowing it to supply power anywhere in the world. It can light up construction sites, perform solar pumping on farms, or supply energy to civil works. Additionally, it is transportable via trailers, vans, or trucks, and can even assist in recharging stranded vehicles on the road.

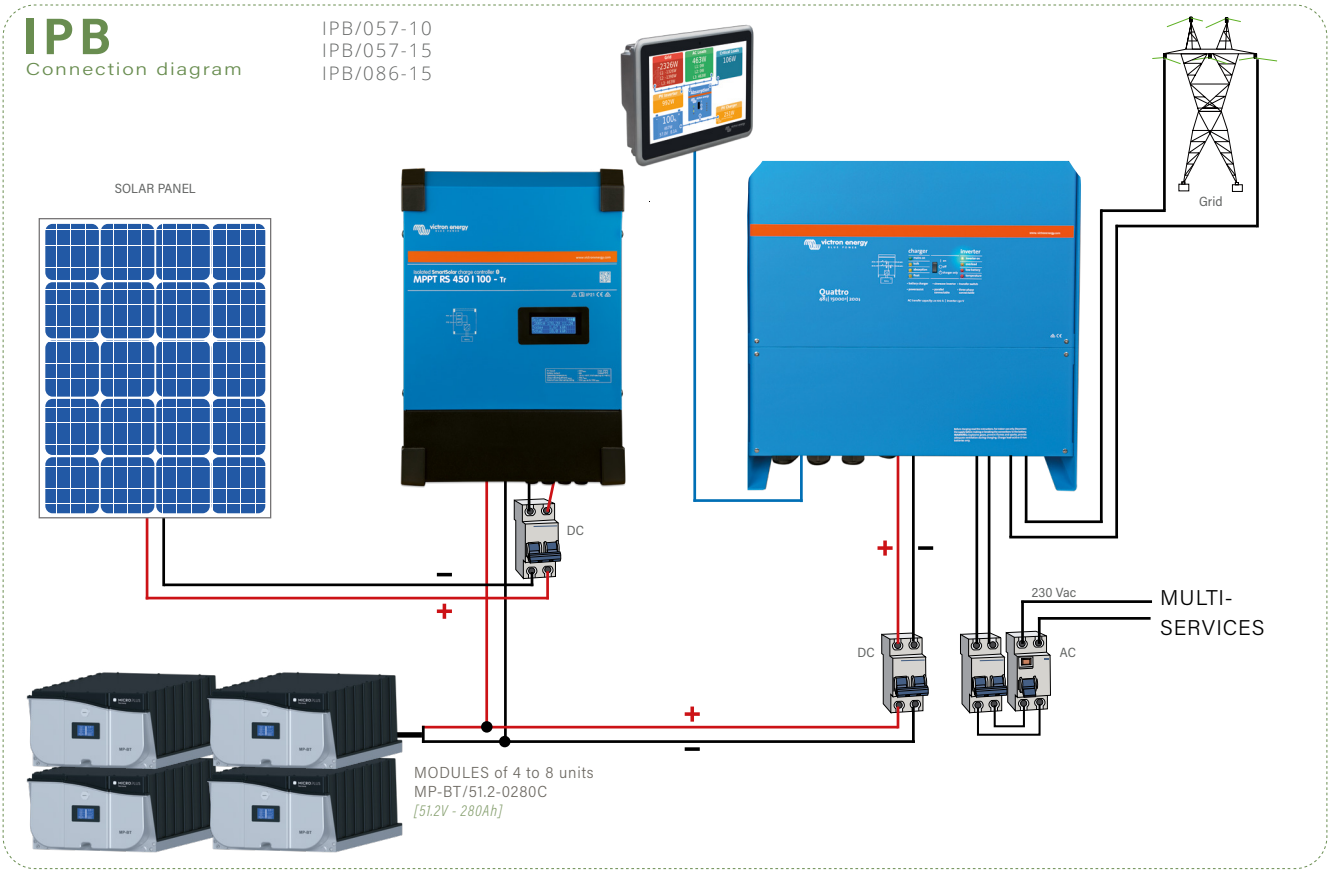
The **INDUSTRIAL POWER BANK** can be recharged from the electrical grid during off-peak hours or via an on-site photovoltaic system, and it also includes a small photovoltaic system on the trailer. This efficient and cost-effective solution replaces noisy and polluting generators. It is delivered on a pallet in a metal box equipped with doors, a touch screen, and all necessary protections for batteries and panels. Additionally, it is possible to monitor the battery status and charge via a mobile phone.

> *We offer different models and power levels, adapting to the specific needs of each customer beyond those listed in the corresponding tables.*

IPB

Connection diagram

IPB/057-10
IPB/057-15
IPB/086-15



MODEL /REF		IPB/057-10	IPB/057-15	IPB/086-15	IPB/086-30	IPB/086-45	IPB/114-45
SOLAR PANEL							
Total panel power (*Wp*)		≤ 6,600		≤ 7,700	≤ 13,200	≤ 15,400	≤ 30,800
ENERGY STORAGE							
Lithium battery voltage (*Vdc*)		51.2					
Module model		MP-BT/51.2-0280					
No. of modules (*units*)		4		6			8
Energy stored in batteries (*kWh*)		**57.2**		**85.8**			**114.4**
INVERTER / CONTROLLER							
Inverter model		QUATTRO 48/10000	QUATTRO 48/15000				
Inverter units (*units*)		1	1		2	3	
Inverter power	Peak power (*W*)	20,000	25,000		50,000	75,000	
	Nominal (*W*)	**10,000**	**15,000**		**30,000**	**45,000**	
Output voltage (*Vac*)		230 Vac (*F - N*)					
Charging current model of the regulator (*ADC*)		RS450/100			RS450/200		2 x RS450/200
Current Charge máxima (*A*)		100			200		400
DIMENSIONS							
Industrial Power Bank (*L x W x H*) (*mm*)		1.800 X 1.500 X 1.200					
Weight (*kg*)		686	707	897	969	1,066	1,256

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IPB

- 748-921V *[74.8 - 92.16kWh — stored in medium voltage batteries]*
- 410-512V *[114.4 - 143kWh — stored in medium voltage batteries]*

MANUFACTURED victron energy BLUE POWER

MANUFACTURED riello

Industrial Power Bank, with **THREE-PHASE OUTPUT**

The IPB has been designed to provide a power souRCE with a three-phase output that meets both domestic and industrial needs. This device stores energy and replaces conventional diesel generators, which are noisy, highly polluting, and require constant maintenance.

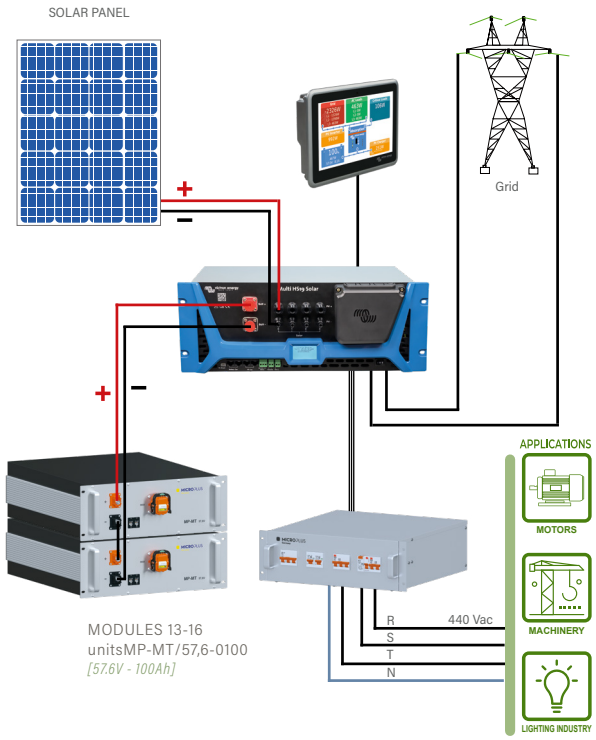
This clean energy system uses a medium-voltage lithium battery storage system (*between 410-921V*) with 15 kW Victron inverters and 10 kW Riello medium-voltage inverters, allowing it to supply power anywhere in the world. It can light up construction sites, perform solar pumping on farms, or provide energy for civil works. Additionally, it is transportable via trailers, vans, or trucks, and can even assist in recharging stranded vehicles on the road or serve as an energy souRCE for any need.

The **INDUSTRIAL POWER BANK** can be recharged from the electrical grid during off-peak hours or via an on-site photovoltaic system, and it also includes a small photovoltaic system on the trailer. This efficient and cost-effective solution replaces noisy and polluting generators. It is delivered on a pallet in a metal box equipped with doors, a touch screen, and all necessary protections for batteries and panels. Additionally, it is possible to monitor the battery status and charge via a mobile phone.

> *We offer different models and power levels, adapting to the specific needs of each customer beyond those listed in the corresponding tables.*

IPB
Connection diagram

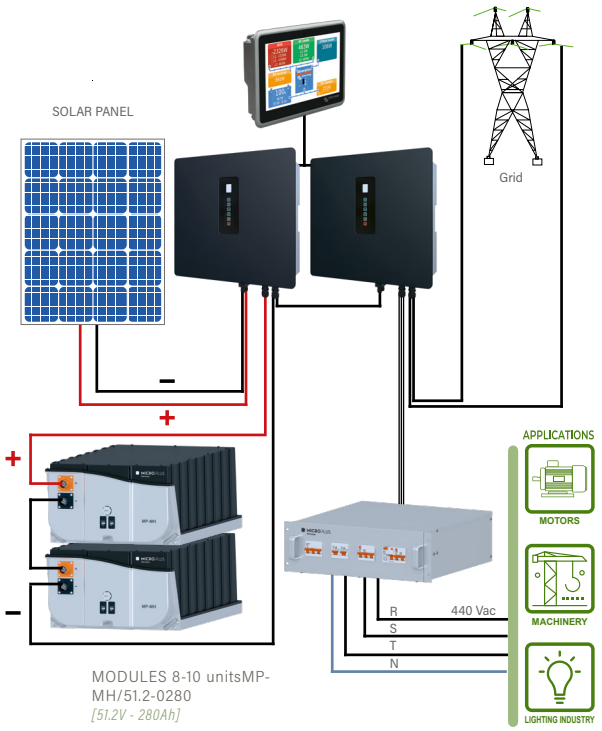
IPB/074-15
IPB/092-15



ELECTRICAL CONNECTIONS ARE PROVIDED IN A PANEL WITH CETAC SOCKETS

IPB
Connection diagram

IPB/114-20
IPB/143-20



ELECTRICAL CONNECTIONS ARE PROVIDED IN A PANEL WITH CETAC SOCKETS

MODEL /REF		IPB/074-15	IPB/092-15	IPB/114-20	IPB/143-20	IPB/114-30	IPB/143-30
SOLAR PANEL							
Total panel power (*Wp*)		≤ 32,000		≤ 30,000		≤ 45,000	
ENERGY STORAGE							
Lithium battery voltage (*Vdc*)		748	921	410	512	410	512
Module model		MP-MT/57,6-0100		MP-MH/51.2-0280			
No. of modules (*units*)		13	16	8	10	8	10
Energy stored in batteries (*kWh*)		**74.8**	**92.16**	**114.4**	**143**	**114.4**	**143**
INVERTER / CONTROLLER							
Inverter model		VICTRON MULTI HS19 15KW		RIELLO ESS-RS/10			
Inverter units (*units*)		1		2		3	
Inverter power	Peak power (*W*)	25,000		30,000		45,000	
	Nominal (*W*)	**15,000**		**20,000**		**30,000**	
Output voltage (*Vac*)		380 / 400 Vac (*3P - N*)					
DIMENSIONS							
Industrial Power Bank (*L x W x H*) (*mm*)		1,800 X 1,500 X 1,200					
Weight (*kg*)		894	1,023	1,048	1,238	1,137	1,327

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IPB-L

▶ 51.2V *[14.3 - 57.2kWh — stored in batteries]*

MANUFACTURED victron energy BLUE POWER

Industrial Power Bank, with **SINGLE-PHASE OUTPUT.**
Power of projectors from 600 - 3,000W / 96,000 - 480,000 Lm

The **IPB-L** has been designed to provide a power sou**RCE** with a single-phase output that meets both domestic and industrial needs. This device stores energy and replaces conventional diesel generators, which are noisy, highly polluting, and require constant maintenance.

This clean energy system uses a low-voltage lithium battery storage system with Victron inverters ranging from 800 - 3,000W, allowing it to provide lighting through projectors for illuminating any area, such as quarries, mines, or surfaces like parking lots and roadworks during the night. Additionally, it is transportable via the included trailer.

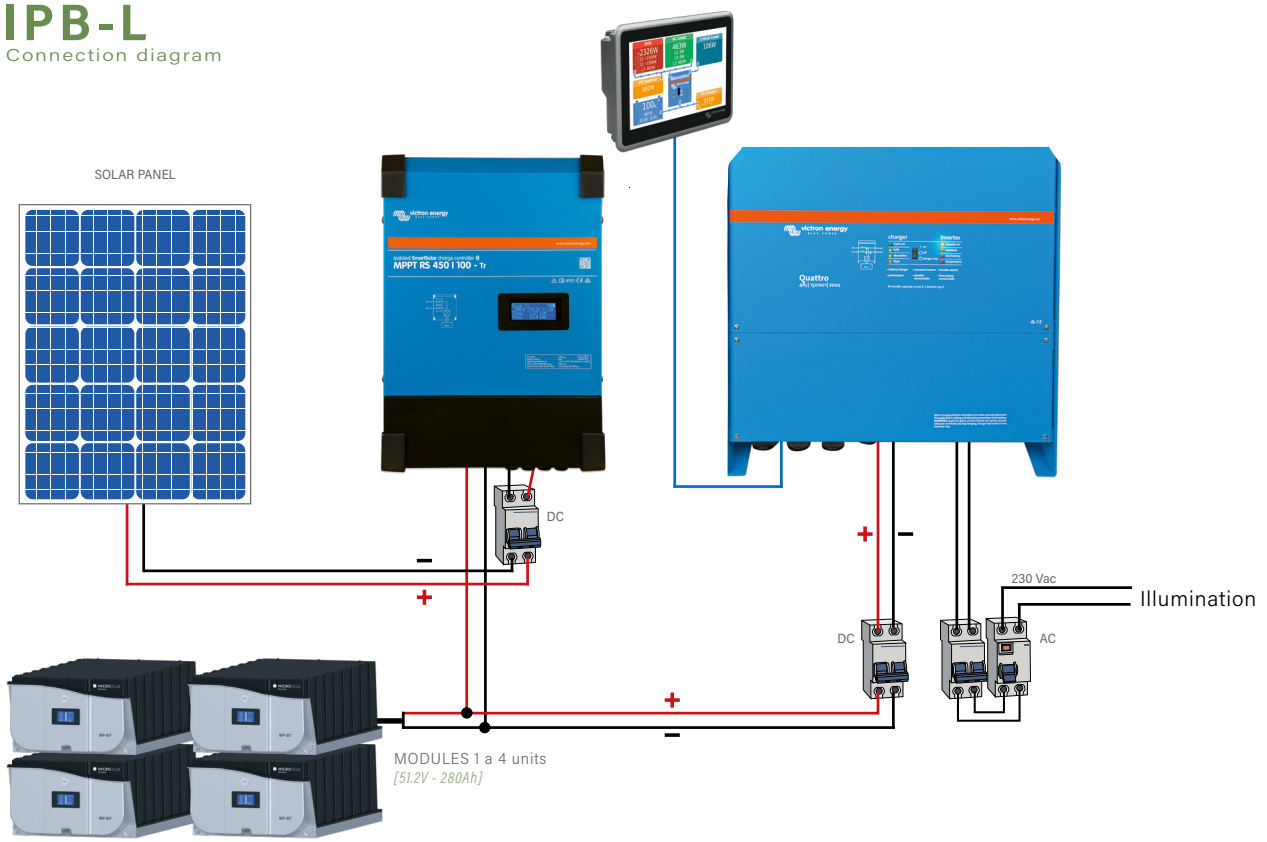
These units can also be manufactured on pallets rather than on wheels if the customer requests this for better transport.

The **INDUSTRIAL POWER BANK ILLUMINATION** can be recharged from the electrical grid during off-peak hours or via an on-site photovoltaic system, and it also includes a small photovoltaic system on the trailer. This efficient and cost-effective solution replaces noisy and polluting generators. It is delivered on a pallet in a metal box equipped with doors, a touch screen, and all necessary protections for batteries and panels. Additionally, it is possible to monitor the battery status and charge via a mobile phone.

> *We offer different models and power levels, adapting to the specific needs of each customer beyond those listed in the corresponding tables.*

IPB-L

Connection diagram



MODEL /REF		IPB-L/14,3	IPB-L/28,6	IPB-L/42,9	IPB-L/57,2
SOLAR PANEL					
Total panel power (*Wp*)		2,160	4,320	6,480	
ENERGY STORAGE					
Lithium battery voltage (*Vdc*)		51.2			
Module model		BP/51.2-0280			
No. of modules (*units*)		1	2	3	4
Energy stored in batteries (*kWh*)		**14.3**	**28.6**	**42.9**	**57.2**
LIGHTING SOURCE					
Projector model		KS-MD/300/4.5			
Number of projectors (*units*)		2	4	6	10
Power of projectors	Watts (*W*)	600	1,200	1,800	3,000
	Lumens (*Lm*)	96,000	192,000	288,000	480,000
INVERTER / CONTROLLER					
Inverter model		MULTIPLUS 48/800	MULTIPLUS 48/1600	MULTIPLUS 48/3000	
Inverter units (*units*)		1			
Inverter power	Peak power (*W*)	1,600	2,800	3,500	
	Nominal (*W*)	**800**	**1,600**	**3,000**	
Output voltage (*Vac*)		230 Vac - 50Hz			
Photovoltaic controller		MPPT 150/45	MPPT 150/70	2 x MPPT 150/60	
DIMENSIONS					
Industrial Power Bank (*L x W x H*) (*mm*)		1.800 X 1.500 X 1.200			
Height of lighting tower (*m*)		4		5	6
Trailer (*number of wheels*)		2			4
Weight (*kg*)		710	800	940	1,160

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STORAGE SYSTEMS
MEDIUM - HIGH VOLTAGE

MICRO PLUS
Germany

with **PRISMATIC CELLS** $LiFePO_4$ and

SMART BMS and MASTER

STORAGE SYSTEMS **MEDIUM - HIGH VOLTAGE**

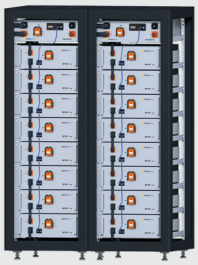
with **PRISMATIC** $LiFePO_4$ **CELLS** and **SMART BMS** and **MASTER**

- **ARM**
  Cabinet racks
  with MEDIUM VOLTAGE modules
  MP-MH/51.2-0280C — (403-461V)
  Conventional cooling
  100-300kW

- **ARM/CL**
  with MEDIUM VOLTAGE modules
  MP-MH/51.2-0280C — (403-461V)
  Liquid cooling (water + glycol)
  100-300kW

- **ARM/CL-INOX**
  INOX cabinet racks
  with MEDIUM VOLTAGE modules
  MP-MH/51.2-0280C — (403-461V)
  Liquid cooling (water + glycol)
  100-300kW

- **ARM/CL-INOX**
  INOX cabinet racks
  with MEDIUM VOLTAGE modules
  MP-MH/51.2-0280C — (403-461V)
  Liquid cooling (water + glycol)
  900kW



- **AR-P**
  MP-MT/57.6-0100C module,
  with BMS in rack cabinet
  ready to connect to the inverter

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STORAGE SYSTEMS **MEDIUM - HIGH VOLTAGE**

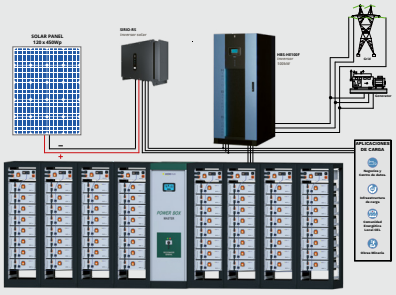
with **PRISMATIC** LiFePO4 **CELLS** and **SMART BMS** and **MASTER**

- **CBAT**
  racks with MP-MT lithium modules
  MEDIUM VOLTAGE — (403-461V).

  In 10ft and 20ft containers.

- ***ARI-P***
  Racks with MP-MT lithium modules
  MEDIUM VOLTAGE — (403-461V).

  + inverter and panels (optional)



- **CBAT-INV**
  Racks with MP-MT lithium modules
  MEDIUM VOLTAGE — (403-461V).

  + inverter and panels (optional).

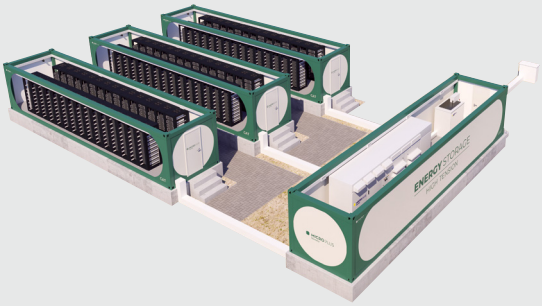
  In a 20ft container.

- **CMT-0,6 - 1 - 1,5 MWh**
  Cabinet racks in a 20ft container
  with MEDIUM VOLTAGE modules
  MP-MH/51.2-0280C — (403-461V)

  Conventional cooling or liquid cooling
  (water + glycol) 0.6 - 1.5MW

- **CAT - 1 - 2 - 3 - 4 - 5 MWh**
  Cabinet racks in a 20ft or 40ft
  container with HIGH VOLTAGE
  modules MP-MH/51.2-0280C — 1,229V)

  Conventional cooling or liquid cooling
  (water + glycol).



CUSTOM MANUFACTURING OF CONTAINERS

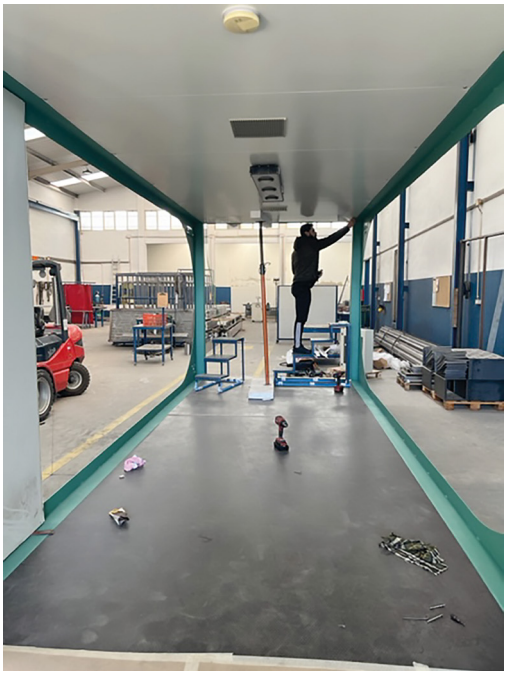
TAILORED TO EACH CLIENT

OUR FACTORIES

MEET ALL STANDARDS AND CERTIFICATIONS IN WELDING WITH CERTIFIED PROFESYESONALS

WE DEYESGN UNDER ANY TECHNICAL SPECIFICATION
FINAL PRODUCT TESTED BY
MICROPLUS-LIADTEC GROUP


BOX CONTROL




LIADTEC


LIADTEC

MICRO PLUS Germany

MP-MH

▶ **51.2V** *[280Ah — 14,336Wh]*

PRISMATIC CELLS LiFePO$_4$ MODULE in rack with communication
MP-MH/51.2-0280C-CL liquid cooling system *(water + glycol)*
MP-MH/51.2-0280C conventional cooling system

PRISMATIC
CELLS **280A**

Other modules can be manufactured with different configurations of prismatic cells with varying amperages.

MP-MH MODULE manufactured with *PRISMATIC CELLS* LiFePO$_4$ and designed with a 1P16S configuration, featuring 280Ah and 3.2V, resulting in a total energy of 14.3 kWh and **51.2V**.

It is equipped with an integrated liquid cooling system embedded in the **MODULE** itself, consisting of an anodized aluminum coil integrated into the base of the **MODULE** through which the coolant circulates at a pressure of 2-3 bar. Thermal conductivity is ensured using a specific gel that enhances the thermal transfer from the cells to the coil. This system maintains temperature within optimal ranges, extending battery life cycles and supporting high-power discharge.

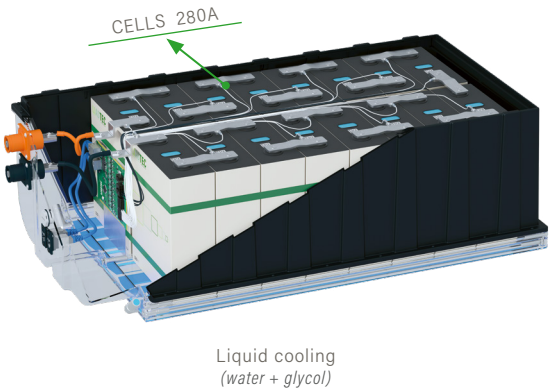
The **MODULE** includes a state-of-the-art **BMS** system capable of handling up to 1,500V, ensuring optimal management of charge and discharge processes and perfect cell balancing throughout the **MODULE**.

It features 350A positive and negative connectors, a 250A fuse, and 2 RJ45 connectors for communication. Additionally, it includes an air vent valve to prevent condensation inside.

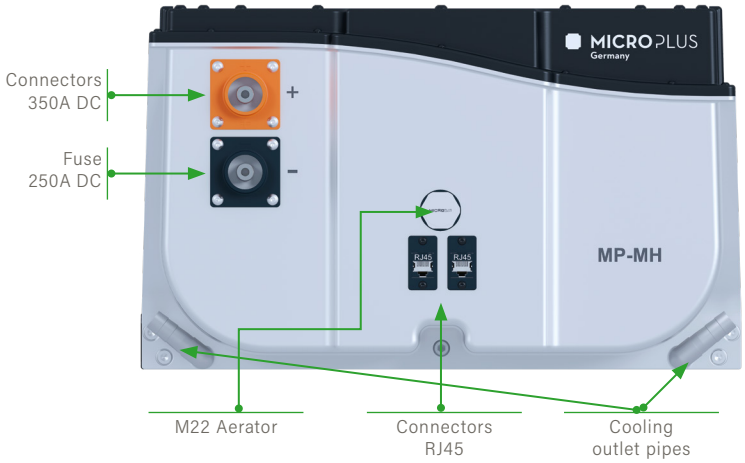
The plates connecting the cells in series are laser-welded. The front and rear aluminum pieces are designed for perfect fit with the cooling system, providing the necessary rigidity to the assembly. The top includes a dual-body system with cell separators and mounting (*patented*).

> *An effective and efficient product designed for high-capacity and high-power PRISMATIC CELLS* LiFePO$_4$*, with long lifespan and adaptability to our clients' needs.*

51V / 280Ah module with COMMUNICATION and LIQUID COOLING



MP-MH/51.2-0280C-CL



MODEL /REF		MP-MH/51.2-0280C	MP-MH/51.2-0280C-CL
GENERAL SPECIFICATIONS			
Nominal voltage (*V*)		51.2	
Nominal capacity Prismatic Cell (*Ah*)		**280**	
Nominal Energy (*kWh*)		**14.3**	
Configuration		Prismatic LFP cell 280Ah - 1P 16S	
Dimensions (*W, D, H*) (*mm*)		394 x 757 x 236	
Approximate Weight (kilograms		95	
ELECTRICAL CHARACTERISTICS			
Operating Voltage Range (*V*)		45 - 56	
Maximum Charging Current (*A*)		140	
Maximum Continuous Discharge Current (*A*)		140	
Cut-off Discharge Voltage (*V*)		32 < 0° < 40	
Efficiency (%)		98	
Self-Discharge (%)		≤ 3.5% per month	
External protection fuse (*A*)		250	
BMS (*Vdc*)		up to 1,500	
(*Positive and negative*) output connectors		IP65 connector 350A	
Connection strips		Laser Welding	
Cycle life (*25°C, 0,5C, 70% SoH*)		≤ 8,000	
MECHANICAL CHARACTERISTICS			
Structural base of the Cooling		Anodized Aluminum	
Cooling liquid		NO	water and glycol
Air Vent		M22	
Module Front and Enclosure		Aluminum Front and Injected ABS Enclosure	
Cooling outlet pipes		NO	YES
Cooling dissipation to cells		Special thermal gel	
OPERATING CONDITIONS			
Operating Temperature	Charge	0°C ~ 60°C	
	Discharge	-20°C ~ 60°C	
Storage Temperature		-20°C ~ 35°C	
Communication		CAN, Ethernet, USB, WiFi, Bluettoth	
Dust and Water Resistance		IP65	
Series Function (*Units*)		Possibility of 1 to 29	
Certifications		IEC62619	

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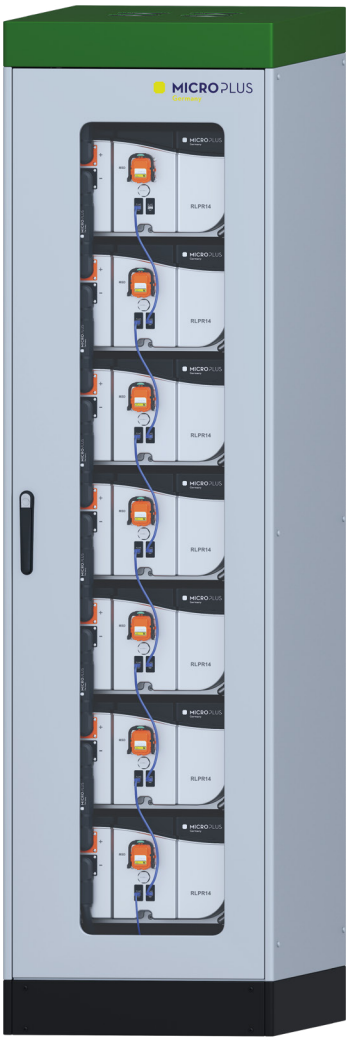
ARM

▶ **358,4V** *[100 - 200 - 300kWh]*

Rack of PRISMATIC CELLS LiFePO$_4$ modules - ***MEDIUM VOLTAGE*** with communication
Conventional cooling



ARM/07-358
(open)

ARM/07-358
(closed)

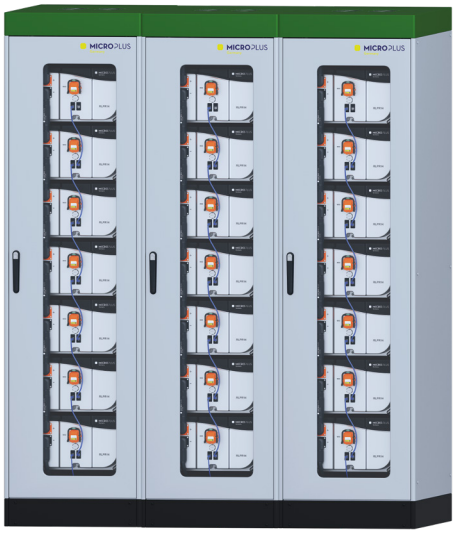
The **ARM** is a **rack** cabinet designed for **MEDIUM VOLTAGE** and manufactured with high-quality metal sheet, classified as CLASS II, making it suitable for both indoor and outdoor applications. Inside, it can house 7, 14, or 21 **MODULE**s (*mp-mh/51.2-0280C*) with a voltage of 358.4V, allowing for storage of 100, 200, or 300 kWh, depending on the desired configuration.

These cabinets use Natural convection cooling and are designed for environments with mild conditions, such as indoor locations or climate-controlled spaces. Its modular design allows for the grouping of units in series and/or parallel to achieve storage capacities of up to several MWh, providing great flexibility in adapting to the specific needs of users.

> *As manufacturers, we have the ability to customize both the dimensions of the cabinet structure and the required powers and voltages, ensuring that our clients receive solutions that perfectly fit their individual applications.*

ARM/07-358

ARM/14-358



ARM/21-358

MODEL /REF	ARM/07-358	ARM/14-358	ARM/21-358
MODULE FEATURES			
Model	MP-MH/51.2-0280C		
Nominal voltage (*V*)	51.2		
Nominal capacity Prismatic Cell (*Ah*)	280		
ELECTRICAL CHARACTERISTICS			
Voltaje nominal total (*V*)	358.4		
Configuration in cabinet	1P - 7S (*7 modules MP-MH*)	2P - 7S (*14 MP-MH modules*)	3P - 7S (*21 modules MP-MH*)
Nominal Energy (*kWh*)	**100.3**	**200.7**	**301**
Operating Voltage Range (*V*)	315 - 392		
Maximum Charging Current (*A*)	140	280	420
Maximum Continuous Discharge Current (*A*)	980		
GENERAL SPECIFICATIONS			
Cut-off Discharge Voltage (*V*)	<315		
Energy charging efficiency (%)	98		
Self-Discharge (%)	≤ 3.5% per month		
BMS (*Vdc*)	up to 1,500		
External protection fuse (*A*)	250 (*in each module*)		
(*Positive and negative*) output connectors	IP65 connector 350A		
Cycle life (*25°C, 0,5C, 70% SoH*)	≤ 8,000		
Communication	2 x RJ45		
Certifications	CE - IEC62619		
OPERATING CONDITIONS			
Operating temperature Charge / Discharge	0 ~ 60°C - 20 ~ 60°C		
Storage Temperature	-20 ~ 35°C		
MECHANICAL CHARACTERISTICS			
Fire suppression system	optional		
Structural base of the cooling system	-		
Cooling system	Natural convection		
Cooling outlet pipes	-		
Cooling dissipation to cells	Special thermal gel		
Module Front and Enclosure	Aluminum Front and Injected ABS Enclosure		
Metal cabinet	Galvanized and painted steel - IP55 - IK10 (*TYPE 12*)		
Dimensions (*W, D, H*) (*mm*)	2,000 x 600 x 1,000	2,000 x 1,200 x 1,000	2,000 x 1,800 x 1,000
Approximate weight (*kg*)	785	1,570	2,355

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ARM-2

▶ 716,8V *[320Ah — 229 • 458 • 687kWh]*

Rack of PRISMATIC CELLS LiFePO$_4$ modules - ***MEDIUM VOLTAGE*** with communication
Conventional cooling
Configurable battery cabinet with RIELLO, INGETEAM, and other inverters *(consult for details)*

The **ARM-2**, constructed from painted steel, is designed with a 10 cm high and 6 mm thick base, along with cable ducts on the sides and front to facilitate cable routing and handling with a pallet jack. Its dimensions are 1,200 mm (*width*) by 2,008 mm (*height*) by 800 mm (*depth*), and it features an internal steel structure with 6 mm thickness.

It can be configured with 14 to 42 **MODULE**s in series, forming combinations of *[1P 14S — 2P 28S — 3P 42S]*, and includes all necessary protections for each string, such as DC circuit breakers, fuses, contactors, and **FLEX** and **COMPACT** control systems, ready to connect to inverters like **RIELLO**, **INGETEAM**, and others.

The **MODULE**s, made of steel, feature two handles on the front, a 48 V fan, and two ultra-fast 200 A connectors (*positive and negative*) each. Additionally, they have 2 RJ45 connectors for communication, a battery mounting system, and a support for the **BMS**, all configured, painted, and connected.

For optimal arrangement, up to 7 **MODULE**s can be placed on the left and another 7 on the right, with a removable cabin in the center to house the **FLEX**, the **COMPACT**, and all battery protections, as well as management through the inverter.

> *As manufacturers, we have the ability to customize both the dimensions of the cabinet structure and the required powers and voltages, ensuring that our clients receive solutions that perfectly fit their individual applications.*

Rack of PRISMATIC CELLS LiFePO$_4$ modules - MEDIUM VOLTAGE with communication

ARM-2/14-229

ARM-2/28-458

MODEL /REF	ARM-2/14-229	ARM-2/28-458	ARM-2/42-687
MODULE FEATURES			
Model	MP-MH/51.2-0320C		
Nominal voltage (*V*)	51.2		
Nominal capacity Prismatic Cell (*Ah*)	320		
ELECTRICAL CHARACTERISTICS			
Voltaje nominal total (*V*)	716.8		
Configuration in cabinet	1P - 14S (*14 MP-MH modules*)	2P - 14S (*28 MP-MH modules*)	3P - 14S (*42 MP-MH modules*)
Nominal Energy (*kWh*)	**229**	**458**	**687**
Operating Voltage Range (*V*)	716.8 - 806.4		
Maximum Charging Current (*A*)	160	320	480
Maximum Continuous Discharge Current (*A*)	160	320	480
GENERAL SPECIFICATIONS			
Cut-off Discharge Voltage (*V*)	<680		
Energy charging efficiency (%)	98		
Self-Discharge (%)	≤ 3.5% per month		
BMS (*Vdc*)	up to 1,500		
External protection fuse (*A*)	250 (*in each FLEX per STRING*)		
(*Positive and negative*) output connectors	IP65 connector 200A		
Cycle life (*25°C, 0,5C, 70% SoH*)	≤ 8,000		
Communication	2 x RJ45		
Certifications	IEC 62619, CE, RoHS, UN 38.3		
OPERATING CONDITIONS			
Operating temperature Charge / Discharge	0 ~ 60°C - 20 ~ 60°C		
Storage Temperature	-20 ~ 35°C		
MECHANICAL CHARACTERISTICS			
Cooling system	Ventilation		
Module Front and Enclosure	painted steel		
Metal cabinet	painted steel - IP55 - IK10 (*TIPO 12*)		
Dimensions (*W, D, H*) (*mm*)	2,008 x 800 x 1,200	2,008 x 800 x 2,400	2,008 x 800 x 3,600
Approximate weight (*kg*)	1,540	3,080	4,620

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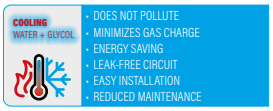
ARM/CL

▶ **358,4V** *[100 • 200 • 300kWh]*

Rack of PRISMATIC CELLS LiFePO$_4$ modules - ***MEDIUM VOLTAGE*** with communication
Liquid ***cooling system*** *(water + glycol)*

ARM/07-358-CL *(open)*



ARM/07-358-CL *(closed)*

The **rack** cabinet, designed for **MEDIUM VOLTAGE** applications, is made from high-quality metal sheet and meets CLASS II standards, making it suitable for both indoor and outdoor installations. These cabinets feature doors and can accommodate 7, 14, or 21 **MODULE**s (*mp-mh/51.2-0280C-CL*) with a voltage of 358.4V, allowing for the storage of 100, 200, or 300 kWh, depending on the configuration needs.

These **rack** cabinets are equipped with a liquid cooling system (*water + glycol*) and are designed for outdoor use. The cooling or heating capacity adjusts according to the installation location and external temperatures, both in summer and winter. This ensures that the **MODULE**s remain within an optimal temperature range of 20 to 30 degrees Celsius, significantly extending the lifespan of the cells. The cooling system operates by circulating water and glycol at a pressure of 2 bar and an appropriate flow rate.

The battery systems are modular, allowing for the grouping of units to achieve capacities of up to 1, 2, or 3 MW, depending on energy needs. It is important to consider the inverter to be installed, as the battery output voltage must be within the range compatible with the inverter.

> *As manufacturers, we have the capability to design custom cabinet structures in terms of dimensions, as well as adapt power and voltage to meet our clients' specific requirements, providing tailored solutions for their energy projects.*

Rack of PRISMATIC CELLS LiFePO$_4$ modules - MEDIUM VOLTAGE with communication
Liquid cooling system *(water + glycol)*

ARM/07-358-CL

ARM/14-358-CL

ARM/21-358-CL

MODEL /REF	ARM/07-358-CL	ARM/14-358-CL	ARM/21-358-CL
MODULE FEATURES			
Model	MP-MH/51.2-0280C-CL		
Nominal voltage (*V*)	51.2		
Nominal capacity (*Ah*)	280		
ELECTRICAL CHARACTERISTICS			
Voltaje nominal total (*V*)	358,4		
Configuration in cabinet	1P - 7S (*7 modules MP-MH*)	2P - 7S (*14 MP-MH modules*)	3P - 7S (*21 modules MP-MH*)
Nominal Energy (*kWh*)	**100.3**	**200.7**	**301**
Operating Voltage Range (*V*)	315 - 392		
Maximum Charging Current (*A*)	140	280	420
Maximum Continuous Discharge Current (*A*)	980		
GENERAL SPECIFICATIONS			
Cut-off Discharge Voltage (*V*)	<315		
Energy charging efficiency (%)	98		
Self-Discharge (%)	≤ 3.5% per month		
BMS (*Vdc*)	up to 1,500		
External protection fuse (*A*)	250 (*in each module*)		
(*Positive and negative*) output connectors	IP65 connector 350A		
Cycle life (*25°C, 0,5C, 70% SoH*)	≤ 8,000		
Communication	2 x RJ45		
Certifications	CE - IEC62619		
OPERATING CONDITIONS			
Operating temperature Charge / Discharge	0 ~ 60°C - 20 ~ 60°C		
Storage Temperature	-20 ~ 35°C		
MECHANICAL CHARACTERISTICS			
Fire suppression system	self-extinguishing aerosol FIREPRO		
Structural base of the cooling system	Anodized Aluminum		
Cooling system	water + glycol		
Cooling outlet pipes	YES		
Cooling dissipation to cells	Special thermal gel		
Module Front and Enclosure	Aluminum Front and Injected ABS Enclosure		
Metal cabinet	Galvanized and painted steel - IP55 - IK10 (*TYPE 12*)		
Dimensions (*W, D, H*) (*mm*)	2,000 x 1,400 x 1,000	2,000 x 2,000 x 1,000	2,000 x 2,600 x 1,000
Approximate weight (*kg*)	985	1,770	2,555

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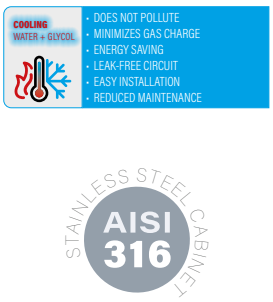
ARM/CL-INOX

▶ 358,4V *[100 - 200 - 300kWh]*

Rack of PRISMATIC CELLS LiFePO$_4$ modules - ***MEDIUM VOLTAGE*** with communication
Outdoor INOX Cabinet IP66 with liquid cool***ing system (water + g****lycol)*

ARM/07-358-CL-INOX *(open)*



ARM/07-358-CL-INOX *(closed)*

The outdoor INOX cabinet with IP66 rating and **MEDIUM VOLTAGE rack** is made from high-quality 316 stainless steel, ensuring durability and meeting CLASS II safety standards. This design is intended for outdoor applications and features doors for additional protection. Inside, it can house 7, 14, or 21 **MP-MH**/51.2-0280C-CL **MODULE**s with a voltage of 358.4V, allowing for the storage of 100, 200, or 300 kWh, depending on the required configuration.

These **rack MODULE**s are equipped with a liquid cooling system (*water + glycol*) and are designed for use in outdoor environments. The cooling or heating capacity adapts according to the location and external temperatures, both in summer and winter. This ensures that the **MODULE**s remain within an optimal temperature range of 20 to 30 degrees Celsius, significantly extending the lifespan of the cells. The cooling system operates by circulating water and glycol at a pressure of 2-3 bar and with an appropriate flow rate.

These battery systems are modular, meaning it is possible to group units to achieve capacities of up to 1, 2, or 3 MW, depending on energy needs. It is important to consider the inverter to be installed, as the battery output voltage must be within the range compatible with the inverter.

> *As manufacturers, we have the capability to design custom cabinet structures in terms of dimensions, as well as adapt power and voltage according to our clients' specific requirements, offering tailored solutions for energy projects in demanding environments.*

Outdoor INOX Cabinet IP66 with liquid cooling system *(water + glycol)*

ARM/07-358-CL-INOX

ARM/14-358-CL-INOX

ARM/21-358-CL-INOX

MODEL /REF	ARM/07-358-CL-INOX	ARM/14-358-CL-INOX	ARM/21-358-CL-INOX
MODULE FEATURES			
Model	MP-MH/51.2-0280C-CL		
Nominal voltage (*V*)	51.2		
Nominal capacity (*Ah*)	280		
ELECTRICAL CHARACTERISTICS			
Voltaje nominal total (*V*)	358,4		
Configuration in cabinet	1P - 7S (*7 modules MP-MH*)	2P - 7S (*14 MP-MH modules*)	3P - 7S (*21 modules MP-MH*)
Nominal Energy (*kWh*)	**100,3**	**200,7**	**301**
Operating Voltage Range (*V*)	315 - 392		
Maximum Charging Current (*A*)	140	280	420
Maximum Continuous Discharge Current (*A*)	980		
GENERAL SPECIFICATIONS			
Cut-off Discharge Voltage (*V*)	<315		
Energy charging efficiency (%)	98		
Self-Discharge (%)	≤ 3.5% per month		
BMS (*Vdc*)	up to 1,500		
External protection fuse (*A*)	250 (*in each module*)		
(*Positive and negative*) output connectors	IP65 connector 350A		
Cycle life (*25°C, 0,5C, 70% SoH*)	≤ 8,000		
Communication	2 x RJ45		
Certifications	CE - IEC62619		
OPERATING CONDITIONS			
Operating temperature Charge / Discharge	0 ~ 60°C - 20 ~ 60°C		
Storage Temperature	-20 ~ 35°C		
MECHANICAL CHARACTERISTICS			
Fire suppression system	self-extinguishing aerosol FIREPRO		
Structural base of the cooling system	Anodized Aluminum		
Cooling system	water + glycol		
Cooling outlet pipes	YES		
Cooling dissipation to cells	Special thermal gel		
Module Front and Enclosure	Aluminum Front and Injected ABS Enclosure		
Metal cabinet	Galvanized and painted steel - IP55 - IK10 (*TYPE 12*)		
Dimensions (*W, D, H*) (*mm*)	2,000 x 1,400 x 1,000	2,000 x 2,000 x 1,000	2,000 x 2,600 x 1,000
Approximate weight (*kg*)	985	1,770	2,555

ARM/CL-INOX

Outdoor energy storage in MEDIUM VOLTAGE rack of 0.9-1.8MWh

OUTDOOR ACCUMULATION ***0,9 MWh***

OUTDOOR ACCUMULATION ***1.8 MWh***

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ARM/CL-INOX

Outdoor energy storage in MEDIUM VOLTAGE rack of 3-6MWh

OUTDOOR ACCUMULATION ***3 MWh***

OUTDOOR ACCUMULATION ***6 MWh***

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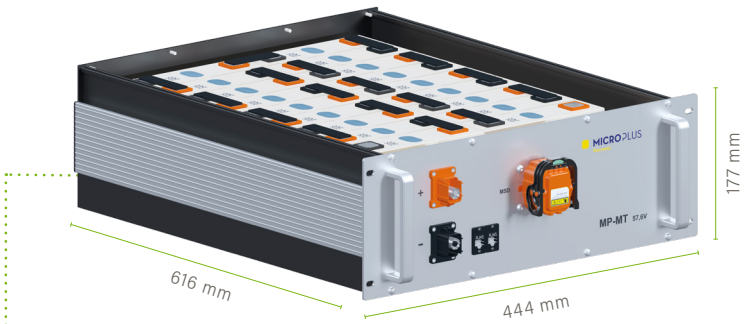
MP-MT

▶ 57.6V [100Ah — 5,760Wh]

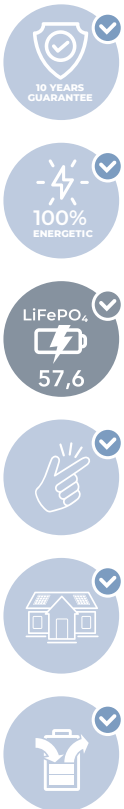
PRISMATIC CELLS LiFePO$_4$ MODULE with communication

MP-MT/57,6-0100C



PRISMATIC CELLS **100A**

Other modules can be manufactured with different configurations of prismatic cells with varying amperages.



The **MODULE** is designed with *PRISMATIC CELLS* of LiFePO$_4$ in a *[1P x 18S]* configuration, each with a voltage of 3.2V and a capacity of 100Ah, providing a total capacity of 5.8 kWh at 57.6V. These **MODULE**s can be connected in series up to 8 units, forming a **MODULE rack** with a capacity of 46 kWh at a voltage of 461V. This configuration is ideal for manufacturing medium voltage storage systems, and additional units can be added to reach voltages of up to 1,229V if needed.

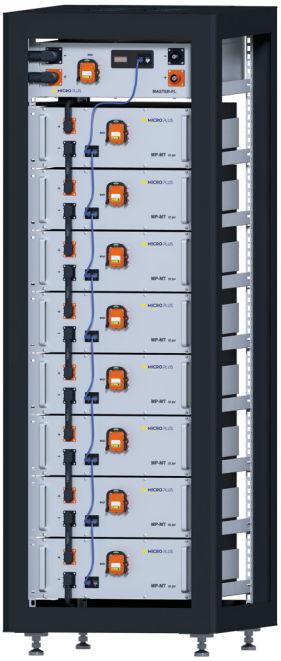
The **MODULE**s are constructed in aluminum cases and feature front connectors to facilitate connection without contacting the energy or cables. Additionally, they integrate a slave Battery Management System (**BMS**) capable of operating up to 1,500V, which can be connected in series from 8 **rack** units and commanded by a master **BMS** for controlling each **MODULE** set. Communication is established through protocols like CAN, Modbus/TCP, and RS485, allowing efficient control and detailed monitoring of the storage system.

> *This solution is versatile and efficient, making it ideal for medium voltage energy storage applications, ENSURING A high level of safety and operational control.*

PRISMATIC CELLS LiFePO$_4$ Module Rack *(403 - 461V)* with COMMUNICATION

MP-MT/57,6-0100C

RACKHT40



RACKHT46

MODEL /REF		MP-MT/57,6-0100C	RACKHT40	RACKHT46
GENERAL SPECIFICATIONS				
Nominal voltage (*V*)		57.6	403	461
Nominal capacity (*Ah*) Prismatic			100	
Nominal Energy (*kWh*)		**5.76**	**40.3**	**46.1**
Cabinet rack			Painted black steel	
Dimensions (*W, D, H*) (*mm*)		616 x 444 x 177	2,054 x 800 x 600	
Approximate Weight (kilograms		43	425	468
ELECTRICAL CHARACTERISTICS				
Operating Voltage Range (*V*)		49 - 64	340 - 450	389 - 514
Maximum Charging Current (*A*)			100	
Series connection current limit for charging (*ON / OFF setting*) (*A*)			100	
Maximum Peak Discharge Current (*A <3S*)			200	
Cut-off Discharge Voltage (*V*)		36 < 0°C < 45V	252 < 0°C < 315V	288 < 0°C < 360V
SMART BMS (*MASTER-FL*)		-	1	
Energy Charge Efficiency (%			98	
Internal Resistance (*mΩ*)		< 0,40	-	-
Self-Discharge (%)			≤ 3.5% per month	
Cycle life (*25°C, 0,5C, 70% SoH*)			≤ 8,000	
OPERATING CONDITIONS				
Operating Temperature	Charge		0°C ~ 60°C	
	Discharge		-20°C ~ 60°C	
Storage Temperature			-20°C ~ 35°C	
Storage Duration			6 months from 20 - 50% SOC	
Communication			RS485 — CAN — MODBUS/TCP	
Dust and Water Resistance			IP30	
Series Function (*Units*)		1	7	8
Certifications			CE - IEC62619	

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AR-P

▶ 403V *[40 - 403kWh – stored in racks]*
461V *[507 - 968kWh – stored in racks]*

Rack of PRISMATIC CELLS LiFePO$_4$ modules + master control

Rack
of modules and
BMS MASTER-FL

Does not include
inverter or container

PRISMATIC CELLS
3,2V - **100A**

The **AR-P** system is an advanced setup composed of 58V and 100Ah **MODULE**s, each equipped with an individual Battery Management System (**BMS**) capable of operating safely and efficiently at voltages up to 1,500V.

This system allows for precise monitoring of temperatures and voltages, as well as effective control of voltages in each cell.

The **MODULE**s are assembled in series in groups of up to 8 units, housed in a **rack**-type cabinet with front and rear doors, along with four fans to ensure optimal air circulation. The system operates at a voltage of 461Vdc and a current of 100A, totaling a capacity of 967kWh.

The series connection of the **MODULE**s is performed at the front using **AMPHENOL** connectors, which ensure maximum safety by eliminating manipulable tension points during both assembly and maintenance.

For intelligent management of all **MODULE**s and efficient communication, a master controller is included, operating through CAN, Modbus/TCP, and RS485 protocols. This enables the connection of the system to inverters that can deliver up to 800kW of power, with a three-phase output plus neutral, making it suitable for both residential and industrial installations.

> *En resumen, el AR-P proporciona una solución robusta y adaptable, ideal para una amplia variedad de aplicaciones energéticas, garantizando seguridad, eficiencia y flexibilidad.*

Rack de modules PRISMATIC CELLS de 461Vdc

Rack
of modules and
BMS MASTER-FL

Does not include
inverter or container

MODEL	CAPACITY (kWh)	VOLTAGE			MAXIMUM CONTINUOUS POWER (kW)	RACKS			
		MINIMUM (V)	NOMINAL (V)	MAXIMUM (V)		UNITS	MODEL	UNITS - DIMENSIONS (mm)	WEIGHT TOTAL (kg)
AR-P/040	**40**	340	403	450	**40**	1	RACKHT40	2,054 x 800 x 600	425
AR-P/081	**81**				**81**	2		2,054 x 800 x 1,200	850
AR-P/121	**121**				**121**	3		2,054 x 800 x 1,800	1,275
AR-P/161	**161**				**161**	4		2,054 x 800 x 2,400	1,700
AR-P/202	**202**				**202**	5		2,054 x 800 x 3,000	2,125
AR-P/242	**242**				**242**	6		2,054 x 800 x 3,600	2,550
AR-P/282	**282**				**282**	7		2,054 x 800 x 4,200	2,975
AR-P/323	**323**				**323**	8		2,054 x 800 x 4,800	3,400
AR-P/363	**363**				**363**	9		2,054 x 800 x 5,400	3,825
AR-P/403	**403**				**403**	10		2,054 x 800 x 6,000	4,250
AR-P/507	**507**	389	461	514	**507**	11	RACKHT46	2,054 x 800 x 6,600	5,148
AR-P/553	**553**				**553**	12		2,054 x 800 x 7,200	5,616
AR-P/599	**599**				**599**	13		2,054 x 800 x 7,800	6,084
AR-P/645	**645**				**645**	14		2,054 x 800 x 8,400	6,552
AR-P/691	**691**				**691**	15		2,054 x 800 x 9,000	7,020
AR-P/737	**737**				**737**	16		2,054 x 800 x 9,600	7,488
AR-P/783	**783**				**783**	17		2,054 x 800 x 10,200	7,956
AR-P/829	**829**				**829**	18		2,054 x 800 x 10,800	8,424
AR-P/876	**876**				**876**	19		2,054 x 800 x 11,400	8,892
AR-P/922	**922**				**922**	20		2,054 x 800 x 12,000	9,360
AR-P/968	**968**				**968**	21		2,054 x 800 x 12,600	9,828

Note 0: Different voltage ranges can be offered by reducing the number of modules in each string. This customized solution might alter the total energy/power of the standard solution.

Note 1: Maximum performance of **LIADTEC** batteries. The actual performance may be limited by the DC-DC converter or PCS.

MICRO PLUS Germany

CBAT

▶ **403 - 450V** *[40 - 242kWh – stored in container]*

10-Foot Container with PRISMATIC CELLS $LiFePO_4$ Racks

Container with Batteries Only
and **BMS MASTER**

The **CBAT** system represents a versatile and effective solution for $LiFePO_4$ battery storage with a voltage range of 403-450V. This 10-foot container comes fully assembled in a **rack**, facilitating integration with a wide range of market inverters (*see the following tables*).

This system is highly customizable and adapts to various applications, such as installations in residential communities, public works, hotels, and other solutions aimed at addressing energy demand variability or optimizing consumption. For example, batteries can be charged overnight, taking advantage of lower electricity rates, and used during the day when energy is more expensive to power systems like electric vehicle charging.

The **CBAT** container is equipped with essential features for efficient and safe operation, such as air conditioning systems for temperature regulation, internal lighting, and fire protection measures. Additionally, it can be customized to meet specific customer and project requirements, including the incorporation of additional features as needed.

> *Below, the following table provides a detailed description of all the system's features, highlighting its versatility and adaptability to address various projects and specific requirements.*

MODEL /REF	CBAT/040	CBAT/081	CBAT/121	CBAT/161	CBAT/202	CBAT/242
ENERGY STORAGE						
Lithium Battery Voltage MT (*Vdc*)	403 - 450					
Configuration	RACKHT40					
Number of MT lithium racks (*units*)	1	2	3	4	5	6
Stored energy in MT batteries (*kWh*)	**40**	**81**	**121**	**161**	**202**	**242**
DIMENSIONS						
10 ft container (*L x W x H*) (*m*)	2,98 x 2,44 x 2,59					
Approx. weight of container without solar panels (*kg*)	1,250	1,675	2,100	2,525	2,950	3,375
GENERAL CHARACTERISTICS						
Fire suppression system	self-extinguishing aerosol FIREPRO					
Certifications	CE - IEC62619					

Note 0: Different voltage ranges can be offered by reducing the number of modules in each string. This customized solution might alter the total energy/power of the standard solution.

Note 1: Maximum performance of **LIADTEC** batteries. The actual performance may be limited by the DC-DC converter or PCS.

CBAT

▶ 461 - 514V *[403 - 829kWh – stored in container]*

20-foot container with lithium racks

Container with Batteries Only
and **BMS MASTER**

The **CBAT** system is a 20-foot container designed to house $LiFePO_4$ lithium battery **racks** with a voltage range of 461 to 514V. These **racks** come fully assembled and are ready to be used with any inverter available on the market (*consult the following tables*).

This system is highly customizable and adapts to various applications, such as installations in residential communities, public works projects, hotels, and a wide range of solutions aimed at addressing energy demand variability or optimizing consumption. For instance, the **racks** can be charged overnight, taking advantage of lower electricity rates, and used during the day, when energy is more expensive, to power systems like electric vehicle charging, among others.

The **CBAT** container is equipped with essential features for efficient and safe operation, including air conditioning systems for temperature regulation, internal lighting, and fire protection measures. Additionally, it can be customized to meet specific client and project requirements, including the addition of extra features as needed.

> *In the following table, a detailed description of all the system features is provided, highlighting the versatility and adaptability it offers for addressing a wide range of projects and specific requirements.*

MODEL /REF	CBAT/403	CBAT/507	CBAT/553	CBAT/599	CBAT/645	CBAT/691	CBAT/737	CBAT/783	CBAT/829
ENERGY STORAGE									
Lithium Battery Voltage MT (*Vdc*)	461 - 514								
Configuration	RACKHT46								
Number of MT lithium racks (*units*)	10	11	12	13	14	15	16	17	18
Stored energy in MT batteries (*kWh*)	**403**	**507**	**553**	**599**	**645**	**691**	**737**	**783**	**829**
DIMENSIONS									
Container 20' (*L x W x H*) (*m*)	6.10 x 2.44 x 2.59								
Approx. weight of container without solar panels (*kg*)	6,550	7,448	7,916	8,384	8,852	9,320	9,778	10,256	10,724
GENERAL CHARACTERISTICS									
Fire suppression system	self-extinguishing aerosol FIREPRO								
Certifications	CE - IEC62619								

Note 0: Different voltage ranges can be offered by reducing the number of modules in each string. This customized solution might alter the total energy/power of the standard solution.

Note 1: Maximum performance of **LIADTEC** batteries. The actual performance may be limited by the DC-DC converter or PCS.

ARI-10

▶ **345 - 512V** *[34 - 163kWh — stored in module racks]*

[90,000kWh — generated per day in photovoltaic systems]

Racks of $LiFePO_4$ modules + 10 kW **three-phase** hybrid inverter + control master

ARI-10

We have developed an innovative line of **Medium Voltage** products featuring the **ARI-10** model, specifically designed for photovoltaic energy systems with lithium battery storage, targeting factories, shopping centers, and small to medium-sized businesses. This model provides 10 kWh energy output in 3-phase and neutral.

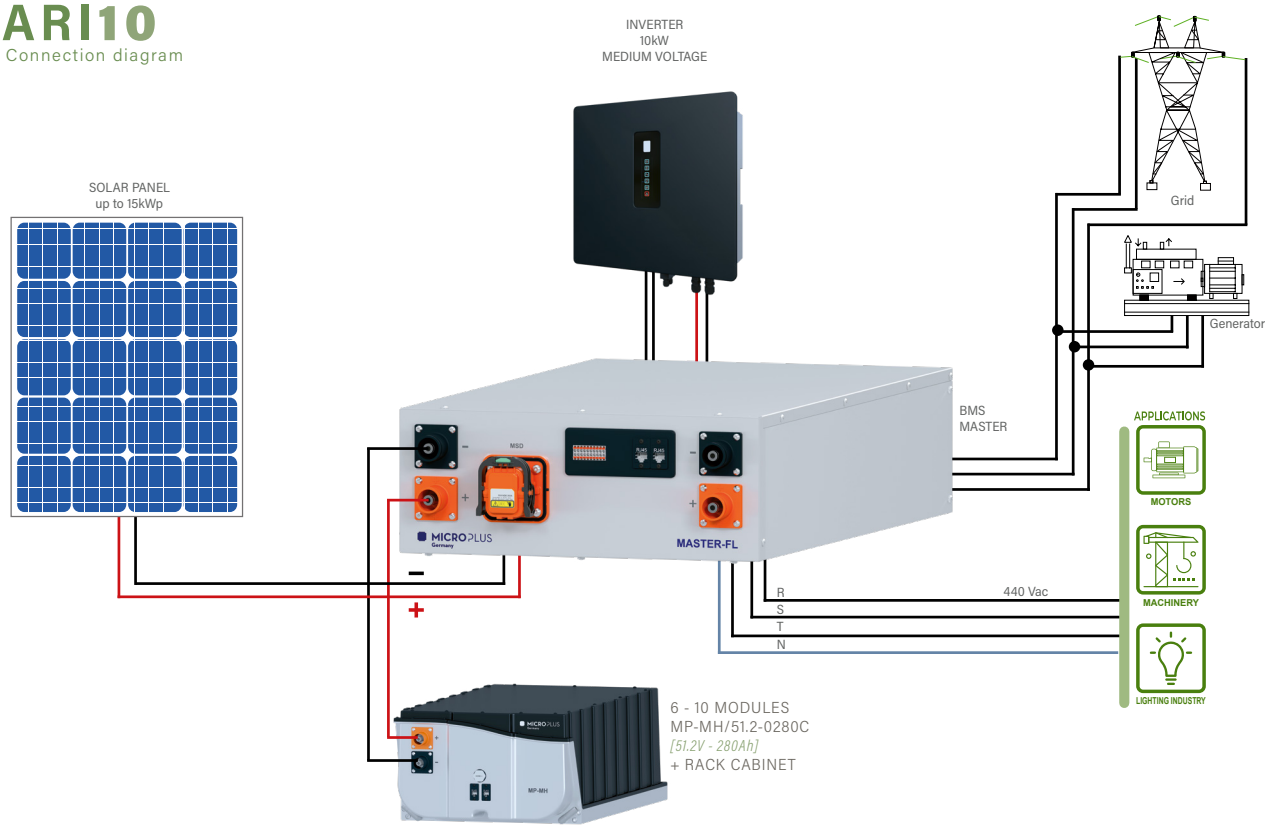
Regarding storage, our range covers capacities from 34 to 163 kWh, operating within a voltage range of 300 to 500V. The inverter, supplied by **RIELLO**, includes 2 **MPPT**s and allows remote monitoring via a mobile app and a dedicated web portal.

The metal cabinets house the system components, including battery **MODULE**s with Prismatic Cells available in 100, 280, or 320A variants, equipped with **BMS** and protections. Cell welding is performed with laser technology, and connectors facilitate the formation of series and parallels. These components are managed through a **FLEX**, connected to our **COMPACT**, and linked to the inverter or **EMS**. Installation is simplified by connecting the photovoltaic lines and easy connection to the inverter via **MC4** connectors.

> *This product, proudly manufactured in Europe, stands out for its versatility. We are ready to adjust or modify any configuration according to our customers' specific needs. We are committed to providing efficient and customized energy solutions, backed by the quality and flexibility that characterize our products.*

ARI10

Connection diagram



MODEL /REF		ARI-10/034	ARI-10/040	ARI-10/046	ARI-10/051	ARI-10/085	ARI-10/100	ARI-10/131	ARI-10/163
SOLAR PANEL									
Total panel power (*Wp*)		15,000							
Maximum PV input voltage (*V*)		1,000							
Daily solar generation	Minimum 4 hours (*Wp*)	60,000							
	Maximum 6 hours (*Wp*)	**90,000**							
ENERGY STORAGE									
Lithium Battery Voltage MT (*Vdc*)		345	403	460	518	307	358	409	512
Module type		MP-MT/57,6-0100C				MP-MH/51.2-0280C		MP-MH/51.2-0320C	
Configuration		1P - 6S	1P - 7S	1P - 8S	1P - 9S	1P - 6S	1P - 7S	1P - 8S	1P - 10S
Energy stored in MT batteries (*Wh*)		**34,500**	**40,320**	**46,080**	**51,840**	**85,810**	**100,000**	**131,072**	**163,840**
INVERTER / CONTROLLER									
Inverter model		ESS-RS 10kW three-phase							
Inverter power	Maximum (*kW*)	11							
	Nominal (*kW*)	10							
Output voltage (*Vac*)		380 / 400 – 3W + N + PE							
Battery voltage range (*V*)		250 - 600							
DIMENSIONS									
Model rack cabinet		2 x ARM6827		2 x ARM6832		2 x ARM		2 x ARM	
Cabinet racks (*L x W x H*) (*mm*)		1,387 x 1,200 x 800		1,609 x 1,200 x 800		1,800 x 1,200 x 1,000		2,000 x 1,200 x 1,000	
Weight of the kit without solar panels (*kg*)		458	491	594	637	850	960	1,080	1,280

Note 0: Different voltage ranges can be offered by reducing the number of modules in each string. This customized solution might alter the total energy/power of the standard solution.

Note 1: Maximum performance of **LIADTEC** batteries. The actual performance may be limited by the DC-DC converter or PCS.

ARI-20

▶ **307 - 518V** *[51 - 163kWh — stored in module racks]*
[180kWh — generated per day in photovoltaic systems]

LiFePO$_4$ module racks + 20kW **three-phase** hybrid inverter + control master

ARI-20

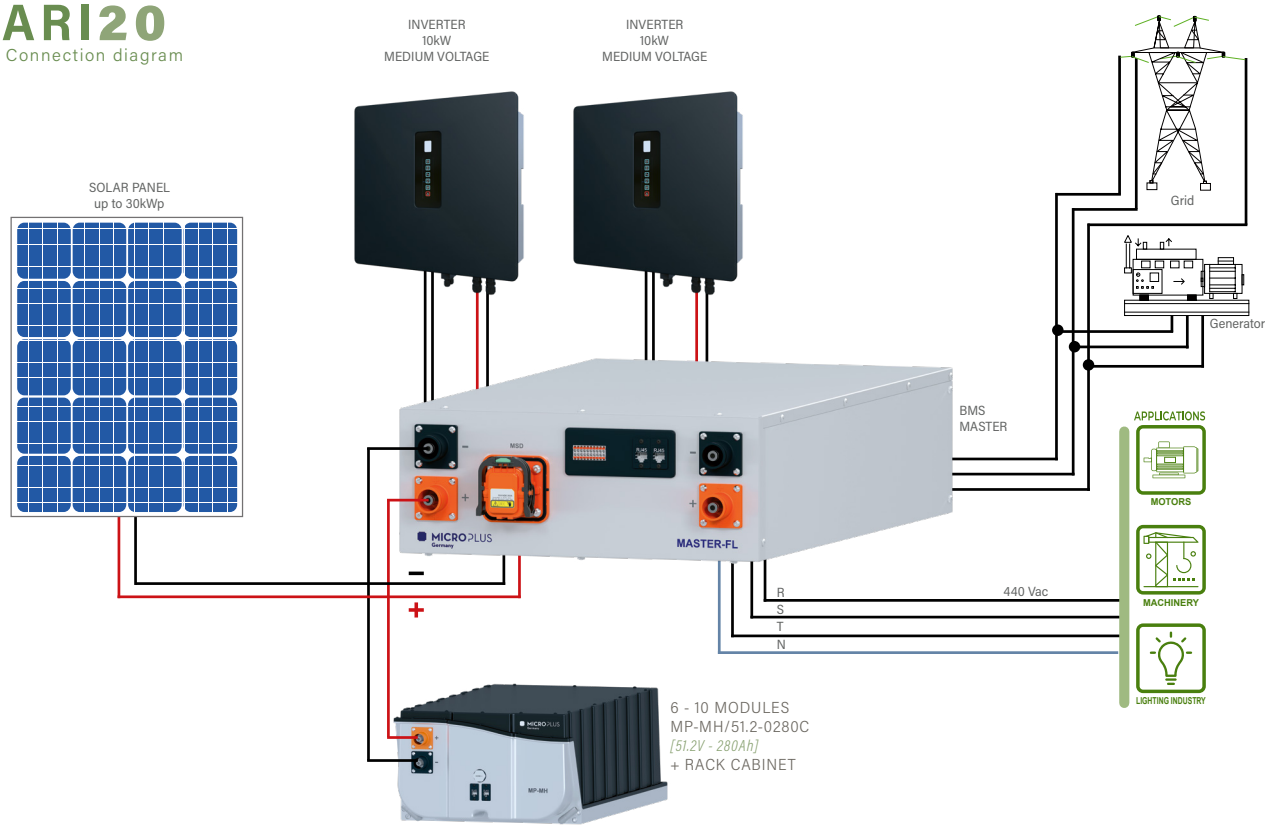
We have developed an innovative **MEDIUM VOLTAGE** product line consisting of the Model **ARI-20** specifically designed to supply photovoltaic energy with lithium battery storage, aimed at meeting the needs of factories, shopping malls and small and medium-scale companies. These Models offer power outputs of 20 kWh in 3 phases and neutral.

As far as storage is concerned, our range covers capacities from 51 up to 163 kWh, operating within a voltage range between 300 and 500V. The inverter, supplied by the renowned **RIELLO** brand, has 2 **MPPT** and allows remote monitoring through a mobile application and a dedicated web portal.

Our approach is materialized in metal cabinets that house the essential elements of the system. We incorporate PRISMATIC CELL battery **MODULE**s, available in 100, 280 or 320A variants, equipped with **BMS** and protections. The cells are welded using laser technology, and the connectors facilitate the formation of series and parallels. These components are controlled by a flex, connected to our compact and finally linked to the inverter or the **EMS**. Installation is simplified, as it only requires the connection of the photovoltaic lines and easy connection to the inverter using **MC4** connectors.

> *This product, proudly manufactured in Europe, stands out for its versatility. We are ready to adjust or modify any configuration according to our customers' specific needs. We are committed to providing efficient and customized energy solutions, backed by the quality and flexibility that characterize our products.*

ARI20
Connection diagram



MODEL /REF		ARI-20/051	ARI-20/085	ARI-20/100	ARI-20/131	ARI-20/163
SOLAR PANEL						
Total panel power (*Wp*)		30,000				
Maximum PV input voltage (*V*)		1,000				
Daily solar generation	Minimum 4 hours (*Wp*)	120,000				
	Maximum 6 hours (*Wp*)	**180,000**				
ENERGY STORAGE						
Lithium Battery Voltage MT (*Vdc*)		518	307	358	409	512
Module type		MP-MT/57,6-0100C	MP-MH/51.2-0280C		MP-MH/51.2-0320C	
Configuration		1P - 9S	1P - 6S	1P - 7S	1P - 8S	1P - 10S
Energy stored in MT batteries (*Wh*)		**51,840**	**85,810**	**100,000**	**131,072**	**163,840**
INVERTER / CONTROLLER						
Inverter model		2 x ESS-RS 10kW three-phase				
Inverter power	Maximum (*kW*)	22				
	Nominal (*kW*)	20				
Output voltage (*Vac*)		380 / 400 – 3W + N + PE				
Battery voltage range (*V*)		250 - 600				
DIMENSIONS						
Model rack cabinet		2 x ARM6842	2 x ARM			
Cabinet racks (*L x W x H*) (*mm*)		2,054 x 1,200 x800	2,000 x 2,600 x 1,000			
Weight of the kit without solar panels (*kg*)		680	900	992	1,190	1,330

Note 0: Different voltage ranges can be offered by reducing the number of modules in each string. This customized solution might alter the total energy/power of the standard solution.

Note 1: Maximum performance of **LIADTEC** batteries. The actual performance may be limited by the DC-DC converter or PCS.

ARI-30

▶ **307 - 512V** *[85 - 163kWh – stored in module racks]*
[270kWh — generated per day in photovoltaic systems]

LiFePO$_4$ module racks + 30kW **three-phase** hybrid inverter + control master

ARI-30

We have developed an innovative **MEDIUM VOLTAGE** product line consisting of Model **ARI-30** specifically designed to supply photovoltaic energy with lithium battery storage, aimed at meeting the needs of factories, shopping malls and small and medium-scale companies. These Models offer power outputs of 30 kWh in 3 phases and neutral.

As far as storage is concerned, our range covers capacities from 85 up to 163 kWh, operating within a voltage range between 300 and 500V. The inverter, supplied by the renowned **RIELLO** brand, has 2 **MPPT** and allows remote monitoring through a mobile application and a dedicated web portal.

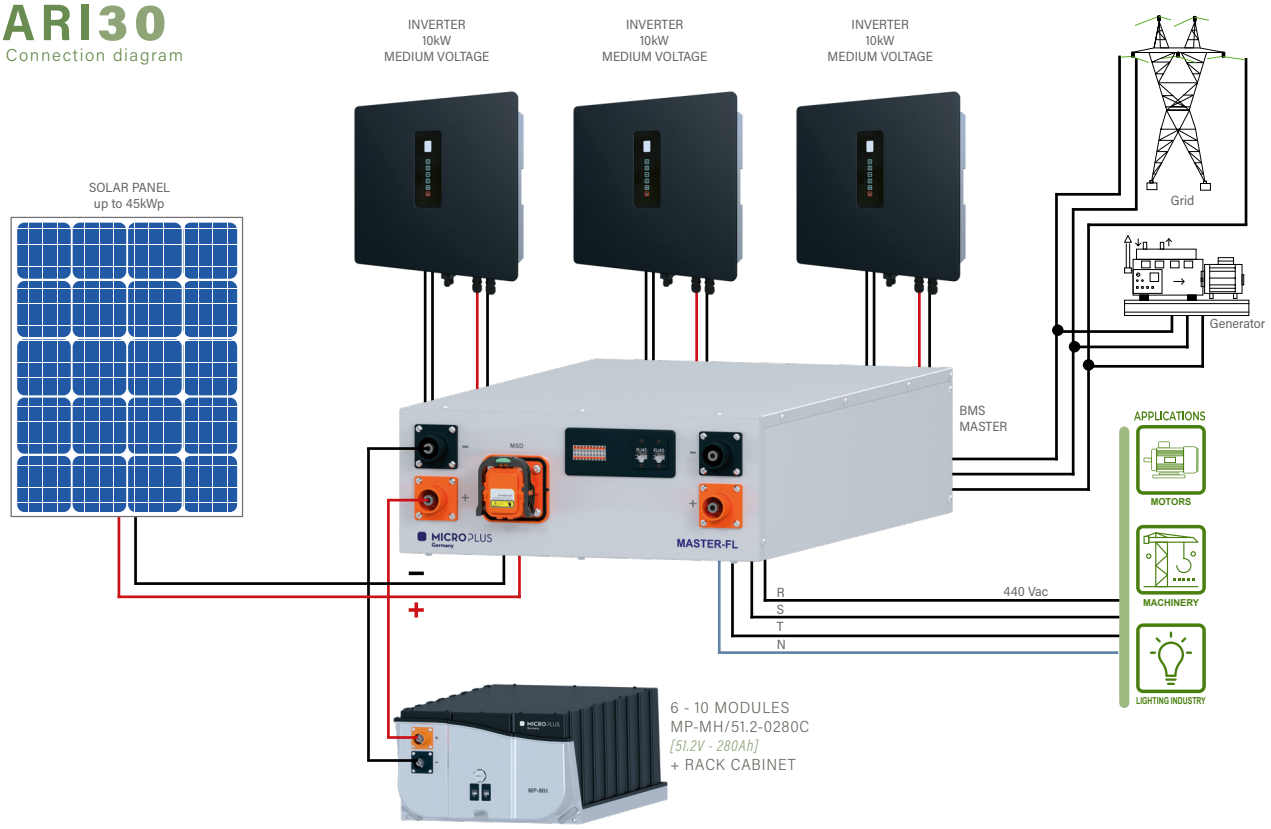
Our approach is materialized in metal cabinets that house the essential elements of the system. We incorporate PRISMATIC CELL battery **MODULE**s, available in 280 or 320A variants, equipped with **BMS** and protections. The cells are welded using laser technology, and the connectors facilitate the formation of series and parallels.

These components are controlled by a flex, connected to our compact and finally linked to the inverter or the **EMS**. Installation is simplified, as it only requires the connection of the photovoltaic lines and easy connection to the inverter using **MC4** connectors.

> *This product, proudly manufactured in Europe, stands out for its versatility. We are ready to adjust or modify any configuration according to our customers' specific needs. We are committed to providing efficient and customized energy solutions, backed by the quality and flexibility that characterize our products.*

ARI30

Connection diagram



MODEL /REF		ARI-30/085	ARI-30/100	ARI-30/131	ARI-30/163
SOLAR PANEL					
Total panel power (*Wp*)		45,000			
Maximum PV input voltage (*V*)		1,000			
Daily solar generation	Minimum 4 hours (*Wp*)	180,000			
	Maximum 6 hours (*Wp*)	**270,000**			
ENERGY STORAGE					
Lithium Battery Voltage MT (*Vdc*)		307	358	409	512
Module type		MP-MH/51.2-0280C		MP-MH/51.2-0320C	
Configuration		1P - 6S	1P - 7S	1P - 8S	1P - 10S
Energy stored in MT batteries (*Wh*)		**85,810**	**100,000**	**131,072**	**163,840**
INVERTER / CONTROLLER					
Inverter model		3 x ESS-RS 10kW three-phase			
Inverter power	Maximum (*kW*)	33			
	Nominal (*kW*)	30			
Output voltage (*Vac*)		380 / 400 – 3W + N + PE			
Battery voltage range (*V*)		250 - 600			
DIMENSIONS					
Model rack cabinet		2 x ARM		3 x ARM	
Cabinet racks (*L x W x H*) (*mm*)		2,000 x 2,600 x 1,000		1,800 x 1,000 x 1,000	
Weight of the kit without solar panels (*kg*)		910	1,030	1,250	1,400

Note 0: Different voltage ranges can be offered by reducing the number of modules in each string. This customized solution might alter the total energy/power of the standard solution.

Note 1: Maximum performance of **LIADTEC** batteries. The actual performance may be limited by the DC-DC converter or PCS.

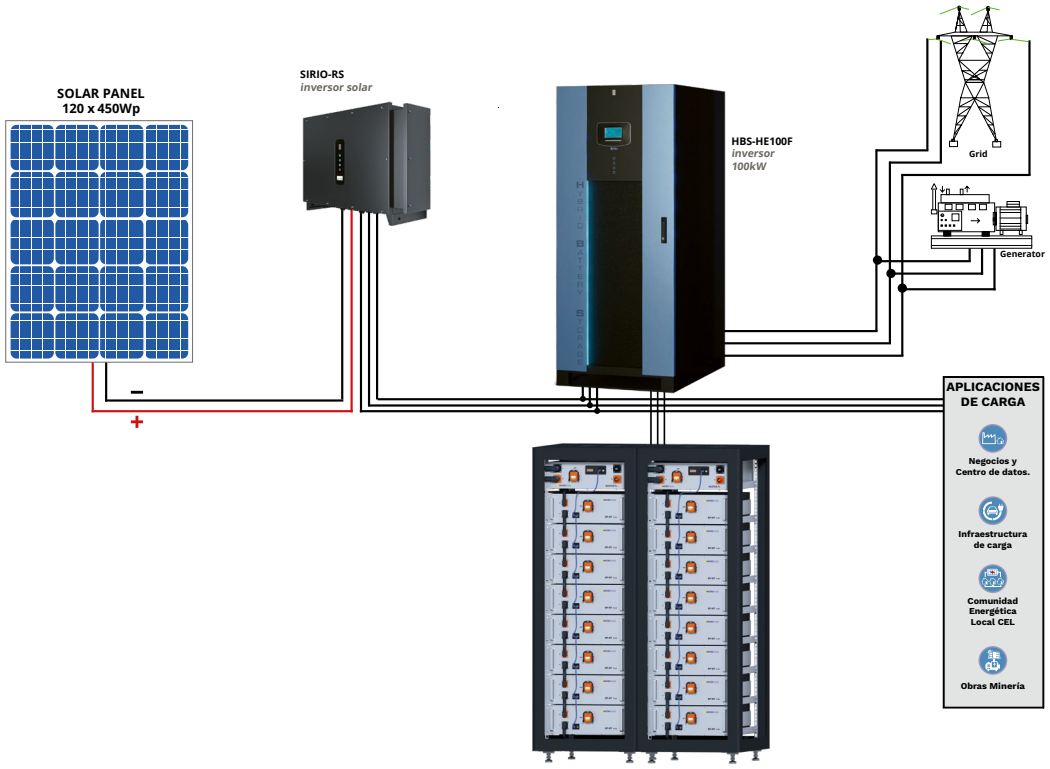
MICRO PLUS Germany

ARI-P

▶ **403V** *[121 - 968kWh — stored in module racks]*

[405 - 1.080kW — generated per day in photovoltaic systems]

LiFePO$_4$ module racks + **three-phase** inverter + control master + photovoltaic panels



For configurations other than those indicated, please ask your sales representative.

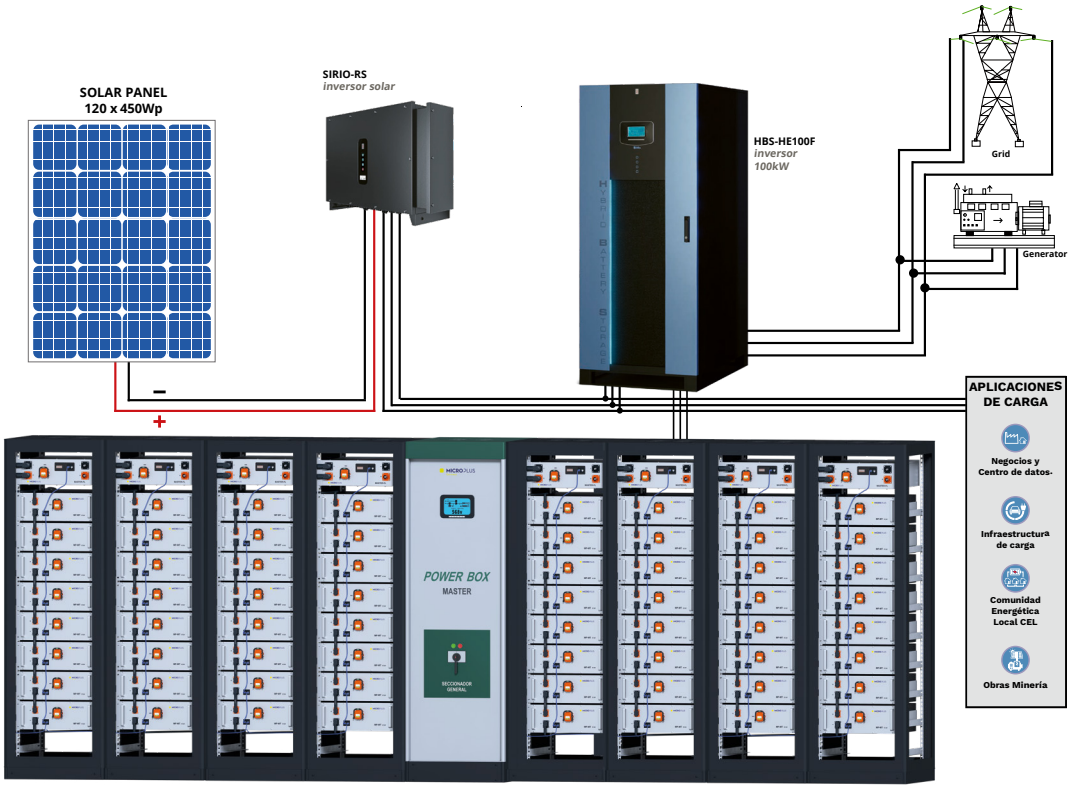
MODEL /REF		ARI-P/121	ARI-P/161	ARI-P/202	ARI-P/242	ARI-P/323	ARI-P/363	ARI-P/403
SOLAR PANEL								
No. of panels (*units*) 450Wp		60	90	120	150	180	210	240
Total panel power (*Wp*)		27,000	40,500	54,000	67,500	81,000	94,500	108,000
Daily solar generation	Minimum 4 hours (*Wp*)	108,000	162,000	216,000	270,000	324,000	378,000	432,000
	Maximum 6 hours (*Wp*)	**162,000**	**243,000**	**324,000**	**405,000**	**486,000**	**567,000**	**648,000**
ENERGY STORAGE								
Lithium Battery Voltage MT (*Vdc*)		403						
Configuration		RACKHT40						
Number of MT lithium racks (*units*)		3	4	5	6	8	9	10
Energy stored in MT batteries (*Wh*)		**120,960**	**161,280**	**201,600**	**241,920**	**322,560**	**362,880**	**403,200**
INVERTER / CONTROLLER								
Inverter model		HBS/040	HBS/060		HBS/080	HBS-HE100F		HBS-HE120F
Inverter power	Maximum (*kW*)	60		100		100		120
	Nominal (*kW*)	60		100		100		120
Output voltage (*Vac*)		400 / 415 Three-phase + N						
DIMENSIONS								
Cabinet racks (*L x W x H*) (*mm*)		ARM6842 (*600 x 800 x 2.054*)						
Weight of the kit without solar panels (*kg*) aprox.		1,100	1,700	2,200	3,200	3,800	4,700	5,800

Note 0: Different voltage ranges can be offered by reducing the number of modules in each string. This customized solution might alter the total energy/power of the standard solution.

Note 1: Maximum performance of **LIADTEC** batteries. The actual performance may be limited by the DC-DC converter or PCS.

MADE IN EUROPE

LiFePO$_4$ module racks + three-phase inverter + Control Master + photovoltaic panels



For configurations other than those indicated, please ask your sales representative.

MODEL /REF		ARI-P/507	ARI-P/553	ARI-P/599	ARI-P/691	ARI-P/783	ARI-P/876	ARI-P/968
SOLAR PANEL								
No. of panels (*units*) 450Wp		270	300	360	420	450	480	540
Total panel power (*Wp*)		121,500	135,000	162,000	189,000	202,500	216,000	243,000
Daily solar generation	Minimum 4 hours (*Wp*)	486,000	540,000	648,000	756,000	810,000	864,000	972,000
	Maximum 6 hours (*Wp*)	**729,000**	**810,000**	**972,000**	**1,134,000**	**1,215,000**	**1,296,000**	**1,458,000**
ENERGY STORAGE								
Lithium Battery Voltage MT (*Vdc*)		461						
Configuration		RACKHT46						
Number of MT lithium racks (*units*)		11	12	13	15	17	19	21
Energy stored in MT batteries (*Wh*)		**506,880**	**552,960**	**599,040**	**691,200**	**783,360**	**875,520**	**967,680**
INVERTER / CONTROLLER								
Inverter model		HBS-HE120F		HBS-HE200F		HBS-HE300F		
Inverter power	Maximum (*kW*)	120		200		300		
	Nominal (*kW*)	120		200		300		
Output voltage (*Vac*)		400 / 415 Three-phase + N						
DIMENSIONS								
Cabinet racks (*L x W x H*) (*mm*)		ARM6842 (*600 x 800 x 2.054*)						
Weight of the kit without solar panels (*kg*) aprox.		5,100	5,600	6,700	7,900	8,600	9,200	10,300

Note 0: Different voltage ranges can be offered by reducing the number of modules in each string. This customized solution might alter the total energy/power of the standard solution.

Note 1: Maximum performance of **LIADTEC** batteries. The actual performance may be limited by the DC-DC converter or PCS.

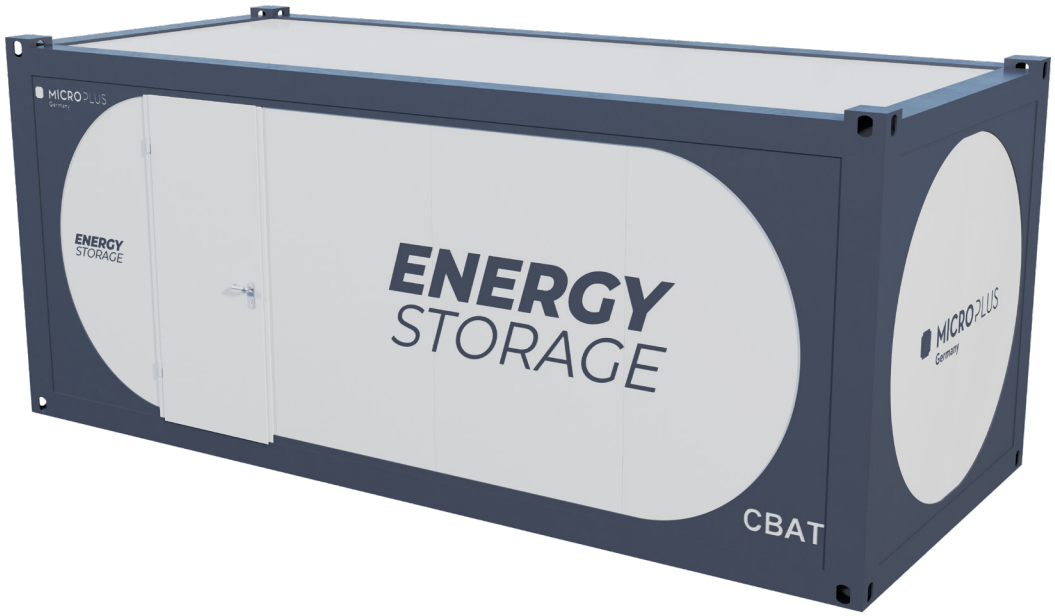
MICRO PLUS Germany

CBAT-INV

▶ 461V *[161 - 829kWh – stored in container]*

[297 - 1.166.400kWh — generated per day in photovoltaic systems]

$LiFePO_4$ module racks in container + **three-phase** inverter + control master + photovoltaic panels



GIVEN THE GREAT POSSIBILITIES THAT THESE EQUIPMENT HAVE, A DETAILED STUDY OF EACH PROJECT WILL BE CARRIED OUT ***CONSULT***

ENERGY STORAGE

MicroPlus Germany offers a wide range of products and complete solutions for energy storage. Our systems are flexible, customizable and delivered ready-to-use, allowing you to efficiently configure your energy storage system based on your specific needs. In the alternative energy environment, it is common for energy demand to not always match production, resulting in energy waste.

Implementing a storage system solves this problem by allowing energy to be stored and then delivered when and where it is needed. This optimizes price behavior and improves efficiency in energy management.

Our batteries have capacities ranging from 161 kWh up to 829 kWh, and we offer various voltage and current configurations to meet your specific needs. These batteries can be easily integrated into solar, wind, hydro and other energy projects, maximizing your return on investment.

In addition, we can provide solutions with customized voltage ranges, which can reduce the number of **MODULE**s in each string and consequently modify the total capacity of the standard solution. It is important to note that the maximum performance of LIADTEC batteries may be limited by the DC-DC converter or the power control system (*PCS*).

Our solutions enable the integration of the power grid with renewable energy sourCes such as solar and wind power. The entire system is constantly monitored to optimize the use of your renewable energy sourCe and ensure efficient performance. At **MicroPlus Germany**, we are committed to customizing our products to meet your specific needs. We are here to help you find the best energy storage solution to suit your individual requirements.

Containers with Lithium racks 161 - 829kW *(403-461V)*

For configurations other than those indicated, please ask your sales representative.

MODEL	CBAT-INV/161	CBAT-INV/202	CBAT-INV/242	CBAT-INV/403	CBAT-INV/507	CBAT-INV/599	CBAT-INV/737	CBAT-INV/829
SOLAR PANEL								
Number of panels (*units*) 540Wp	100	110	120	140	180	220	310	360
Total panel power (*Wp*)	54,000	59,400	64,800	75,600	97,200	118,800	167,400	194,400
Daily Sun Generation – Minimum 4 hours (*Wp*)	216,000	237,600	259,200	302,400	388,800	475,200	669,600	777,600
Daily Sun Generation – Maximum 6 hours (*Wp*)	**324,000**	**356,400**	**388,800**	**453,600**	**583,200**	**712,800**	**1,004,400**	**1,166,400**
AC (*input*)								
Ouput power (*kVA*)	60	60	100	160	200	250	300	400
Model inverter	HBS-HE60		HBS-HE100F	HBS-HE160F	HBS-HE200F	HBS-HE250F	HBS-HE300F	HBS-HE400F
Rated voltage (*V*)	400 - 415 (*three-phase*)							
Rated current (*A*)	87		198	317	341	426	511	681
Grid voltage range (*V*)	400							
Rated frequency (*Hz*)	50							
Frequency range (*Hz*)	50 / 60							
AC connection	3P + N							
DC (*Battery*)								
Cell type	$LiFePO_4$ ▪ 3,2V - 100Ah							
Model rack	RACKHT40			RACKHT46				
Units of rack	4	5	6	10	11	13	16	18
Capacity (*kWh*)	**161**	**202**	**242**	**403**	**507**	**599**	**737**	**829**
Voltage (*V*)	403			461				
Voltage range (*V*)	340 - 450			389 - 514				
Rated current (*A*)	324	432	540	800	550	650	800	900
Rated charge (*C*)	0,5							
Max. rated (*C*)	1							
Communication	CAN, Modbus/TCP, RS485							
DC (*PV*)								
Max. PV Open-circuit voltage (*Vdc*)	1,000							
Recommended PV power (*Wp*)	≤ 60,000		≤ 80,000	≤ 100,000	≤ 120,000		≤ 160,000	≤ 180,000
PV MPPT voltage range (*V*)	350 - 900				180 - 960			
Full load MPPT voltage range (*Vdc*)	1,000							
General Information								
Generator (*optional*)	200 kVA	250 kVA	300 kVA	500 kVA	500 kVA	750 kVA	750 kVA	1,000 kVA
Dimension (*W x H x D*) (*m*)	(*20 feet*) 6.06 x 2.44 x 2.59				(*40 feet*) 12 x 2.44 x 2.59 m			
Weight (*kg*)	according to each project							
Operating temperature	-25°C +55°C							
Relative humidity	0,95% Non condensing							
Protection degree	IP54							
Maximum altitude (*m*)	3.000							
Standby consumption (*W*)	100							
Lighting system	MICROLED PLUS							
Integrated cooling system: depending on project conditions	high-efficiency air conditioning system							
	high-efficiency liquid-cooling system							
Transfer between on/off grid	Automatic 10ms							

Note 0: Different voltage ranges can be offered by reducing the number of modules in each string. This customized solution might alter the total energy/power of the standard solution.

Note 1: Maximum performance of **LIADTEC** batteries. The actual performance may be limited by the DC-DC converter or PCS.


MICRO PLUS
Germany
POWER BOX
HYBRID BATTERY STORAGE


MICRO PLUS
Germany
568v
POWER BOX
MASTER
SECCIONADOR
GENERAL
HYBRID BATTERY STORAGE

MICRO PLUS Germany

CMT

INDUSTRIAL SOLUTIONS

▶ **403 - 504V** *[645 - 1,548kWh]*

Containers with PRISMATIC CELLS $LiFePO_4$ racks With liquid cooling system *(water + glycol)*

The **CMT** series of containers with mp-mh/51.2-0280C-CL **MODULE racks** is ideal for high energy demand applications with medium voltages and powers. These containers are configured using **racks** of 9 **MODULE**s in series, allowing the voltage to be adjusted in a range of 403-504V and reaching a capacity of 128.7 kWh. The **racks** are combined in parallel to provide the required power, offering capacities ranging from 600 kWh up to 1.5 MWh. See the table below for more details.

These units can be cooled conventionally by air convection or, if the project demands it, by our innovative liquid cooling system "Liadtec Liquid Cooling System" (*patent pending*).

We offer the possibility of configuring any container to measure, both in terms of power and voltage, and with the option of including or excluding inverters and photovoltaic panels.

The mp-mh/51.2-0280C-CL **MODULE**s are designed with refrigerant circulation coils in their structure, ensuring high efficiency. The chiller power is adjusted according to the needs and environmental conditions in which the containers are installed, using high-quality European brand systems.

Our containers include all necessary components such as **SMART BMS**, **MASTER**, DISTRIBUTED CONTROL SYSTEM, as well as hardware elements in each **MODULE**, all connected to a **rack** controller and a general **BESS** (*Battery Energy Storage System*) controller and **POWER BOX**, which incorporates protections such as contactors, relays and safety systems. In addition, they have fire prevention systems, lighting and other details.

We offer a 10-year design and assembly guarantee for your peace of mind.

APPLICATIONS

Nuestras soluciones de red y almacenamiento permiten un uso eficiente y confiable para todas las aplicaciones de Clase B y Clase C, que incluyen:

- *Cambio de pico*
- *Sistema de alimentación ininterrumpida (UPS)*
- *Filtro de armónicos activo*
- *Aplicaciones híbridas*
- *Arbitraje energético / Daytrading*
- *Servicios de red*
- *Capacidad de arranque en negro*
- *Operación de la red de la isla*
- *Control de Voltage dinámico*
- *Compensación de potencia reactiva*
- *Mitigación de caída de Voltage*
- *Control de frecuencia*
- *Reserva de control primaria (PCR) / Reserva de contención de frecuencia (FCR)*
- *Formación de rejilla*
- *Inercia sintética*

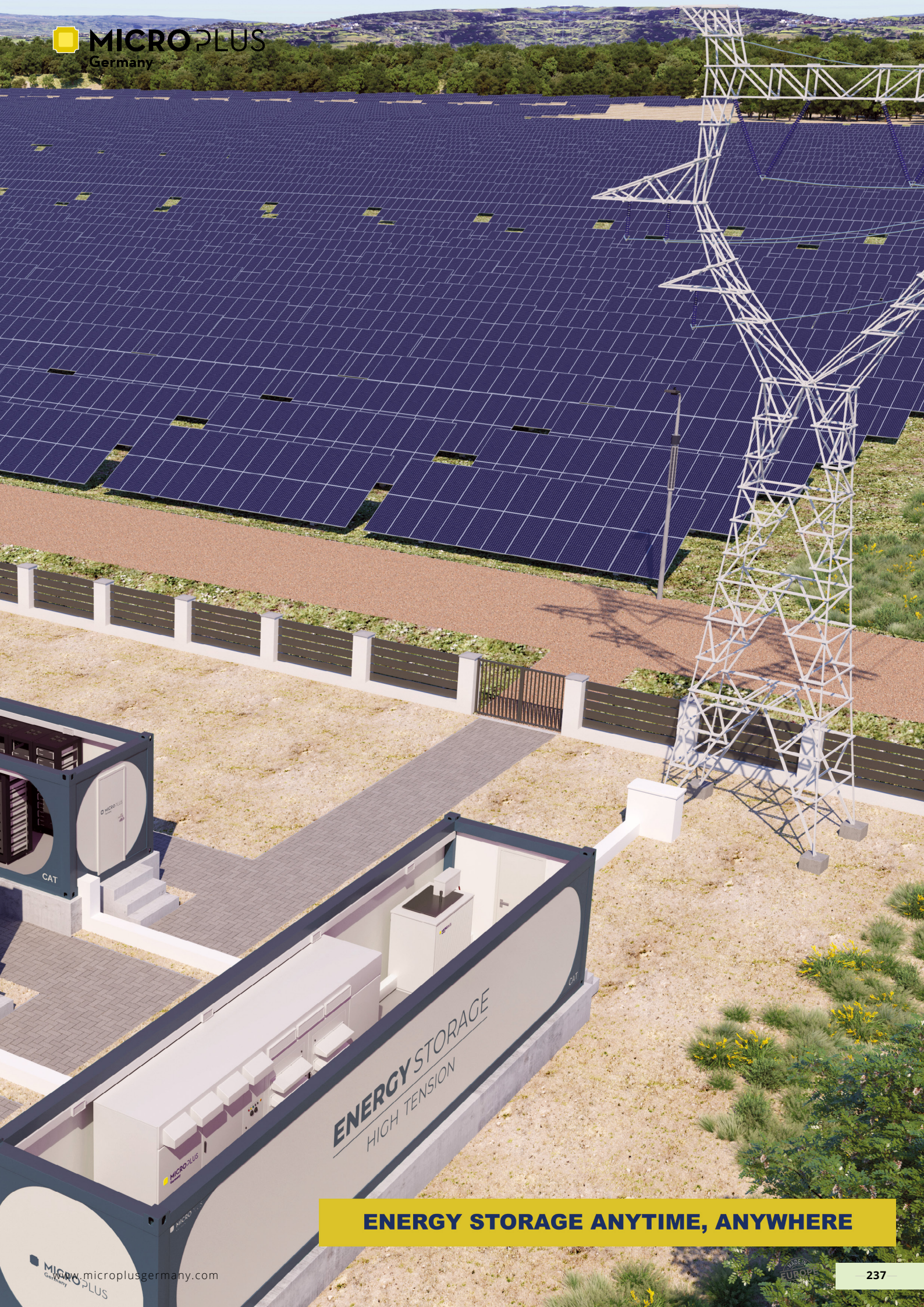
MODEL /REF		CMT-0,6	CMT-0,8	CMT-1,0	CMT-1,3	CMT-1,5
GENERAL SPECIFICATIONS						
Nominal voltage (*V*)		461				
Nominal capacity (*Ah*)		**280** *(optional 320, for greater capacity)*				
Capacity (*kWh*)		**645**	**774**	**1,032**	**1,290**	**1,548**
Useful Capacity (*kWh*)		581	697	929	1,161	1,393
Configuration container		5P - 9S (45 modules MP-MH/51.2-0280C-CL)	6P - 9S (54 modules MP-MH/51.2-0280C-CL)	8P - 9S (72 modules MP-MH/51.2-0280C-CL)	10P - 9S (90 modules MP-MH/51.2-0280C-CL)	12P - 9S (108 modules MP-MH/51.2-0280C-CL)
Container 20' (*L x W x H*) (*m*)		6,10 x 2,44 x 2,59				
Approximate Weight (kilograms		4.880	5.850	7.800	9.750	11.700
ELECTRICAL CHARACTERISTICS						
Operating Voltage Range (*V*)		**403** (*min.*) - **504** (*máx.*)				
Maximum Charging Current (*A*)		700	840	1,120	1,400	1,680
Cut-off Discharge Voltage (*V*)		< 390				
Energy charging efficiency (%)		98				
Self-Discharge (%)		≤ 3.5% per month				
External protection fuse (*A*)		250 (*in each module*)				
BMS (*Vdc*)		up to 1,500				
(*Positive and negative*) output connectors		IP65 connector 350A				
Cycle life (*25°C, 0,5C, 70% SoH*)		≤ 8,000				
MECHANICAL CHARACTERISTICS						
Fire suppression system		self-extinguishing aerosol FIREPRO				
Structural base of the Cooling		Anodized Aluminum				
Cooling system		water + glycol				
Cooling outlet pipes		YES				
Cooling dissipation to cells		Special thermal gel				
OPERATING CONDITIONS						
Operating Temperature	Charge	0°C ~ 60°C				
	Discharge	-20°C ~ 60°C				
Storage Temperature		6 months - 20°C ~ 25°C				
Communication		CAN, Ethernet, USB, WiFi, Bluettoth				
Dust and Water Resistance		IP68				
Certifications		CE - IEC62619				

Note 0: Different voltage ranges can be offered by reducing the number of modules in each string. This customized solution might alter the total energy/power of the standard solution.

Note 1: Maximum performance of **LIADTEC** batteries. The actual performance may be limited by the DC-DC converter or PCS.

STOCKAGE D'ENERGIE
N'IMPORTE QUAND ET N'IMPORTE OÙ

MICRO PLUS
Germany



ENERGY STORAGE ANYTIME, ANYWHERE

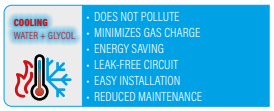
MICRO PLUS Germany

CAT

UTILITY SCALE

▶ 1,229V *[1 - 5MWh]*

Containers with HIGH VOLTAGE PRISMATIC CELLS LiFePO$_4$ systems with liquid cooling system *(water + glycol)*



The **CAT** range of containers with *PRISMATIC CELLS* LiFePO$_4$ HIGH VOLTAGE **racks** are designed to store energy in the **racks** that we configure inside the 1P - 24S containers, forming a voltage of 1,228.8V.

These mp-mh/51.2-0280C-CL ***[1P - 24S of 343.2kWh]*** **MODULE**s are connected in parallel and series to form the power and voltage required for storage. In this case, they provide from 1 to 5MWh, with the characteristics described in the following table.

We can configure any container to the desired power and voltage, and optionally with or without an inverter or photovoltaic panels.

Each of these 14.3kWh **MODULE**s is cooled by an HVAC (*air conditioning*) cooling system, with optional water and glycol liquid cooling, through different powers inserted in the containers; depending on the discharges needed or the environments where the containers are to be installed, the power of the refrigerator to be installed is defined.

These systems are from top-level European brands.

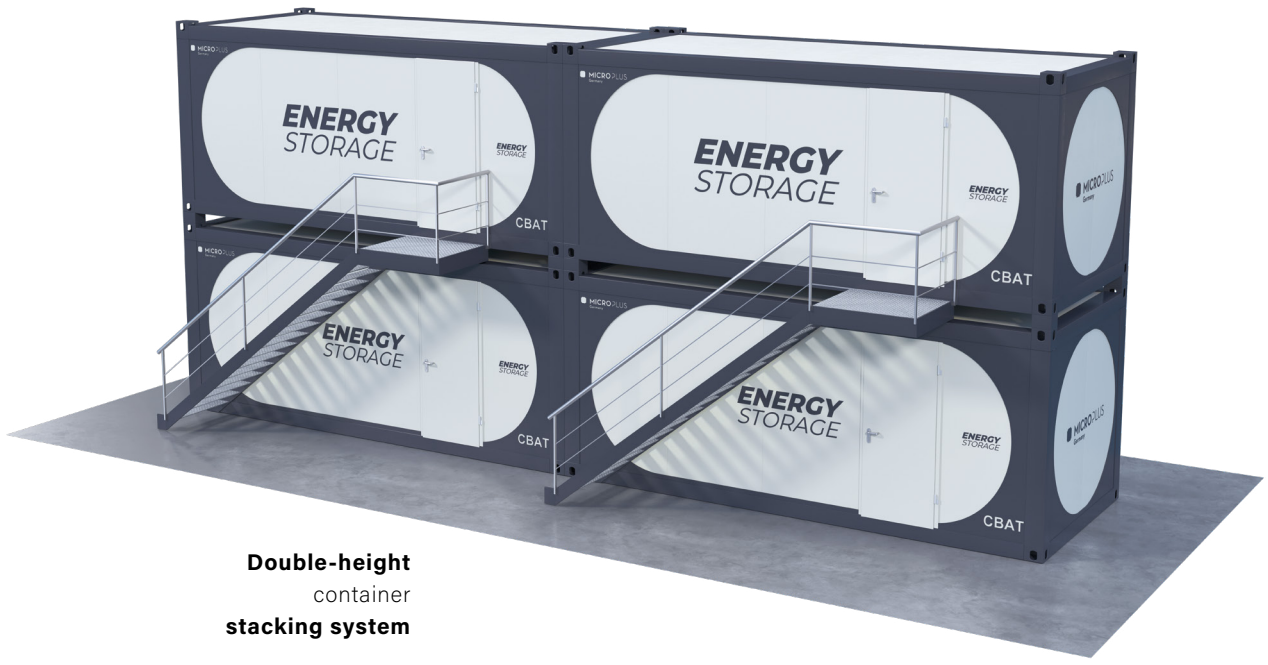
These containers are installed with all the **BMS** electronics, CONTROL **MASTER** and all the necessary electronics; such as the **CONTROL BOX** (*with contactors, relays and protections*).

It includes a FIRE SYSTEM with lighting and all the details, providing a 10-YEAR WARRANTY on the entire system.

Containers with HIGH VOLTAGE PRISMATIC CELLS LiFePO$_4$ systems
With liquid cooling system *(water + glycol)*

Views of the 5MWh **CAT** container to observe the distribution of the cooling system, the HIGH VOLTAGE **MODULE**s, the **MASTER-FL** and the **CONTROL BOX** ready to connect to any system.

Any of these models can be modified according to the needs of the end customer.



Double-height
container
stacking system

MICRO PLUS
Germany

Containers with HIGH VOLTAGE PRISMATIC CELLS $LiFePO_4$ systems
With liquid cooling system *(water + glycol)*

MADE IN EUROPE

Containers with HIGH VOLTAGE PRISMATIC CELLS LiFePO$_4$ systems
With liquid cooling system *(water + glycol)*

APPLICATIONS

Our networking and storage solutions enable efficient and reliable use for all Class B and Class C applications, including:

- Peak Shifting
- Uninterruptible Power Supply *(UPS)*
- Active Harmonic Filtering
- Hybrid Applications
- Energy Arbitrage / Daytrading
- Grid Services
- Black Start Capability
- Island Grid Operation
- Dynamic Voltage Control
- Reactive Power Compensation
- Voltage Dip Mitigation
- Frequency Control
- Primary Control Reserve *(PCR)* / Frequency Containment Reserve *(FCR)*
- Grid Shaping
- Synthetic Inertia

MODEL /REF	CAT-1,0	CAT-2,0	CAT-3,0	CAT-4,0	CAT-5,0
GENERAL SPECIFICATIONS					
Nominal voltage (*V*)	1,228,8				
Nominal capacity (*Ah*)	280				
Capacity (*kWh*)	1,032,1	2,064,3	3,096	4,128,7	5,160,9
Configuration container	3P - 24S 72 modules MP-MH/51.2-0280C-CL	6P - 24S 144 modules MP-MH/51.2-0280C-CL	9P - 24S 216 modules MP-MH/51.2-0280C-CL	12P - 24S 288 modules MP-MH/51.2-0280C-CL	15P - 24S 360 modules MP-MH/51.2-0280C-CL
Container (*L x W x H*) (*m*)	**20"** – 6.10 x 2.44 x 2.59			**40"** – 12.19 x 2.44 x 2.59	
Approx. Weight (*Tm*)	7.92	15.84	23.76	31.68	39.60
ELECTRICAL CHARACTERISTICS					
Operating voltage range (*Vdc*)	1,075 (*mín.*) - 1,344 (*máx.*)				
Max continuous discharge current (*A*)	420	840	1,260	1,680	2,100
Cut-off Discharge Voltage (*V*)	1,000				
Efficiency (*%*)	98				
Self-Discharge (*%*)	≤ 3.5% per month				
Protections	General, string and module level disconnectors and fuses				
BMS (*Vdc*)	up to 1,500				
(*Positive and negative*) output connectors	IP65 connector 350A				
Cycle life (*25°C, 0,5C, 70% SoH*)	≤ 8,000				
MECHANICAL CHARACTERISTICS					
Fire suppression system	self-extinguishing aerosol FIREPRO, aspersión por agua (*optional*)				
Structural base of the Cooling	Anodized Aluminum				
HVAC air conditioning	Optional liquid cooling (*water + glycol*)				
Cooling outlet pipes	YES				
Cooling dissipation to cells	Special thermal gel				
OPERATING CONDITIONS					
Operating Temperature – Charge	0°C ~ 60°C				
Operating Temperature – Discharge	-20°C ~ 60°C				
Storage Temperature	6 months - 20°C ~ 25°C				
Communication	CAN, Ethernet, USB, WiFi, Bluettoth				
Dust and Water Resistance	IP65				
Certifications	CE - IEC62619				

Note 0: Different voltage ranges can be offered by reducing the number of modules in each string. This customized solution might alter the total energy/power of the standard solution.

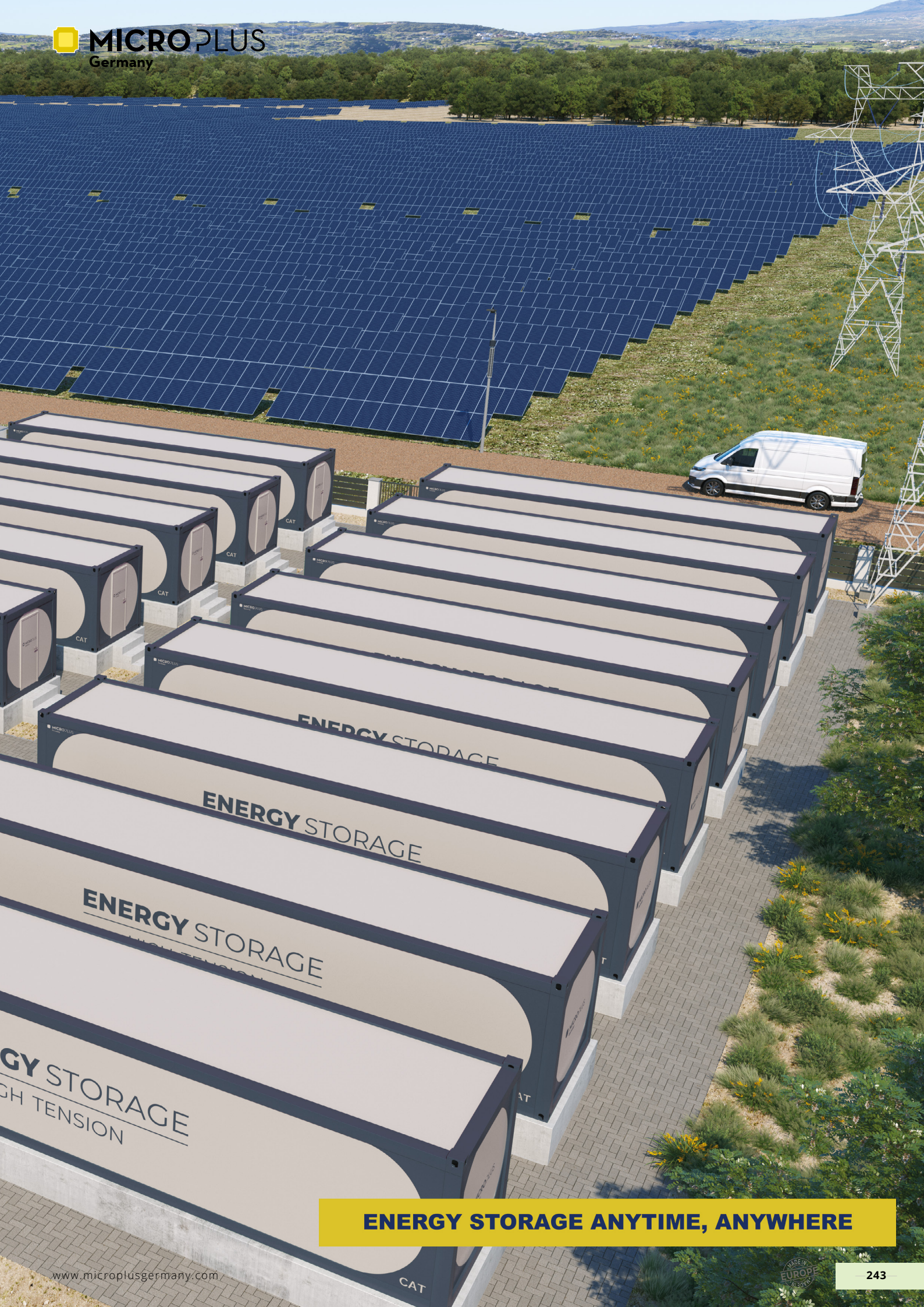
Note 1: Maximum performance of **LIADTEC** batteries. The actual performance may be limited by the DC-DC converter or PCS.

ENERGY STORAGE
80 MWh in solar system

MICRO PLUS
Germany

Implementation of 5 MWh containers of **HIGH VOLTAGE** $LiFePO_4$ batteries with a cooling system and electronic components manufactured in Spain.

This system has the capacity to store up to 80 MWh during peak hours of photovoltaic production, to later feed it into the grid during times of high energy demand.



ENERGY STORAGE ANYTIME, ANYWHERE

▶ DIFFERENT SOLUTIONS WITH CBAT, CMT AND CAT SYSTEMS

FOR CAR CHARGING

For isolated sites where there is no power for charging cars, solar panels and lithium phosphate batteries are installed, with an inverter and output for different electric car chargers.

This solution is also feasible in places where there is electricity, but this way we can avoid peak loads by creating a hybrid system.

RED CROSS OUTPATIENT CLINIC

In various parts of the world that lack access to a clinic, whether for first aid or as support for rural areas.

We provide this type of container, which includes a clinical station with all the necessary equipment for delivering primary care to citizens.

It can be quickly transported to other locations or disaster sites for immediate deployment.

FRUIT AND VEGETABLE PRESERVATION

Many fruit and vegetable-producing countries face the issue that with such high temperatures, 60% of these vegetables spoil before they are harvested.

This container refrigerates within a range of 6 to 12°C to preserve these foods until they are harvested and transported.

▶ DIFFERENT SOLUTIONS WITH CBAT, CMT AND CAT SYSTEMS

GENERATION OF POTABLE WATER THROUGH SOLAR ENERGY

This system operates in areas up to 40 km from the sea.

It generates potable water through a compressor by extracting moisture from the air and converting it into drinking water.

The energy to power these machines is provided by the photovoltaic panels installed as shown in the photo.

POWER SUPPLY FOR SELF-SUFFICIENT COMMUNITIES

By installing solar panels anywhere in the world, we provide a container that stores electrical energy in lithium batteries.

This energy is then converted to 400V through an inverter and can be distributed to various small communities to provide electricity.

DISPOSAL OF EXCESS FROM PHOTOVOLTAIC PLANTS TO BATTERY STORAGE

In all photovoltaic plants, between 12 and 2 PM, 25% of the photovoltaic production is lost due to potential line saturation during this time.

With this system, we would store this energy in high-voltage lithium batteries and transfer it to the grid during nighttime when energy prices are higher.

This process would optimize production profitability.

MICRO PLUS Germany

POWER BOX

MASTER

SMART BMS MASTER: Intelligent Management for Medium Voltage Racks

MASTER SYSTEM

Consists of a distributed control system with hardware components for each module, connected to a **rack** controller and a general BESS controller.

The hardware components used in the equipment, organized from lower control layers to higher layers, are as follows:

- **MMSP**: Module Management System. Electronic cards installed within each module that monitor the voltages of each cell, the module temperatures, and can passively balance the cells when necessary.

- **Master**: Device with a microcontroller that constitutes the rack-level control system for managing contactors, digital input monitoring of contacts, and general-purpose digital outputs.

It establishes communications with up to 26 MMSP units, integrates data from each module, controls them (*for example, by activating equalization if necessary*), and calculates the State of Charge (*SoC*) for the entire system. It can communicate with other devices at the same control level or higher hierarchical levels via Modbus TCP with the latest standards for the digital management of distributed resources (*IEEE 1547, 2030.5*).

It may also feature wireless communication options such as WiFi and Bluetooth. All interfaces are isolated.

- **MASTER-FL** : Device with a microcontroller and microprocessor that constitutes the control system at the String/Container level.

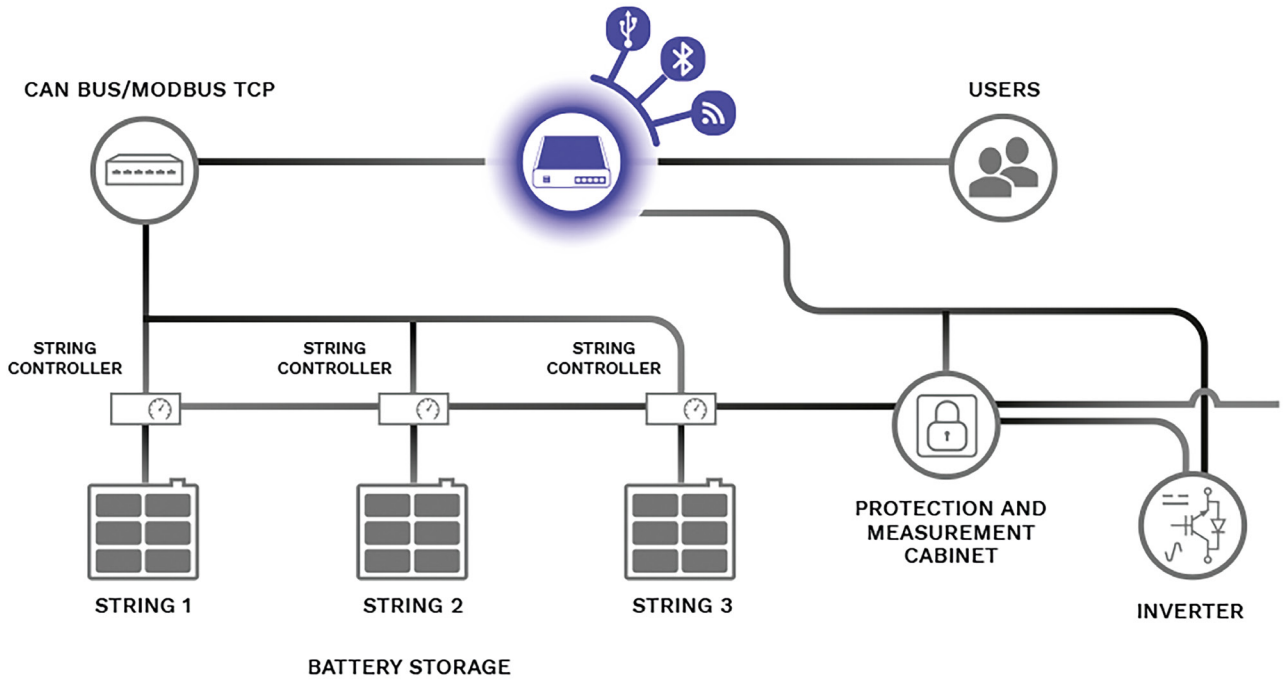
It establishes communications with the various Masters, integrates all data from the system, calculates the State of Charge (*SoC*) of the entire system, and globally controls the system. Communications are over Modbus TCP (*IEEE 1547, 2030.5*).

It implements the interface with inverters (*typically via CAN or Modbus TCP, with a broad catalog of dictionaries from major manufacturers*), the user interface (*either through monitors connected directly to the device via HDMI or over the network with a web interface*), and data transmission to the cloud.

- **EMS**: Device with a microcontroller and microprocessor that constitutes the Energy Management System (**EMS**) and optimizes the operation of the plant.

It is an intelligent digital solution for controlling assets in distribution networks and distributed and hybrid generation installations. It functions as the global controller for the entire electrical network in which the BESS is an additional energy asset to manage.

The **EMS** allows for the arbitration of energy flow across all network assets, acting through communications with various assets (*BESS, passive or manageable loads, PV, wind generation, grid connection, etc.*), using algorithms based on both data (*machine learning and artificial intelligence methods*) and physical models to predict generation, energy prices, and battery degradation, enabling cost allocation associated with its operation.



EB

▶ SOLUTIONS for *Liquid Cooling*

In Battery Energy Storage Systems

Liquid cooling is the best way to ensure proper operation and longevity for energy storage systems. This is due to the higher thermal conductivity of the liquids used, which means that battery systems are maintained at the optimal operating temperature.

Liquid cooling offers the following benefits:

- **Ensure** a greater number of life cycles**.**
- **Less** maintenance**.**
- **Less** noise**.**
- **Greater** energy efficiency**.**
- More compact **solutions.**

Liquid cooling consists of three parts:

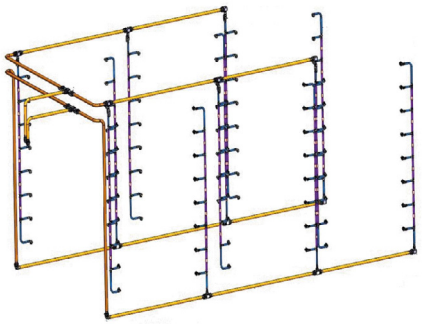
COLD PLATE:

It is an anodized aluminum surface, which has an internal labyrinth of conduits that allow the refrigerant (*water + glycol*) to circulate over the batteries (*the heat sourcE*) of each module.

Patented system.

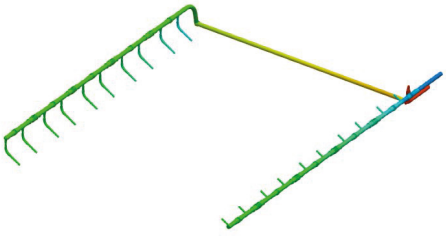
PIPING SYSTEM:

They are a series of pipes that carry the liquids from the plates to the chillers.



CHILLERS:

They are the units where the heat from the liquid is dissipated and returned to the desired operating temperature. These chillers range from small options, mounted on doors (*for cabinet options*) with 8kW of power, up to outdoor systems with a power of 36kW. There is also the option of a single chiller for multiple storage systems (*as long as the power allows it mathematically*), which means a substantial reduction in the total cost of cooling systems.



- Fluid cooling with water, water/glycol mixtures, and low-viscosity oils.*
- Steel housing with thick powder coating.
- Basic housing identical for oil and water cooling.
- Separate cooling circuit and hydraulic circuit.
- Equipped with a programmable control module allowing for small temperature hysteresis of the cooling medium.
- Integration of additional project-specific components is possible upon request.

** Maximum viscosity 10 cSt (10 mm²/s) @ +40 °C*

MODEL /REF		LEB/065-WT	LEB/080-WT	LEB/095-WT	LEB/140-WT	LEB/160-WT
GENERAL SPECIFICATIONS						
Nominal voltage	(*Hz ±1 %*)	AC 50 | 60				
	(*V ±10 %*)	400 3~ | 460 3~				
Cooling capacity (*with pump*) (*W18/A32*)	(*kW*)	6,5 | 7,2	8 | 8,8	9,5 | 10,6	14 | 15,4	16 | 17,6
Flow rate (*with pump*)	(*l/min*)	17	21	26	37	43
Pump pressure	(*bar*)	3				
Ambient temperature	(*°C*)	+15 ... +45 | +59 ... +113				
Cooling medium		water/glycol - 80/20				
Regulation range (*coolant outlet temperature*)	(*°C*)	+13 ... +35 | +55 ... +95; factory setting +18 | +64				
Tolerance on theoretical value	(*K*)	±2				
Refrigerant	tipo	R410A				
	(*g*)	1050	1100	1150	1800	1700
Maximum absorbed power	(*kW*)	2,8 | 3,9	3,3 | 4,6	3,8 | 4,6	5,3 | 11,3	7,1 | 14,1
Maximum absorbed current	(*A*)	6,8 | 7,5	7,6 | 8,3	8,5 | 9,7	5,3 | 11,3	7,1 | 14,1
Starting current	(*A*)	24 | 27	28 | 30,5	32,4 | 35,7	45,4 | 46,9	
Control voltage	(*V*)	AC 24				
External air volume	(*m³/h*)	25	16		20	25
		4000 | 4400		5000 | 5500	7500 | 8250	
Tank capacity	(*l*)	50			70	
Refrigerant connecti	(*BSP*)	3/4"			1"	
Dimensions (*X x Y x Z*)	(*mm*)	< 70	< 72			
Net weight	(*kg*)	140	150	160	180	190
Protection rating according to EN 60529		IP 54				
Color		RAL 7035 | different colours available on request				

HBS-HE

▶ 100 - 800kW

Industrial hybrid inverter

- Compatible with grid-connected (On-grid) and off-grid (Off-grid) solutions.
- HYBRID energy storage system: GRID + RENEWABLES.
- Quality power supply to loads with integrated renewable energy.
- Peak suppression and load management.
- Grid services.
- UPS protection.
- Eco-sustainability.

Global energy needs, consumption, and prices are rising, and a continuous power supply to meet these needs can no longer be guaranteed.

After years of intense research and extensive experience in energy control and battery solutions, the range of Hybrid Battery Storage (*HBS*) is now available. This "Made in Italy" product is a highly flexible and multifunctional energy storage system (*SAE*) + UPS.

In combination with renewable energy sources (*e.g., solar inverters*), every kWh produced from renewables is fully utilized (*100%*) to power the connected load, battery installations, and the sub-grid, or to provide grid services. If desired, the green energy produced will not be injected into the local grid.

The **HBS-HE** can be used for decentralized grid applications. In combination with wind energy sources or any other green energy, the HBS is capable of storing green energy production during periods of overproduction and utilizing this stored green energy during periods of underproduction.

There is no need to add additional electrical lines, as it uses the existing infrastructure, avoiding any extra investment costs.

Generating your own energy protects you from fluctuations in electricity costs. This smart solution works with various energy prices per kW, and the HBS allows you to analyze these prices and choose the most economical option during periods when electricity needs to be purchased.

The integrated UPS technology provides the highest level of protection to prevent electrical issues. Connected batteries offer backup protection time ranging from several minutes to several hours during a power outage.

The increasing number of electric vehicles is driving higher energy demand. The existing power grid is not fully adapted to this new energy demand. The HBS has the unique advantage of generating a significant amount of the required energy with a mix of different energy sourc es, including renewables (*photovoltaic, wind*) + batteries + grid.

This is managed through the HBS's open-sour ce controller, such as a simple Internet connection.

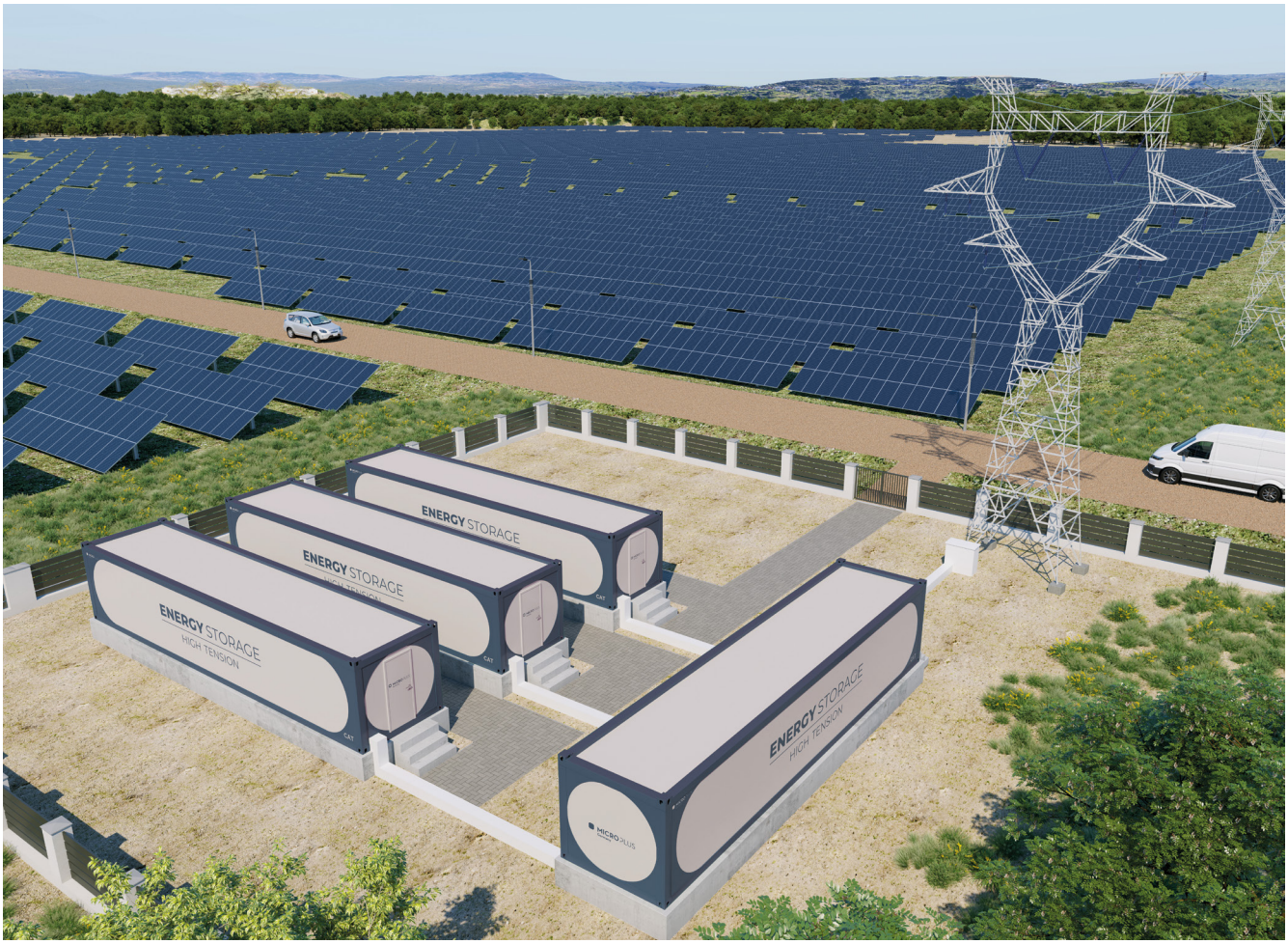
Depending on various parameters (*solar installation, type of batteries, price per kWh, UPS energy, installation country, energy profile*), the HBS offers a potential return on investment of between 2 and 10 years.

These are just a few examples of the many solutions made possible by the HBS series.

THE OPERATING PRINCIPLE OF HYBRID BATTERY STORAGE

Hybrid battery storage is a true energy gateway that optimizes the concept of energy management. It can accept energy from multiple sourc es and transfer or return it to implement the application receiving the service, including grid services.

Hybrid battery storage is the first enabler of the smart electrical grid.



THIS IS WHAT HYBRID BATTERY STORAGE DOES

■ **PEAK SHAVING:**

The ***HBS*** reduces or eliminates load peaks using battery energy. Battery charging occurs during low-load periods.

■ **LOAD SHIFTING:**

The ***HBS*** stores and discharges energy at specific times, allowing energy to be shifted to avoid higher tariff periods.

■ **RENEWABLE OPTIMIZATION:**

The ***HBS*** optimizes the use of renewable energy, including the connected photovoltaic system and wind supply.

■ **INCREASED MAXIMUM ENERGY:**

The ***HBS*** complements energy from other sources to meet high-capacity needs.

■ **BACKUP POWER:**

The ***HBS*** serves as a backup power supplier for On-grid/Off-grid scenarios, replacing or supporting conventional generator systems.

■ **MICROGRIDS:**

The ***HBS*** creates an independent energy supply from the grid, which can also be supplemented with renewables.

■ **ENERGY TRADING:**

The ***HBS*** stores energy at lower rates and discharges it when needed during peak demand periods.

■ **GRID STABILIZATION:**

The ***HBS*** stabilizes grid electricity (e.g., FCR/frequency regulation, available in some countries depending on local grid codes).

■ **AUTONOMOUS RESTART:**

The ***HBS*** restarts an electrical load or part of an electrical network without relying on external power supply.

■ **UNINTERRUPTED POWER SUPPLY (UPS):**

The ***HBS*** provides a reliable and uninterrupted power supply to critical loads.

■ **LOAD SWITCHING:**

The ***HBS*** is programmed to charge the battery at specific times from a particular source: grid, photovoltaic, generator, wind, etc.

HYBRID BATTERY STORAGE APPLICATIONS

HBS devices are suitable for both grid-connected installations and remote, rural, or isolated areas with high energy demands, where grid reliability is poor or where a generator is used. They are also ideal in scenarios where energy storage from sources like solar power is required.
Here are some detailed examples:

Areas where the grid is available and grid injection is an option
ON-GRID

Thanks to the batteries, the system optimizes the self-consumption of energy produced by the photovoltaic array and supplies the grid only with the unused power that is not needed for powering the load and charging the battery.

■ **ADVANTAGES:**

- ▶ Current Peak Coverage: Utilizing the energy stored in the battery rather than drawing from the grid.
- ▶ Energy Use During High Tariff Periods: Utilizing stored energy when distribution network tariffs are higher.
- ▶ Grid Injection During Lower Tariff Periods: Injecting energy into the grid when tariffs are more favorable.
- ▶ Optimization of Self-Consumption Periods: Reducing the total cost of ownership of the installation by optimizing self-consumption periods.

Areas where the network is available without "Grid Introduction"
ON-GRID

In areas where energy injection into the grid is not permitted, all the production from the photovoltaic array is used to power the load and charge the battery. Thanks to the batteries, this system optimizes the self-consumption of the energy produced by the photovoltaic array.

■ **ADVANTAGES:**

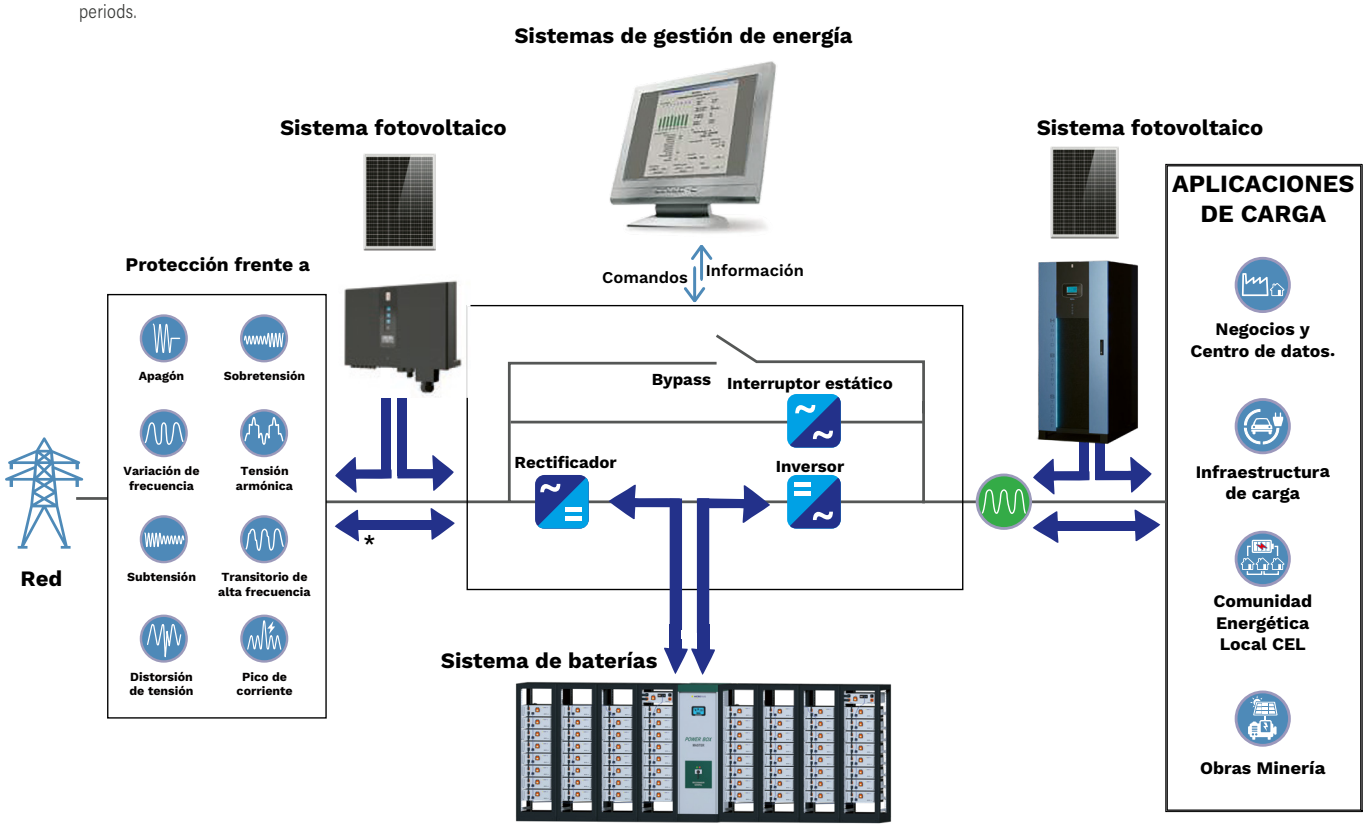
- ▶ Current peak coverage using the energy stored in the battery rather than the grid;
- ▶ Increased self-consumption of the renewable energy produced;
- ▶ Reduction in the total cost of ownership of the installation.

Areas where the grid is not available
OFF-GRID

Thanks to photovoltaic energy, this system allows electrical power to be delivered to areas where it is only guaranteed by a generator.

■ **ADVANTAGES:**

- ▶ Current peak coverage using the energy stored in the battery rather than the generator;
- ▶ Minimized operation of the generator;
- ▶ Reduced fuel consumption and lower management costs;
- ▶ Fewer expenses and inconveniences related to fuel transportation to remote areas.



Semi-Industrial Hybrid System — HBS Inverter up to 80KVA

MODEL		HBS/010	HBS/015	HBS/020	HBS/030	HBS/040	HBS/060	HBS/080
Input								
Nominal voltage(*V*)		380 / 400 / 415 three-phase						
Voltage Tolerance (*V*)		400 +20%At Full Load						
Frequency (*Hz*)		45 - 65						
Soft start		0 - 100% In 120 seconds (*Selectable*)						
Frequency Tolerance		±2% (*Selectable from ±1% to ±5% from the front panel*)						
Standard Equipment		Back Feed Protection • Separable Bypass Line						
BYPASS								
Nominal voltage(*V*)		380 / 400 / 415 three-phase + N						
Frequency (*Hz*)		50 o 60 Selectable						
OUTPUT								
Rated Power (*kVA*)		10	15	20	30	40	60	80
Active Power (*kW*)		9	13,5	18	27	36	54	72
Number of Phases		3 + N						
Nominal voltage(*V*)		380 / 400 / 415 three-phase + N (*Selectable*)						
Static Stability		±1%						
Dynamic Stability		±5% en 10 ms						
Voltage Distortion		<1% with linear load / <3% with non-linear load						
Crest Factor (*Ipeak/Irms*)		3:1						
Battery Frequency Stability		0,05%						
Frequency (*Hz*)		50 o 60 (*Selectable*)						
Overload		110% for 60 minutes • 125% for 10 minutes • 150% for 1 minute						
BATTERYS								
Type		VRLA AGM / GEL • NiCd • Supercaps • Li-ion						
Residual Voltage Ripple		<1%						
Maximum Battery Charge from the Inverter	Current (*A*)	24	36	48	72	96	144	192
	Power (*kW*)	8	12	16	24	32	48	64
ESPECIFICACIONES GENERALES								
Weight without batteries (*kg*)		228	241	256	315	335	460	520
Dimensions (*LxWxH*) (*mm*)		555 x 740 x 1.400					800 x 740 x 1.400	
Communication		RS232 dual + remote contacts + 2 communication ports (*TCP/IP upon request*)						
Ambient temperature		De 0 °C a +40 °C						
Relative Humidity Range		5-95% Non-condensing						
Noise Level at 1m (*ECO mode*) (*dBA*)		60				62		
Protection Level		IP20						
Standards		European Directives: • Low Voltage Directive: 2014/35/EU • EMC Directive: 2014/30/EU Electromagnetic Standards: • Safety Rating: IEC EN 62040-1 • EMC: CEI EN 62040-2 • RoHS Rating according to IEC 62040-3 (*Voltage Frequency Independent*): VFI - SS - 111						
Rating according to IEC 62040-3		(*Voltage Frequency Independent*) VFI - SS - 111						
UPS Handling		Pallet Jacks						

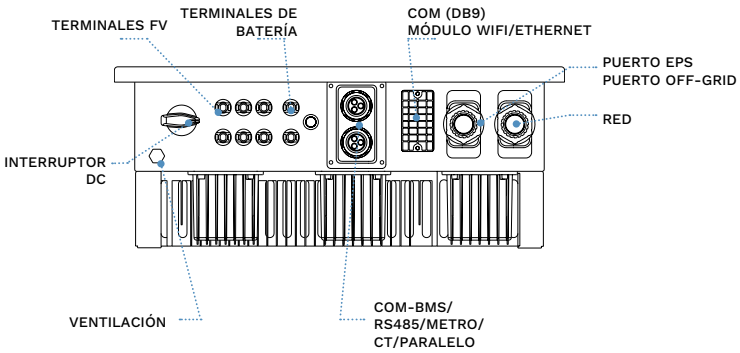
MODEL		HBS-HE /100F	HBS-HE /120F	HBS-HE /160F	HBS-HE /200F	HBS-HE /250F	HBS-HE /300F	HBS-HE /400F	HBS-HE /500F	HBS-HE /600F	HBS-HE /800F
Input											
Nominal voltage(*V*)		380 / 400 / 415 three-phase									
Voltage Tolerance (*V*)		400 ±20%At Full Load 1									
Frequency (*Hz*)		45 - 65									
Power Factor		0,99									
Total Harmonic Distortion of Current (*THDi*)		<3%									
Soft start		0 - 100% In 120 seconds (*Selectable*)									
Frequency Tolerance		±2% (*Selectable from ±1% to ±5% from the front panel*)									
Standard Equipment		Back Feed Protection • Separable Bypass Line									
BYPASS											
Nominal voltage(*V*)		380 / 400 / 415 three-phase + N									
Frequency (*Hz*)		50 o 60 Selectable									
OUTPUT											
Rated Power (*kVA*)		100	120	160	200	250	300	400	500	600	800
Active Power (*kW*)		100	120	160	200	250	300	400	500	600	800
Number of Phases		3 + N									
Nominal voltage(*V*)		380 / 400 / 415 three-phase + N (*Selectable*)									
Static Stability		±1%									
Dynamic Stability		±5% en 10 ms									
Voltage Distortion		<1% with linear load / <3% with non-linear load									
Crest Factor (*Ipeak/Irms*)		3:1									
Battery Frequency Stability		0,05%									
Frequency (*Hz*)		50 o 60 (*Selectable*)									
Overload		110% for 60 minutes • 125% for 10 minutes • 150% for 1 minute									
BATTERYS											
Type		LITIO									
Current de Ripple		Cero									
Maximum Battery Charge from the Inverter	Current (*A*)	225	270	360	450	560	675	900	1.125	1.350	1.800
	Power (*kW*)	90	108	144	180	225	270	360	450	540	720
ESPECIFICACIONES GENERALES											
Weight (*kg*)		850	850	1.015	1.070	1.300	1.680	2.050	3.026	3.080	4.004
Dimensions (*LxWxH*) (*mm*)		800 x 850 x 1900		1000 x 850 x 1900			1500 x 1000 x 1900		2100 x 1000 x 1900		3200x 1000x 1900
Communication		Dual RS232 + remote contacts + 2 communication ports									
Ambient temperature		De 0 °C a +40 °C									
Relative Humidity Range		5-95% Non-condensing									
Color		Light Grey RAL 7035									
Noise Level (*at 1 m*) (*dBA*)		63 - 68					70 - 72				
Protection Level		IP20 (*Other colors available upon request*)									
Double Conversion Efficiency		Up to 95.5%									
Standards		Safety rating: EN 62040-1 (*Directive 2006/95/CE*) • EMC: EN 62040-2 (*Directive 2004/108/CE*)									
Rating according to IEC 62040-3		(*Voltage Frequency Independent*) VFI - SS - 111									

1 For wider tolerances, other conditions apply.

ESS-RS

▶ 6 - 10kW

Solar and Hybrid Inverter with 2 MPPTs



- Plug & Play Installation
- Maximization of Self-Consumption
- Natural Connection
- Maximum DC Power with 150% Overload
- 2 **MPPT**s and up to 3 Strings
- Parallel Capability
- Integrated Backup Module
- Remote Monitoring via APP and Web Portal

Features and Equipment

- Protection rating IP65 makes them suitable for both indoor and outdoor installations.
- 6kW models equipped with 2 MPPTs and 1 string per MPPT, and 10kW models with 2 MPPTs and 2 strings.
- Inverters ready for Smart Grids.
- Possible operation in zero grid injection mode.
- Suitable for both new installations—allowing management of the photovoltaic system, batteries, and energy consumption with a single inverter—and retrofits in existing systems.

Backup Management

The backup function is integrated into the inverter: when the grid is unavailable, the inverter supports critical loads (*typical response time 10 ms*).

Simplicity in Installation and Use

- Activation and startup are performed directly via a smartphone.
- LED Indicator Panel on the front of the inverter facilitates reading the inverter's status.

Smart and Continuous Monitoring

The RS Monitoring platform allows users to access production data from their own installation to verify proper functionality and/or the presence of alarms or notifications of any abnormal conditions. Users can access the platform from a PC or smartphone using the Riello PV and RS Monitoring apps, which are available for free on the App Store or Google Play..

The new **RS Hybrid** three-phase inverters cover a power range of 6 to 10kW, making them ideal for energy storage systems but also suitable for photovoltaic systems without batteries. These inverters offer a design that combines aesthetics, safety, and ease of installation and maintenance. They are lightweight, compact, and versatile, capable of powering a three-phase load from photovoltaic panels, batteries, an external grid, or a combination of these sourc es.

When used with appropriately sized batteries, they minimize energy extraction from the grid, ensuring short-term economic savings and greater independence from the grid supplier.

The **RS Hybrid** three-phase inverters are designed to easily connect to a storage system. This eliminates the need for an additional coupling inverter to manage the battery in the future, leading to savings in both total costs and system complexity.

MODEL	ESS-RS/06	ESS-RS/10
EFFICIENCY		
Maximum efficiency (%) from PV to grid	97,1	97,4
Maximum charge/discharge efficiency (%).	97,1	98
Input		
Maximum input voltage (V)	1.000	
Maximum DC power (W)	9.000	15.000
Maximum input current (A)	15 / 15	20 / 30
Maximum short-circuit current (A)	18 / 18	24 / 36
MPPT operating voltage range (V)	160 ÷ 950	
Maximum number of PV inputs	2 (1/1)	3 (1/2)
Number of MPPTs	2	
OUTPUT (*EN RED*)		
Active AC power (*nominal*) (W)	6.000	10.000
Maximum apparent AC power (VA)	6.600	11.000
Maximum active AC power (FP=1) (W)	6.600	11.000
Maximum AC output current (A)	13,7	22,7
Nominal AC voltage (V)	380 / 400, 3W+N+PE	
Nominal grid frequency (Hz)	50/60	
Grid frequency range (Hz)	45-55 / 55-65	
Total harmonic distortion (THDi)	<3% (*Nominal power*)	
Direct current injection	<0,5% In	
Power Factor	>0,99 Nominal power (*Adjustable from 0.8 leading to 0.8 lagging*)	
OUTPUT (*RESPALDO*)		
Active AC power (*nominal*) (W)	6.000	10.000
Maximum apparent AC power (VA) (*5 min.*)	7.200	12.000
Maximum apparent AC power (VA) (*10 sec.*)	9.000	15.000
Backup switching time	10 ms (*typical*), 20 ms (*maximum*)	
Nominal AC voltage (V)	380 / 400, 3W+N+PE	
Total harmonic distortion (THDi)	<3% (*Charge R*), 5% (*Charge RCD*)	
PROTECTIONS		
Photovoltaic switch	Yes	
Battery protection	Relay, reverse connection	
Anti-islanding protection	Yes	
Overcurrent protection AC / AC short-circuits / AC overvoltages	Yes	
SPD (*Surge Protection Device*)	DC Type2, AC Type2	
GFCI (*Ground Fault Circuit Interrupter*)	Yes	
AFCI (*Arc Fault Circuit Interrupter*)	Optional	
RSD (*Rapid Shutdown*)	Optional (*Tigo/APS*)	
Insulation detection	..Yes	
GENERAL		
Typology	Transformerless	
Protection rating	IP65	
Cooling	Natural ventilation	
Operating temperature range (°C)	-25 ÷ 45	
Relative humidity range (%)	0 ÷ 100	
Maximum operating altitude (m)	4000m (*>2000m Descent*)	
Noise level (dB) (*@ 1 m*)	<30	
Dimensions (LxWxH) (mm)	550 x 212 x 530	
Weight (kg)	26	29
COMUNICACIONES		
Display	APP +LED	
Communication	WIFI/ETHERNET (*optional*); BMS (*CAN/RS485*); MEDIDOR (*RS485*); RS485	
Monitoring	Mobile app and monitoring portal	
CERTIFICATIONS		
Safety rating	IEC62109-I, IEC62109-2, IEC 62040, IEC 62477	
EMC	IEC/EN 61000-6-3, IEC 61000-3-11, IEC 61000-3-12, IEC/EN 61000-6-2	
Grid code	IEC 61727, IEC 62116, EN 50549-1, VDE 4105, AS 4777,CEI 0-21,G98	
Warranty	5 Years/10 Years (*Optional*)	

SIRIO-RS

▶ 10 - 30kW

String inverter with MPPT

- Maximum efficiency 98.2%
- European efficiency 97.7%
- Forced ventilation with regulated speed
- Wide **MPPT** operating voltage range
- DC and AC Type II surge protectors
- Dual **MPPT**
- Protection rating IP65
- Integrated Wi-Fi and data management with data logger
- LCD display divided into sections and multi-LED status indicators

We present the new range of high-performance, transformerless three-phase **MPPT** controllers, the new series of three-phase photovoltaic controllers.

Extremely compact and lightweight, the new RS three-phase controllers are available with power ratings from 10 to 60 kW and feature a completely new technology with components of the highest quality. This innovation, developed by the company's research and development team, ensures maximum product reliability and high performance under all operating conditions.

TECNOLOGÍA DE ALTA CALIDAD

Entre las otras características de los nuevos controladores three-phases RS T destacan el seccionador DC, los descargadores DC y AC tipo II, las entradas digitales múltiples para la máxima optimización de las cadenas que convergen en los dos seguidores ***MPPT*** *independientes, caracterizados por un amplio rango de tensión; todo esto para asegurar siempre la máxima flexibilidad de configuración, la optimización del rendimiento y un tiempo de producción energética prolongado.*

Los Models RS T integran ventilación natural (up to 15 kW) con disipadores adecuados para asegurar el maximum intercambio térmico o ventilación forzada (en los Models de 20 a 30 kW) con ventiladores de extracción a velocidad controlada según las condiciones de ejercicio, para reducir al mínimo las pérdidas.

El innovador control digital de todas las etapas de potencia garantiza una baja sensibilidad a las interferencias de red, evitando desconexiones indeseadas en presencia de variaciones o micro interrupciones.

Los inversores RS T se conectan a través de app o de la nube y se caracterizan por un diseño único e innovador.

El gabinete de aluminio los hace particularmente ligeros y garantiza un grado de protección real IP65, adecuado para aplicaciones exteriores.

La interfaz de usuario en el panel frontal incluye LED de indicación de estado DC, AC y comunicación; además, un display LCD dividido en varias secciones muestra: fecha, hora, alarmas, tipo de conexión, diagrama de funcionamiento, tensión/corriente ***MPPT****1 y* ***MPPT****2, E día, E Total, potencia y todos los parámetros de red instantáneos.*

Los controladores se interconectan por Wi-Fi a través de la App para smartphone RS Connect, que permite gestionar la configuración y el autodiagnóstico. Con Wi-Fi o tarjeta Ethernet (optional) los controladores se pueden conectar a Internet para la gestión de los datos en el portal de supervisión RS Monitoring, donde será posible la monitorización detallada de las cadenas a distancia y la visualización de las prestaciones de la instalación.

Con la interfaz BUS 485 (integrada) será posible conectar varios controladores a un registrador de datos dedicado que gestionará vía Ethernet la conexión al portal de toda la instalación, con la posibilidad de conectar medidores de energía y sensores ambientales.

MODEL	SIRIO-RS/10.0T	SIRIO-RS/15.0T	SIRIO-RS/20.0T	SIRIO-RS/30.0T
EFFICIENCY				
Maximum efficiency	98,0%	98%	98,2%	98,2%
European efficiency	97,4%	97,5%	97,7%	97,7%
Input				
Maximum input voltage (*V*)	1.000			
Nominal input voltage (*V*)	620			
Maximum input current (*A*)	22 (*11 / 11*)	33 (*11 / 22*)	2 x 25	2 x 37,5
Maximum short-circuit current (*A*)	30 (*2 x 15*)	45 (*15 + 30*)	60 (*2 x 30*)	90 (*2 x 45*)
Startup voltage / minimum operating voltage (*V*)	200 / 160		250 / 180	
MPPT operating voltage range (*V*)	160 - 950		180 - 960	
MPPT operating voltage range (*full load*) (*V*)	470 - 800		480 - 800	
Maximum number of PV strings	2 (*1 / 1*)	3 (*1 / 2*)	4 (*2 / 2*)	6 (*3 / 3*)
Number of MPPTs	2			
OUTPUT				
Active AC power (*nominal*) (*W*)	**10.000**	**15.000**	**20.000**	**30.000**
Maximum apparent AC power (*VA*)	11.000	15.000	22.000	32.500
Maximum active AC power (*PF=1*) (*W*)	11.000	16.500	22.000	32.500
Maximum AC output current (*A*)	3 x 16	3 x 23	3 x 33,5	3 x 40
Nominal AC voltage (*V*)	380 / 400 3L+N+PE			
AC voltage range (*V*)	277 - 520 (*configurable*)			
Nominal grid frequency (*Hz*)	50/60			
Grid frequency range (*Hz*)	45-55 / 55-65			
Total harmonic distortion (*THDI*)	<3% (*Nominal power*)			
DC current injection	<0,5% In			
Power factor	0,99 Nominal power (*configurable from 0.8 inductive to 0.8 capacitive*)			
PROTECTIONS				
DC disconnect switch	YES			
Anti-islanding protection	YES			
AC overcurrent protection	YES			
Short-circuit protection	YES			
DC pole reversal control	YES			
Surge protectors (*VDR*)	DC type II / AC type II			
Ground fault detection	YES			
Ground fault protection	YES			
GENERAL				
Type	Transformerless			
Protection rating	IP65			
Nighttime self-consumption (*W*)	<1			
Cooling	natural		forced with speed-controlled fans	
Operating temperature range	-25 °C ÷ 60 °C			
Relative humidity range	0 ÷ 100%			
Maximum operating altitude (*m*)	4.000 (*>2.000 declassification*)			
Noise (*dB*)	<30 m*easured at 1 m*)			
Dimensions (*LxWxH*) (*mm*)	422 x 187 x 520		577 x 270 x 445	
Weight (*kg*)	21,5	23,5	37	41,5
COMMUNICATION				
Display	LCD + LED			
Communication	Integrated Wi-Fi, integrated RS485, Ethernet (*optional*)			
Monitoring	APP, monitoring portal			
CERTIFICATIONS				
Safety rating	IEC62109-I, IEC62109-2			
EMC	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4			
Standards	CEI 0-21, CEI 0-16, IEC62727, IEC62116			
Warranty	5 years (*with the option to extend to 10 years*)			

SIRIO-RS

▶ 50 - 110kW

String inverter with MPPT

- Compact
- Protection rating IP65
- Maximum input voltage 1100 V DC
- Operating range 200-1000 V DC
- Photovoltaic side disconnectors
- DC and AC Type II surge protectors
- Controlled forced ventilation
- Bluetooth, standard 485 BUS, and optional Wi-Fi and Ethernet
- Graphical LCD display

RANGE OF THREE-PHASE STRING INVERTERS (*TL*) CONNECTED TO THE ELECTRIC GRID FOR INDUSTRIAL OR COMMERCIAL PHOTOVOLTAIC SYSTEMS

The Riello SIRIO ES three-phase inverters are typically used in low-voltage grid-connected photovoltaic systems. They benefit from entirely new technology and feature high-quality components that ensure maximum reliability and high efficiency in all operating conditions. All models in the SIRIO ES range are distinguished by a unique and innovative design: the aluminum enclosure makes them particularly lightweight for their category and ensures an IP65 protection rating, suitable for outdoor applications. Thanks to the dedicated Riello PV mobile app, it is possible to configure the parameters and monitor the inverter's data by connecting via Bluetooth through a smartphone.

SUPERIOR TECHNOLOGY

The SIRIO ES inverters are designed for a maximum input voltage of 1100 V DC and feature an innovative digital control for all power stages. They include photovoltaic (*PV*) isolators and type II DC and AC surge protectors.

The SIRIO ES 50 and SIRIO ES 60 models come with 10 and 12 inputs for maximum optimization of the strings, converging into 4 independent **MPPT** trackers with a wide voltage range of 200-960 V DC. On the other hand, the SIRIO ES 100 and 110 models are equipped with 16 and 18 string inputs, converging into 8 and 9 independent **MPPT** trackers with a voltage range of 200-1000 V DC.

This advanced configuration is designed to ensure maximum flexibility, efficiency optimization exceeding 98% under all operating conditions, and extended energy production over time. To minimize losses, all SIRIO ES models incorporate a forc ed ventilation system with speed-controlled fans based on operating conditions. The innovative digital control of all power stages also ensures low sensitivity to grid disturbances, preventing unwanted disconnections during grid fluctuations or micro-interruptions.

COMMUNICATION INTERFACE VIA APP OR CLOUD

The inverters feature a user-friendly and intuitive interface on the front panel, including LEDs for status indication on the photovoltaic (*PV*) side, the grid (*AC*) side, communication, and data transmission, as well as alarm indicators. Additionally, the inverters are equipped with a large LCD screen divided into several sections that display:

- Energy flow diagram (*photovoltaic field/grid*).
- Measurement of network parameters and energy meter.
- Management of communication and data transmission.
- Alarm status signaling and reference code.
- Time and date.

In terms of technology, great importance was given to the communication capabilities of the new SIRIO ES inverters. Thanks to the dedicated mobile app, it is possible to configure the parameters and monitor the data by connecting to the inverter via Bluetooth on a smartphone.

Through Wi-Fi or an optional Ethernet module, the inverters can be connected to the Internet for remote data management, specifically to the RS Monitoring portal, where detailed tracking of the strings and performance of the installation can be obtained. Finally, via the integrated BUS 485 interface, multiple inverters can be connected to a dedicated datalogger, which manages the connection to the entire system portal via Ethernet, with the possibility to connect energy meters and environmental sensors.

MODEL	SIRIO-RS/050	SIRIO-RS/060	SIRIO-RS/100	SIRIO-RS/110
Input				
Maximum input voltage (V) 1100	1.100			
Maximum input current (A)	2 x 39 + 2 x 26	4 x 39	3 x 40 + 5 x 32	3 x 40 + 6 x 32
Maximum short-circuit current (A)	2 x 42 + 2 x 28	4 x 42	3 x 50 + 5 x 45	3 x 50 + 6 x 45
Maximum feedback	OA		-	
Nominal voltage (V)	620		600	
MPPT operating voltage range (V)	200 ÷ 1000			
Overvoltage rating	II		-	
Maximum number of inputs	10 (3/3/2/2)	12 (3/3/3/3)	16 (8x2)	18 (9x2)
Number of MPPT paths	4		8	9
Overload protection (V)	Fuse, 16A / 1.100		-	
OUTPUT				
Nominal output power (W)	50.000	60.000	100.000	11.0000
Maximum apparent power (VA)	55.000	66.000	111.000	123.000
Maximum active power (W)	55.000	66.000	110.000	121.000
Nominal output current (A)	3 x 83	3 x 92	3 x 168,8	3 x 187
Nominal grid voltage (V)	380 / 400, 3W+N+PE		380 / 400 / 415, 3W+N+PE	
Grid voltage range (V)	277 ÷ 520 (configurable)			
Nominal grid frequency (Hz)	50 / 60			
Grid frequency range (Hz)	45-55 / 55-65		45-55 / 55-65 (configurable)	
THDi (%)	< 3 % (Nominal power)			
DC offsets (%)	< 0.5 In			
Power Factor	> 0.99 Nominal power (adjustable 0.8 lagging - 0.8 leading)			
Overload rating according to IEC 62109-1	III			
PROTECTION				
System protection	DC input switch, overload protection input, reverse connection protection input, photovoltaic string fault detection, thermal resistance detection, undervoltage protection, overload protection output, DDR protection, DC offset protection, overheat protection, anti-islanding protection, AC/DC overvoltage or undervoltage protection, high or low frequency AC protection			
AC/DC surge protectors	Supported: Type II, Maximum 40kA			
SYSTEM				
Maximum efficiency (%)	98,3		98,4	
European Efficiency (%)	98			
Topology	Transformerless			
Protection Level	IP65		IP66	
Pollution Degree	PD3		-	
Cooling	Forced with controlled-speed fans			
MONITORING AND COMMUNICATIONS				
Monitor	Wireless via APP + LED/LCD			
Communications	Bluetooth, RS485, Wi-Fi (optional), Ethernet (optional)		Bluetooth, 2xRS485, Wi-Fi (optional), Ethernet (optional)	
ENVIRONMENTAL PARAMETERS				
Operating temperature range (°C)	-25 ÷ 60			
Relative humidity	0 ÷ 100			
Maximum operating altitude (m)	4.000			
Noise (dB) (@ 1 m)	<62		≤65 (typical)	
PHYSICAL INSTALLATION				
Dimensions (WxDxH) (mm)	855 x 275 x 500		936 x 365 x 678	
Weight (kg)	73	74	92	
Installation model	Support for mounting the inverter		-	
Input connector	Amphenol H4		-	
Output connector	Water-resistant connector + OT terminal			
COMPLIANCE WITH REGULATIONS				
Electrical Standard	NB / T32004			
Safety Certificate	IEC62109-I, IEC62109-2, N B / T32004			
EMC	EN 61000-6-2/4			
Regulation	CEI 0.21 & CEI 0.16 - RD1699, RD 661, RD 413, UNE 206006, UNE 206007-1, UNE 217002, UNE 217001/RD244/RD647, NTS			
Warranty	5 years			

SIRIO DATA CONTROL

▶ MONITORING PROGRAM

Monitoring and configuration solutions

MAIN FEATURES

- Monitoring inverter and Sirio Power Supply (*SPS*) both on LAN and through Internet
- Sending control commands to an individual inverter or to the entire PV plant
- Optionally displaying the system's productivity in full screen mode (*for example for large monitors in large scale installations or public administrations*)
- Simple and self-explanatory buttons
- Scanning the LAN and automatically adding the inverter without user intervention
- Assigning the addresses without using the DHCP server
- Real-time measurement of each inverter
- Synchronising the inverter's date/time with the pc

OPERATING SYSTEMS SUPPORTED

- Microsoft Windows
- Mac OS X
- Linux

Sirio Data Control was developed with the aim of simplifying the configuration of controlled devices as much as possible without compromising the main function of a program–which is supervising and monitoring devices on a LAN or through Internet up to a maximum of 300 inverters.

The graphical user interface of the **Sirio Data Control** has been designed to be as simple and intuitive as possible, showing all the available measurements and all the historic data of each inverter at the same time. Unlike the SunVision 2, the **Sirio Data Control** recovers any missing historical data from the apparatuses without the limitation of having the software always running on a dedicated PC.

Sirio Data Control also enables the user to remotely send control commands (*like switching on/off, management of the active and reactive power, soft starts*) to the inverter in the field.

NOTE:

Compatibility is guaranteed *with: centralised inverters having firmware display 1.2.5 or later • TL inverters with NetMan 204 Solar • ° String Box with NetMan 204 Solar °* Sirio Power Supply (SPS) with NetMan 204

STRING BOX SETUP

This application is used to set the **STRING BOX** depending on the features of the installation and the user's requirements.

Items that can be set are the analog inputs, digital inputs and outputs, read channels and alarm thresholds.

MAIN FEATURES

- Via the Time Windows function, time windows can be set for each of the 8 inputs necessary to avoid false alarms (*e.g. in case of systematic shading out in certain periods and at certain times of the year*)
- Configuration of the relays present on the device depending on status of the alarms
- Configuration of the two inputs 4/20 mA and 0/10 V
- Full management of the minimum alarm threshold parameters
- Management and download of the events log

KIT POWER GRIDUCER

Self-Consumption Solutions

In some cases the mains supply cannot accept the power generated by the photovoltaic stations but the user wishes to reduce his energy costs by installing a PV field with the intention of using all the produced energy.

To adhere to contractual limitations and not supply energy to the grid, recommends the addition of the "Power Reducer" Kit which forces the inverter to produce only the power required to supply the connected loads.

MAIN FEATURESS

- Compatible with the Sirio EASY, EVO and Centralised inverters.
- kit comprising of:
  1. **RS485 CARD** (only for Central and Sirio Easy inverters, not required for Sirio EVO).
  2. **POWER METER** (modular digital multimeters with multilingual graphic LCDand RS485 output port).
- Amperometric transformers rated based on the load.

NETMAN 204 SOLAR

Network agent

The **NETMAN PLUS NETWORK** card enables management of an inverter directly connected to a 10/100Mbps LAN using the main network communication protocols (TCP/IP, and ModBUS/TCP).

MAIN FEATURES

- 32bit RISC processor
- compatible with 10/100 Mbps Ethernet and IPv4/6 networks
- Sirio Data Control and SunVision 2 compatible
- Control and monitoring using ModBUS/TCP
- Virtual screen also for TL inverters (*VNC software*)
- SMTP for sending alarm e-mails
- event history log management
- other standards: DHCP, DNS, RARP, FTP, NTP, ICMP, RFB
- configurable via Sirio Data Control and VNC
- firmware upgradeable via Sirio Data Control

MICRO PLUS Germany

INR24/48

- 24V [1.500 - 3.000W]
- 48V [5.000 - 8.000W]

Horizontal Rack Inverter

El **RACK INVERTER** **INR24/48** es una gran solución para optimizar el espacio. Se instala en el interior del armario **rack** junto con las baterías, facilitando una mejor conexión y estética.

MicroPlus Germany fabrica este inversor **rack** de 19" (*3 U*) en chapa galvanizada de 2 mm y pintura epoxi, con conectores tipo **AMPHENOL MC4** para la entrada fotovoltaica.

Integra conectores para entrada de voltaje CA y generador eléctrico. Incluye un display para visualizar los parámetros.

Las características técnicas se describen en la siguiente tabla.

MODEL	INR24/1500	INR24/3000	INR48/5000	INR48/8000
Nominal power (*W*)	**1.500**	**3.000**	**5.000**	**8.000**
Input				
Voltage (*Vac*)	230			
Selectable Voltage Range	170-280 VAC (*for personal computers*) • 90-280 VAC (*for household appliances*)			
Frequency Range	50 Hz/60 Hz (*automatic detection*)			
OUTPUT				
AC Voltage Regulation (*battery mode*)	230VAC ± 5%			
Surge Power (*VA*)	3.000	6.000	10.000	16.000
Efficiency (*peak*)	90% ~ 93%			
Transfer Time	15 ms (*for personal computers*) • 20 ms (*for home appliances*)			
Waveform	pure sine wave			
BATTERY				
Battery Voltage (*Vdc*)	24		48	
Float Charge Voltage (*Vdc*)	27		54	
Overload Protection (*Vdc*)	33		63	66
Solar Charger and AC Charger				
Type of Solar Charger	MPPT			
Maximum Solar Array Power (*W*)	2.000	4.000	5.000	8.000
MPP Voltage Operating Range (*Vdc*)	120 ~ 380	120 ~ 450		90 ~ 450
Maximum Open Circuit Voltage of Solar Array (*Vdc*)	400	500		
Maximum Solar Charging Current (*A*)	60	80		120
Maximum AC Charging Current (*A*)	40	60		
Maximum Charging Current (*A*)	60	80		
PHYSICAL CHARACTERISTICS				
Dimensions, L x W x H (*mm*)	485 x 421 x 100	485 x 421 x 100		485 x 560 x 150
Net Weight (*Kg*)	10,5	11	12	20,6
Communication Interface	USB / RS232 / RS485 / Bluetooth / Dry-contact			
OPERATING ENVIRONMENT				
Humidity	5% a 95% relative humidity(*Non-condensing*)			
Operating Temperature	-10°C up to 50°C			
Storage Temperature	-15°C up to 60°C			

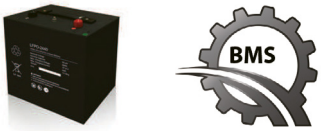
AXPERT

▶ 230V [1.500 - 11.000W]

Inversor OFF-GRID

Easy-to-use LCD display

The user can easily set or change the charging current, power destination, charging priority and other functions, through the LCD control module, in order to optimize the performance of the inverter.



Reserved communications port *(RS-485, CANBUS or RS232)* ***for BMS***

The third generation inverter has dedicated communication ports for Battery Management (BMS).

The inverter battery charger includes a battery balancing function. This optimizes the battery's charge and helps extend its life.

Detachable LCD control module
(with various communication protocols)

This equipment has a module with a detachable LCD screen that can be transformed into a remote control. The user can install the remote control in an accessible location, up to 20m away from the inverter.

With USBOTG support *(On The Go)*

The VMIII series has the USB OTG function for easy uploading or downloading of information.

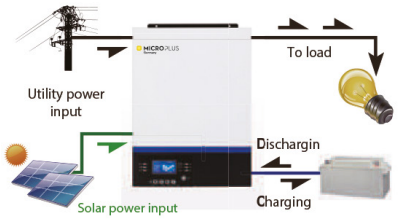
BLUETOOTH interface integrated with the Android application

The VMIII series is integrated with Bluetooth for monitoring from a mobile phone. This technology enables wireless communication up to 6m in an open space. The WATCHPOWER application is available in "Play Store".

Replaceable fan design series

The VMIII series is designed with replaceable fans. This simplifies operations and maintenance / repair costs.

1 With battery connected



2 Without battery connected

Battery independence

The inverter can continue to supply power to the installation from solar panels or the grid, even when batteries are not available.

MODEL	AXPERT-VM-III/1500-24	AXPERT-VM-III/3000-24	AXPERT-VM-III/5000-48	AXPERT+MAX/8000	AXPERT+MAX/11000
Nominal power (*W*)	**1.500**	**3.000**	**5.000**	**8.000**	**11.000**
Input					
Voltage (*Vac*)	230				
Selectable voltage range	170-280 VAC (*for personal computers*) • 90-280 VAC (*for home appliances*)				
Frequency range	50 Hz/60 Hz (*automatic detection*)				
OUTPUT					
AC voltage regulation (*battery mode*)	230VAC ± 5%				
Surge Power (*VA*)	3.000	6.000	10.000	16.000	22.000
Efficiency (*peak*)	90% ~ 93%				
Transfer time	15 ms (*for personal computers*) • 20 ms (*for home appliances*)				
Forma de onda	pure sine wave				
BATTERY					
Battery voltage (*Vdc*)	24		48		
Floating charge voltage (*Vdc*)	27		54		
Overload protection (*Vdc*)	33		63	66	63
Solar Charger and AC Charger					
Solar charger type	MPPT				
Maximum power of the photovoltaic array (*W*)	2.000	4.000	5.000	8.000	11.000
MPP range at operating voltage (*Vdc*)	120 ~ 380	120 ~ 450		90 ~ 450	
Photovoltaic array maximum open circuit voltage (*Vdc*)	400	500			
Maximum solar charge current (*A*)	60	80		120	150
AC Max Charge Current (*A*)	40	60			
Corriente de Maximum load (*A*)	60	80			
PHYSICAL CHARACTERISTICS					
Dimension, L x W x H (*mm*)	100 x 280 x 390	115 x 300 x 400		147 x 432 x 554	
Net weight (*Kg*)	8,5	9	10	18,4	
Communication interface	USB / RS232 / RS485 / Bluetooth / Dry-contact				
OPERATING ENVIRONMENT					
Humidity	5% a 95% relative humidity(*Non-condensing*)				
Operating temperature	-10°C up to 50°C				
Storage temperature	-15°C up to 60°C				

MICRO PLUS Germany

SN-M20/30

- 20W [36 cells]
- 30W [36 cells]

SOLAR PANEL (PV) MONOCRYSTALLINE

The main features

Power and tolerance

0 ~ + 3W positive power tolerance guarantee

Resistance to the PID

Hars conditions for 96 hours testing qualified *(@ 85°C / 85%)*. For special severity Installation environment, can meet higher standrds.

Stronger surface resistance to mechanical loads

It has passed the certification of 6.000Pa snow load and 3.600Pa wind load.

High reliability and weather resistance

Through dust, salt fog, ammonia corrosion test, can effectively deal with the harsh environment.

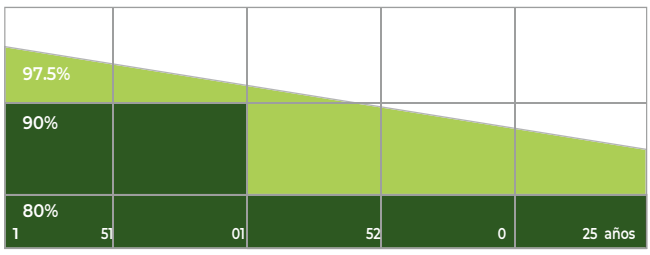
The hail test

It passed the hail test with a diameter of 45mm and a speed of 30,7 m / s

Lower termperature coeffcient

Better temperature coefficient makes the power attenuation less at high temperature.

Best quality assurance

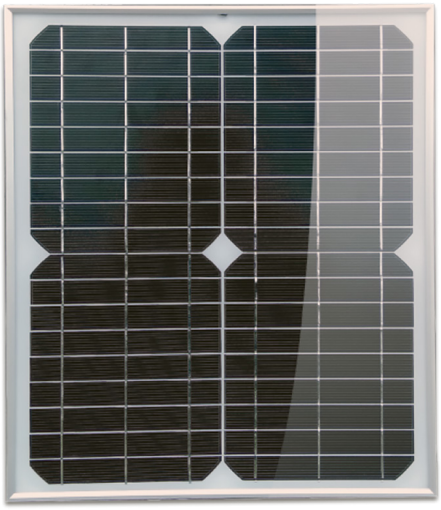


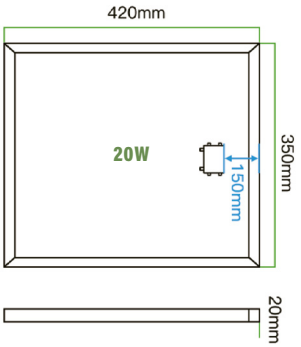
Linear power output warrantly

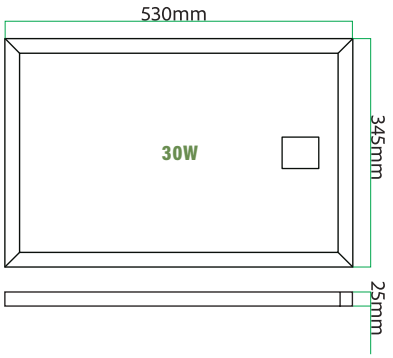
Industry quality assurance

12 years of product material and process quality assurance
25 years linear power output warranty

SPECIAL PANELS FOR **LIGHTING**
(solar street lights)







Monocrystalline Panel 20 - 30W - 36 cells

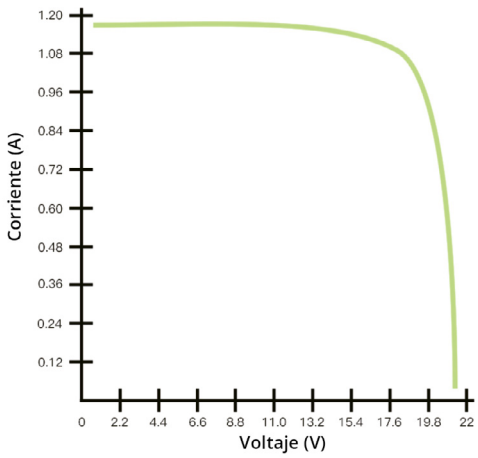
MODEL	SN-M20	SN-M30
Maximum Power / Pmax (*Wp*)	**20**	**30**
Optimal Operating Voltage / Vmp (*V*)	18	18,8
Optimal Operating Current / Imp (*A*)	1,11	1,6
Open Circuit Voltage / Voc (*V*)	21,60	22,56
Short Circuit Current / Isc (*A*)	1,18	1,72
Cell Efficiency (*%*)	20,55	19,88
Module Efficiency (*%*)	13,61	16,41
Power Tolerance (*W*)	0 ~ +3W	
Maximum Series Fuse Rating (*A*)	15	
Maximum System Voltage (*Vdc*)	1.000	

MAXIMUM DATA	
Operating Module Temperature (*°C*)	-40°C a +80°C
Storage Temperature (*°C*)	From -40°C to +80°C
Isolation Cut-off Voltage (*DC*)	1.000
Maximum Wind Load Resistance (*N/m² or max Km/h*) (*m/s*)	60
Maximum Surface Load Capacity (*Kg/m²*)	200
Maximum Hail Load Capacity (*80 Km/h*) (*mm*)	5

MECHANICAL CHARACTERISTICS	SN-M20	SN-M30
Number of Cells (*Units*)	36 (*18 x 2*)	
Cell Dimension (*mm*)	156 x 17,33	158,75 x 26,4
Dimensions (*mm*)	420 x 350 x 20	530 x 345 x 25
Weight (*kilograms*)	1,8	2,0
Frame Material	Marco Anodized Aluminum transparente	
Glass Thickness (*mm*)	3.2 mm tempered glass	
Frame	Anodized aluminum alloy	
Laminated Material	EVA (*light transmittance over 92%*)	
Backsheet Material	TPT (*high weather resistance*)	
Junction Box	IP65 (*1,500V system voltage available*)	
Output Cable	MC4 connector 90cm 2 x 4.0mm...	
Busbar	5BB 6BB	5BB

STC	
AM Condition	AM 1,5
Irradiance Conditions (*W/m²*)	1.000
Cell Temperature (*°C*)	25

i-v curve



MICRO PLUS Germany

SN-P100

▶ 100W [72 cells]

Solar panel *(PV)* ***POLYCRYSTALLINE***

The main features

Power and tolerance

0 ~ + 3W positive power tolerance guarantee

Resistance to the PID

Hars conditions for 96 hours testing qualified *(@ 85°C / 85%)*. For special severity Installation environment, can meet higher standrds.

Stronger surface resistance to mechanical loads

It has passed the certification of 6.000Pa snow load and 3.600Pa wind load.

High reliability and weather resistance

Through dust, salt fog, ammonia corrosion test, can effectively deal with the harsh environment.

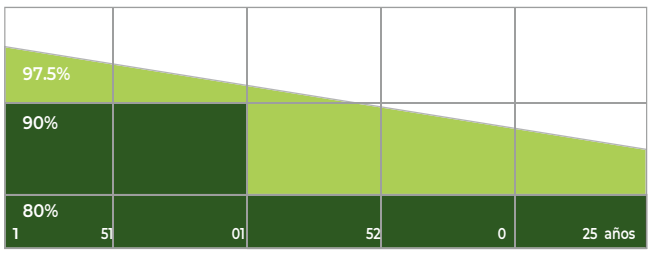
The hail test

It passed the hail test with a diameter of 45mm and a speed of 30,7 m / s

Lower termperature coeffcient

Better temperature coefficient makes the power attenuation less at high temperature.

Best quality assurance

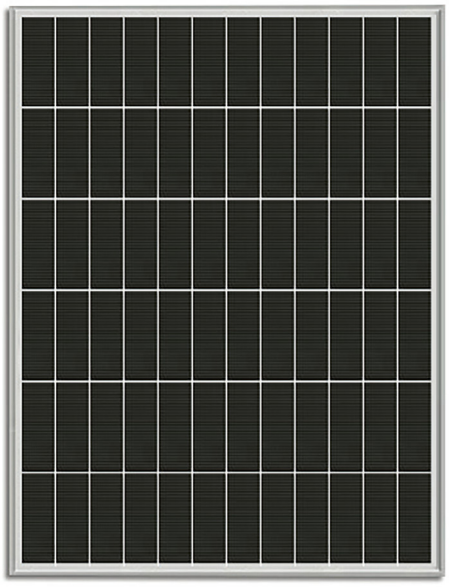


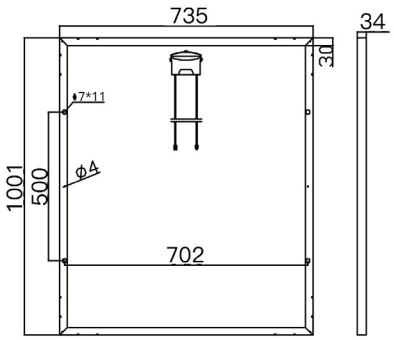
Linear power output warrantly

Industry quality assurance

12 years of product material and process quality assurance
25 years linear power output warranty

SPECIAL PANELS FOR **LIGHTING** *(solar street lights)*





www.microplusgermany.com

Polycrystalline Panel 100W - 72 cells

MODEL	SN-P100
POLYCRYSTALLINE 100W	
Maximum Power / Pmax (*Wp*)	**100**
Optimum Operating Voltage / Vmp (*V*)	37,50
Optimum Operating Current / Imp (*A*)	2,15
Open Circuit Voltage / Voc (*V*)	44,20
Short Circuit Current / Isc (*A*)	3,02
Cell Efficiency (%)	17,10
Module Efficiency (%)	16,90
Power Tolerance (*W*)	0 ~ +3W
Maximum Series Fuse Rating (*A*)	15
Maximum System Voltage (*Vdc*)	1.000
MAXIMUM DATA	
Operating Module Temperature (°C)	-40°C to +80°C
Storage Temperature (°C)	-40°C to +80°C
Insulation Cut Voltage (*DC*)	1.000
Maximum Wind Resistance (N/m^2 or max Km/h) (*m/s*)	60
Surface Maximum Load Capacity (Kg/m^2)	200
Maximum Hail Load Capacity (*80Km/h*) (*mm*)	5

MECHANICAL CHARACTERISTICS	
Number of cells (*Units*)	72 (*12 x 6*)
Cell Dimension (*mm*)	156 x 52
Dimension (*mm*)	1.001 x 734 x 34
Weight (*Kg*)	8
Frame Material	Clear anodized aluminium frame
Thickness of Glass (*mm*)	3.2 mm tempered glass
Frame	Anodized aluminum alloy
Laminating Material	EVA (*Light transmittance more than 92%*)
Backsheet Material	TPT (*High weather resistance*)
Junction Box	Ip65 (*1500V system voltage available*)
Output cable	90cm 2x4.0mm..MC4 connector
Bus Bar	5BB 6BB

TEMPERATURE CHARACTERISTICS		
Nominal Operating Cell Temperature (*NOTC*)	45 ± 2°C	
Temperature Coeicient of Pmax	-0,45% / °C	
Temperature Coeicient of Voc	-0,34% / °C	
Temperature Coeicient of Isc	-0,050% / °C	
STC		
AM Condition	AM 1,5	
Irradiance conditions (W/m^2)	1.000	
Temperature Cell (°C)	25	
PACKING CONIGURATION		
Container	20" GP	40" HQ
Pieces per container	450	970

MICRO PLUS Germany

SN-M270

▶ 270W [60 cells]

Panel solar *(PV)* ***MONOCRISTALINO***

MAIN FEATURES

Alta eficiencia

Eficiencia del módulo líder en la industria

Poder y tolerancia

Garantía de tolerancia de potencia positiva de 0 ~ + 3W

Mayor resistencia superficial a cargas mecánicas

Ha pasado la certificación de nieve 6.000Pa carga y carga de viento 3.600Pa

Alta fiabilidad y resistencia a la intemperie

A través de polvo, niebla salina, prueba de corrosión por amoniaco, Puede lidiar eficazmente con el entorno hostil.

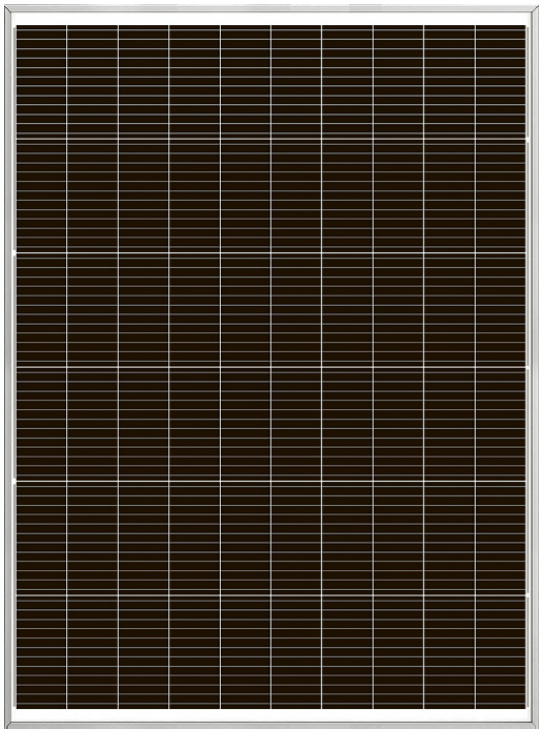
La prueba del granizo

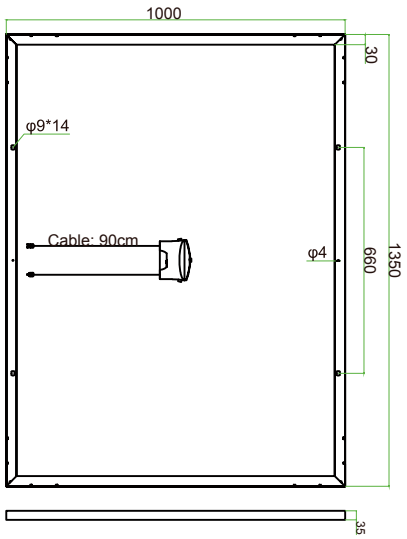
Pasó la prueba del correo con un diámetro de 45 mm. y una velocidad de 30,7 m/s

Coeficiente de temperatura más bajo

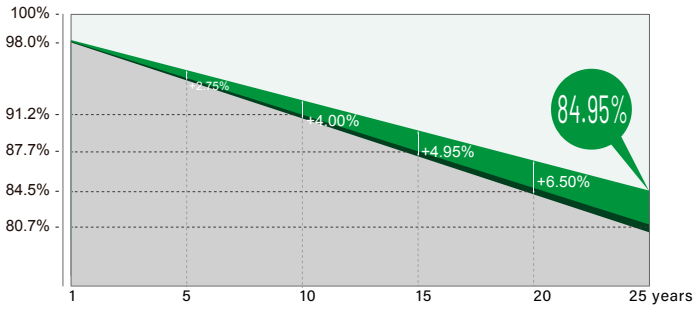
Un mejor coeficiente de temperatura hace que la potencia atenuación menor a alta temperatura

PANELES ESPECIALES
36V PARA **ILUMINACIÓN**
(farolas solares)





Mejor garantía de calidad



Garantía de salida de potencia lineal

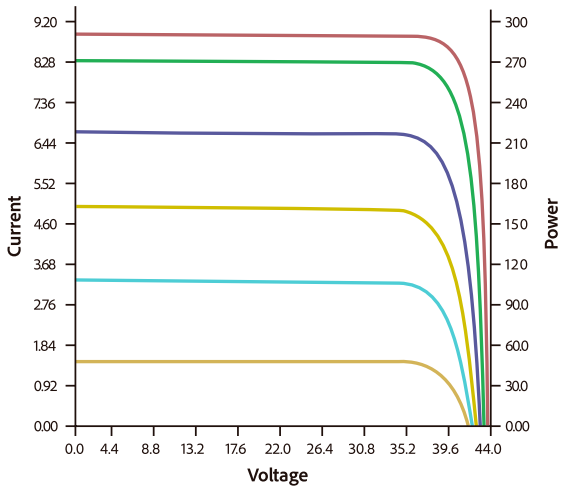
Aseguramiento de la calidad de la industria

12 años de garantía de calidad de procesos y materiales del producto
25 years de garantía de salida de potencia lineal

Monocrystalline Panel 270W - 60 cells

MODEL	SN-M270
MONOCRYSTALLINE 270W	
Maximum Power / Pmax (*Wp*)	**270**
Optimum Operating Voltage / Vmp (*V*)	36
Optimum Operating Current / Imp (*A*)	7,5
Open Circuit Voltage / Voc (*V*)	43,2
Short Circuit Current / Isc (*A*)	8,25
Cell Efficiency (%)	20,1
Power Tolerance (*W*)	± 3
Maximum Series Fuse Rating (*A*)	15
Maximum System Voltage (*Vdc*)	1.000
MAXIMUM DATA	
Temperature del módulo de funcionamiento (°C)	-40°C a +85°C
Storage temperature (°C)	From -40°C to +80°C
VOLTAGE de corte de aislamiento (*DC*)	1.000
Resistencia máxima al viento (N/m^2 *or max Km/h*) (*m/s*)	60
Capacidad de carga máxima de superficie (Kg/m^2)	200
Capacidad máxima de carga de granizo (*80Km/h*) (*mm*)	5

MECHANICAL CHARACTERISTICS	
Number of cells (*Units*)	60 (*10 x 6*)
Cell dimension (*mm*)	210 x 94
Dimension (*mm*)	1.350 x 1.000 x 35
Weight (*kg*)	14,5
Frame material	Marco Anodized Aluminum transparente
Glass thickness (*mm*)	3.2 mm tempered glass
Frame	Anodized aluminum alloy
Laminated material	EVA
Back sheet material	TPT
Junction box	IP65 (*1.500V*)
Output cable	MC4 connector 90cm 2 x 4.0mm...
STC	
AM Condition	AM 1.5
Lighting intensity (*W/m2*)	1.000
Temperature (°C)	25
TEMPERATURA	
Nominal operating cell temperature (*NOCT*)	45 ±2°C
Temperature coefficient of Pmax	-0,37 % /°C
Temperature coefficient of Voc	-0,29 % /°C
Temperature coefficient of Isc	-0,048 % /°C



- Sun: 1200 • Vmp: 35.302 • Pmax: 287.146
- Sun:1 000 • Vmp: 36.000 • Pmax: 270.224
- Sun: 800 • Vmp: 35.910 • Pmax: 216.231
- Sun: 600 • Vmp: 35.870 • Pmax: 161.020
- Sun: 400 • Vmp: 35.789 • Pmax: 105.320
- Sun: 200 • Vmp: 35.456 • Pmax: 49.566

PRECAUCIÓN: La instalación, operación y limpieza deben ser realizadas por profesionales cualificados e ingenieros capacitados. Por favor, lea detenidamente la hoja de datos y el manual de operación antes de instalar y operar los modules fotovoltaicos.

MICRO PLUS Germany

SNB-455

▶ 455W *[120 cells]*

Solar panel *(PV)* ***MONOCRYSTALLINE PERC***

MAIN FEATURES

12 Years — **GARANTÍA DE PRODUCTO MEJORADA en materiales y mano de obra**

30 Years — **GARANTÍA DE RENDIMIENTO de potencia lineal**

1er año degradación de energía no más del 2%
Degradación de potencia anual posterior no más del 0,55%

455 W — **Potencia del módulo up to 455 W**
Eficiencia del módulo up to 21,5 %

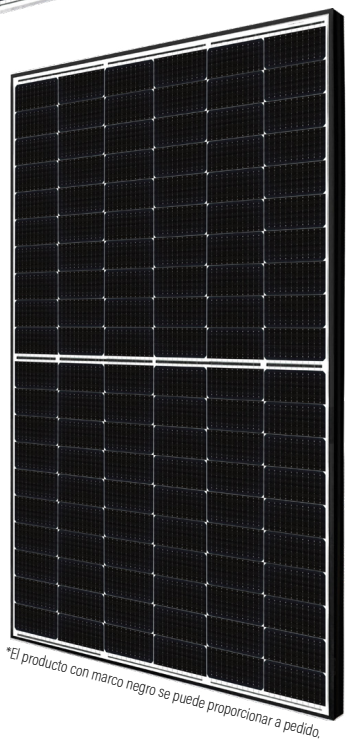
Hasta un 12,3 % menos de LCOE
Hasta un 5,2 % menos de coste del sistema

Mitigación integral de LID/LeTID
tecnología, up to un 50% menos de degradación

Mejor tolerancia al sombreado

Minimiza los impactos de las microfisuras

Fuerte carga de nieve up to 5400 Pa,
carga de viento up to 2400 Pa



*El producto con marco negro se puede proporcionar a pedido.

MANAGEMENT SYSTEM CERTIFICATES*

ISO 9001:2015 / Quality management system
ISO 14001:2015 / Standards for the environmental management system
ISO 45001: 2018 / International standards for safety and health at work
IEC62941: 2019 / Quality system for manufacturing photovoltaic modules

PRODUCT CERTIFICATES*

EC 61215 / IEC 61730 / UL 61730 / IEC 61701 to be carried out

* Specific certifications applicable to different module types and markets will vary and therefore not all certifications listed in this document will simultaneously apply to the products you order or use.

Please contact your local representative to confirm the specific certificates available for your product and applicable in the regions in which the products will be used.

PERC Monocrystalline Panel 455W - 120 cells

MODEL	SNB-455
ELECTRICAL DATA (STC)	
Nominal maximum power (Pmax) (W)	455
Optional operating voltage (Vmp) (V)	34,6
Optional operating current (Imp) (A)	13,17
Open circuit voltage (Voc) (V)	41,2
Short circuit current (Isc) (A)	13,95
Module efficiency (%)	21,1

* Under Standard Test Conditions (STC) of 1000 W/m² irradiation, AM 1.5 spectrum and 25°C cell temperature.

ELECTRICAL DATA (NMOT)	
Maximum Nominal Power (Pmax) (W)	341
Optional operating voltage (Vmp) (V)	32,4
Optional operating current (Imp) (A)	10,52
Open circuit voltage (Voc) (V)	38,9
Short circuit current (Isc) (A)	11,25

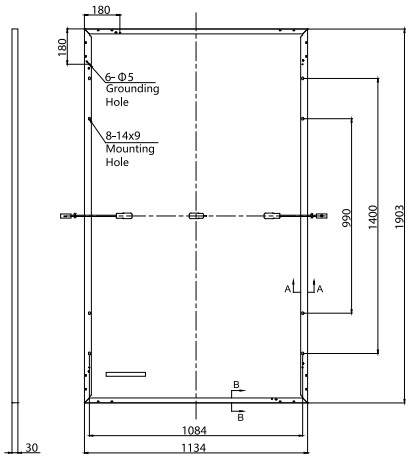
* Under nominal module operating temperature (NMOT), irradiance 800W/m AM 1.5 spectrum, ambient temperature 20°C, wind speed 1m/s.

ELECTRICAL DATA	
Operating Temperature	-40°C ~ +85°C
Maximum System Voltage	1500 V (IEC/UL) ó 1000 V (IEC/UL)
Fire Module Performance	TYPE 1 (UL 61730 1500V) or TYPE 2 (UL 61730 1000V) or CLASS C (IEC 61730)
Max Series Fuse Rating	25 A
Application Rating	Class A
Power Tolerance	0 ~ + 10 W

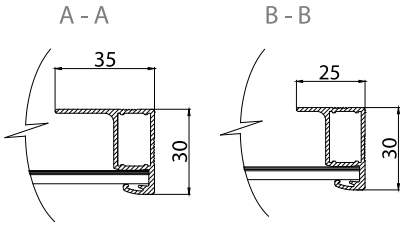
MECHANICAL PROPERTIES	
Cell Type (mm)	monocrystalline
Number of Cells	120 [2 X (10 X 6)]
Dimension (mm)	1.903 x 1.134 x 30
Weight (kg)	24,2
Front Glass (mm)	3.2 mm tempered glass con revestimiento antirreflectante
Frame	Anodized aluminum alloy
J-Box	IP68, 3 diodos de derivación
Cable	4.0 mm..(IEC), 12 AWG (UL)
Cable Length (including connector)	Retrato: 410 mm (+) / 290 mm (-); horizontal: 1.100 mm
Connector	T6 or MC4 or MC4-EVO2 or MC4-EVO2A
Per Pallet	35 piezas
Per Container (40' HQ)	840 piezas

TEMPERATURE CHARACTERISTICS	
Temperature coefficient (Pmax)	-0.34 % / °C
Temperature coefficient (Voc)	-0.26 % / °C
Temperature coefficient (Isc)	0,05 % / °C
Nominal operating temperature of the module	41 ± 3°C

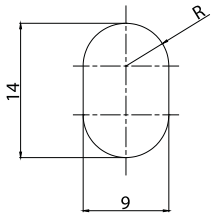
ENGINEERING DRAWING (mm)
Rear view



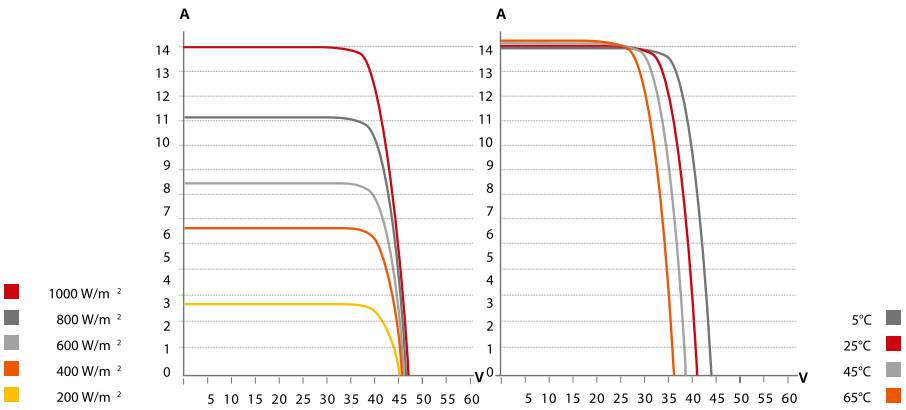
CROSS SECTION OF THE FRAME



MOUNTING HOLE



I-V CURVES



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MICRO PLUS
Germany

SNB-540

▶ 540W [144 cells]

Panel solar *(PV)* ***PERC BIFACIAL MONOCRYSTALLINE***

MAIN FEATURES

12 Years — **GARANTÍA DE PRODUCTO MEJORADA en materiales y mano de obra**

30 Years — **GARANTÍA DE RENDIMIENTO de potencia lineal**

1er año degradación de energía no más del 2%
Degradación de potencia anual posterior no más del 0,45%

540 W — **Potencia del módulo up to 540 W**
Eficiencia del módulo up to 21,4 %

Hasta un 12,3 % menos de LCOE
Hasta un 5,2 % menos de coste del sistema

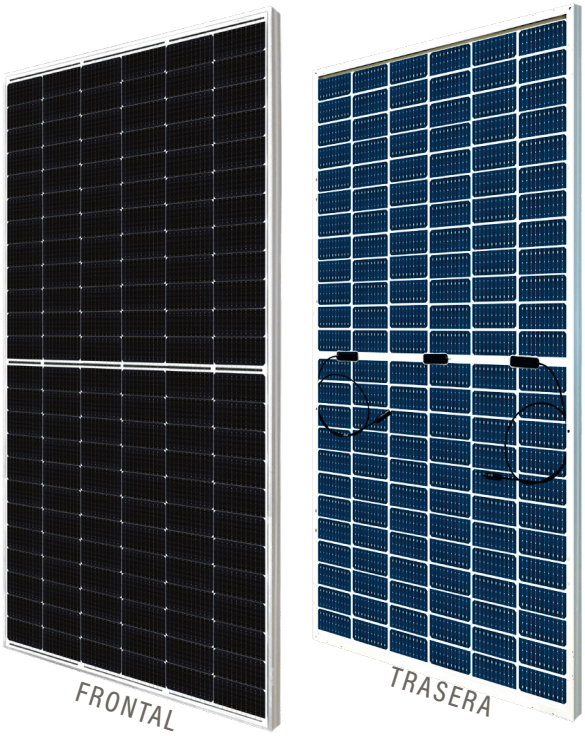
Mitigación integral de LID/LeTID
tecnología, up to un 50% menos de degradación

Compatible con los rastreadores convencionales,
producto rentable para la planta de energía de servicios públicos

Mejor tolerancia al sombreado

Minimiza los impactos de las microfisuras

Fuerte carga de nieve up to 5400 Pa,
carga de viento up to 2400 Pa



CERTIFICADOS DEL SYSTEM DE GESTIÓN*

ISO 9001:2015 / Sistema de gestión de la calidad
ISO 14001:2015 / Standards para el sistema de gestión ambiental
ISO 45001: 2018 / Standards internacionales de seguridad y salud en el trabajo

CERTIFICADOS DE PRODUCTO*

EC 61215 / IEC 61730 / CE / INMETRO / MCS / UKCA
CEC listed (US California) / FSEC (US Florida)
UL 61730 / IEC 61701 / IEC 62716 / IEC 60068-2-68
para llevar

* Los certificados específicos aplicables a los diferentes tipos de modules y mercados variarán y, por lo tanto, no todas las certificaciones enumeradas en este documento se aplicarán simultáneamente a los productos que ordene o use.

Póngase en contacto con su representante local para confirmar los certificados específicos disponibles para su producto y aplicables en las regiones en las que se utilizarán los productos.

MADE IN EUROPE

BIFACIAL Monocrystalline Panel 540W - 144 cells

MODEL	SNB-540			
ELECTRICAL DATA (STC)		BIFACIAL GAIN 5%	10%	20%
Nominal Maximum Power (Pmax) (W)	540	567	594	648
Optional Operating Voltage (Vmp) (V)	41,3	41,3	41,3	41,3
Optional Operating Current (Imp) (A)	13,08	13,73	14,39	15,70
Open Circuit Voltage (Voc) (V)	49,2	49,2	49,2	49,2
Short Circuit Current (Isc) (A)	13,90	14,60	15,29	16,68
Module Efficiency (%)	21,0	22,1	23,1	25,2

Bifacial gain: The additional gain of the back side compared to the power of the front side under the standard test condition. It depends on the mounting (structure, height, tilt angle, etc.) and the ground albedo.

ELECTRICAL DATA (NMOT)	
Maximum Nominal Power (Pmax) (W)	405
Optional operating voltage (Vmp) (V)	38,7
Optional operating current (Imp) (A)	10,47
Open circuit voltage (Voc) (V)	46,5
Short circuit current (Isc) (A)	11,21

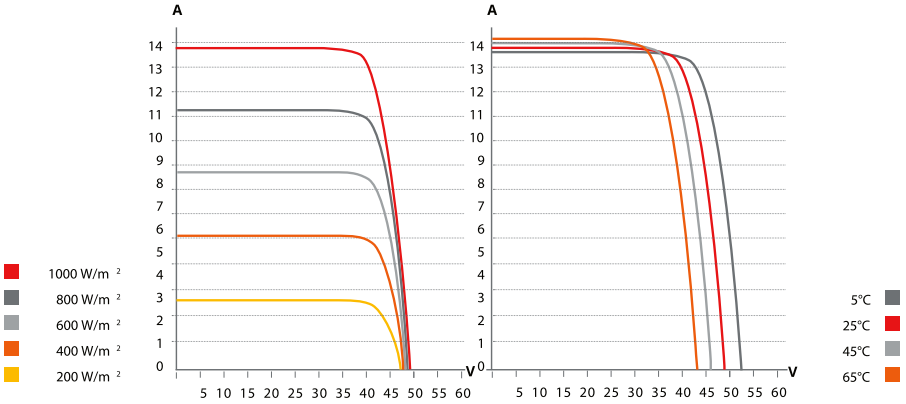
* Under nominal module operating temperature (NMOT), irradiance 800W/m AM 1.5 spectrum, ambient temperature 20°C, wind speed 1m/s.

ELECTRICAL DATA	
Operating Temperature	-40°C ~ +85°C
Maximum System Voltage	1500 V (IEC/UL) or 1000 V (IEC/UL)
Fire Module Performance	TIPO 29 (UL 61730) or CLASS C (IEC61730)
Max Series Fuse Rating	30 A
Application Rating	Class A
Power Tolerance	0 ~ + 10 W
Power Bifaciality	70 %

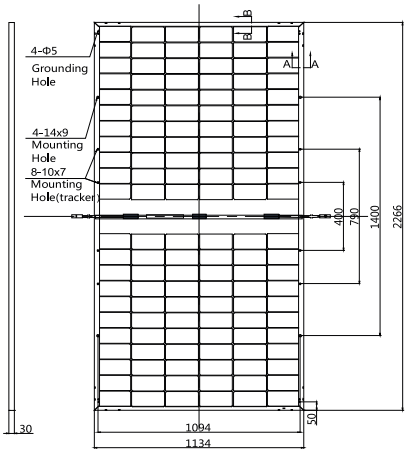
MECHANICAL PROPERTIES	
Cell Type (mm)	monocrystalline
Number of Cells	144 [2 x (12 x 6)]
Dimension (mm)	2.266 x 1.134 x 30
Weight (kg)	32,1
Front Glass (mm)	2.0mm heat-strengthened glass with anti-reflective coating
Rear Glass (mm)	2.0mm heat-strengthened glass
Frame	Anodized aluminum alloy
J-Box	IP68, 3 bypass diodes
Cable	4.0 mm..(IEC), 12 AWG (UL)
Cable Length (including connector)	410 mm (+) / 290 mm (-) or customized length
Connector	T6 ó MC4-EVO2
Per Pallet	35 pieces
Per Container (40' HQ)	700 pieces or 560 pieces (for US only)

TEMPERATURE CHARACTERISTICS	
Temperature coefficient (Pmax)	-0.34 % / °C
Temperature coefficient (Voc)	-0.26 % / °C
Temperature coefficient (Isc)	0,05 % / °C
Nominal operating temperature of the module	41 ± 3°C

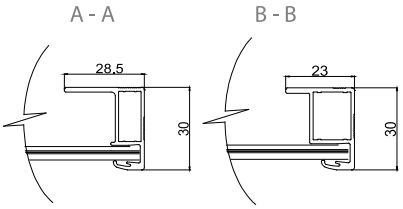
I-V CURVES



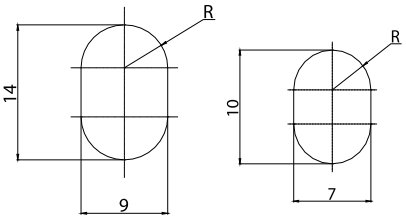
ENGINEERING DRAWING (mm) Rear view



CROSS SECTION OF THE FRAME



MOUNTING HOLE



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MICRO PLUS Germany

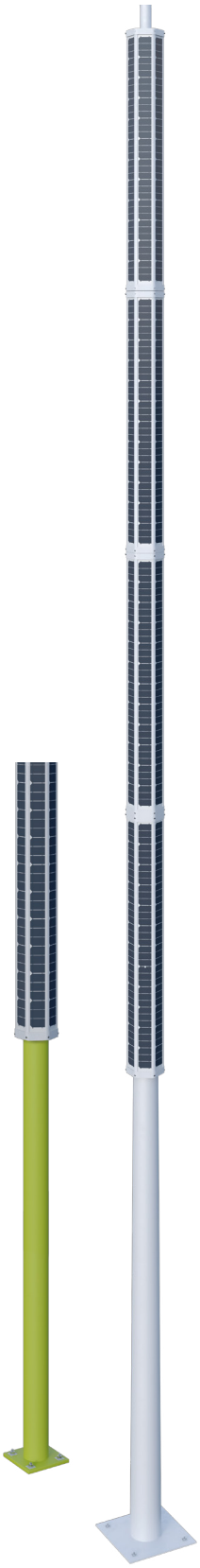
PFH

▶ 100 -200W

Hexagonal solar panel

PFC100

PFC140



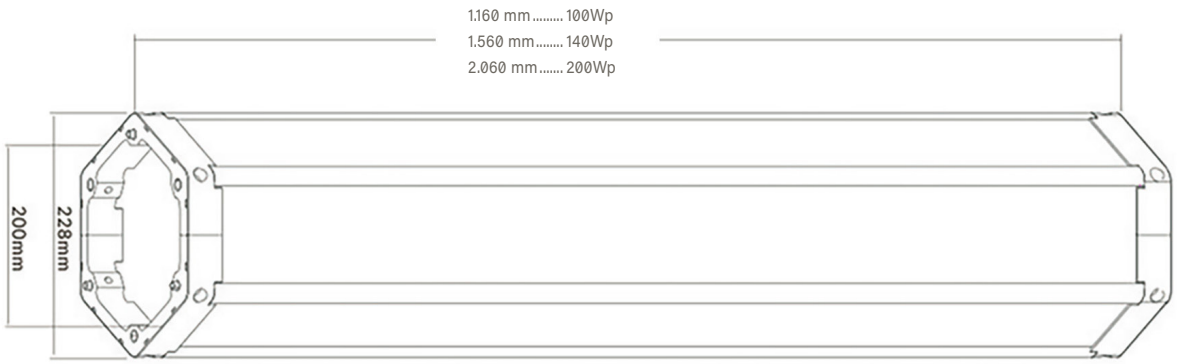
Built with hexagonal aluminum structure with 6 faces of photovoltaic cells (*with the dimensions shown below in the attached table*).

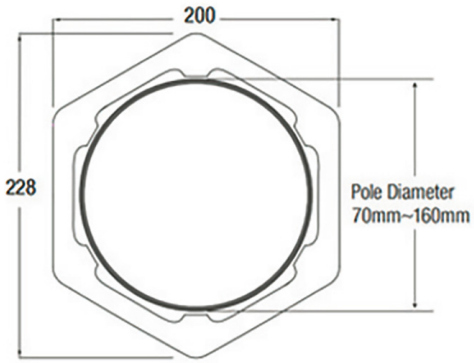
This hexagonal panel is easy to install, it consists of two halves (2 faces of 3 cells and that slide through an internal guide in which they are fastened to the post with screws.

It incorporates **MC4** connectors with photovoltaic cable to be able to connect to the other panels, it can also be connected to 18V / 36V.

It has applications in existing columns to convert them into solar street lights, as well as traffic lights and applications in the photovoltaic industry.

Hexagonal solar panel





MODEL /REF	PFH100	PFH140		PFH200	
Power max. (*W*)	100	140		200	
Weight (*Kg*)	14,8	21,6		24,2	
Vmp (*V*)	18	18	36	18	36
Imp (*A*)	5,56	7,78	3,89	8,25	4,32
Dimensions (*mm*)	228 x 200 x 1.160	228 x 200 x 1.560		228 x 200 x 2.060	
Cell type	Monocristaline				
Efficiency cell (%)	21,20				
Panel structure	Black anodized aluminum				
Cable length (*cm*)	0,60				
Type conector	MC4				
Temperature working (*°C*)	-30°C – +70°C				
Lifespan (*years*)	25				
Full guarantee (*years*)	5				

ARM

▶ 18 - 42U

Cabinets for 19" lithium battery rack

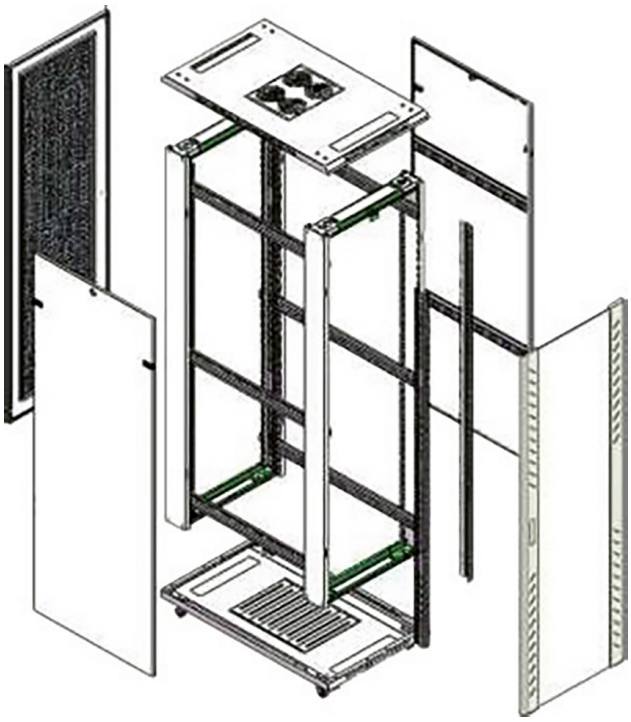
Front view

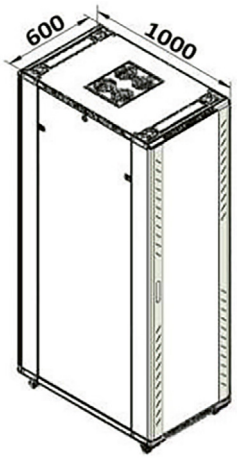
Back view

The **ARM** **rack** cabinet, robustly built in 1.2 mm thick iron sheet for 19" **rack**".

- Perforated structure around the entire perimeter
- Front door is made of tempered glass (*180° opening*).
- Rear door with perforated sheet (*180° opening*).
- The side panels can be removed.
- Built-in fans and wheels.
- Capacity of 800Kg.
- Protection is IP20.

(*Dimensions according to the following table*)





Floor Standing Server Racko — ARM Series

MODEL	CAPACITY (U)	Dimensions WIDTH (mm)	DEPTH (mm)	HEIGHT (mm)	VOLUME (CBM)	COLOR	STANDARD ACCESSORIES OPTIONAL	WEIGHT (kg)
ARM6618	18	600	600	987	0,131	NEGRO	Fan PDU Shelf	46
ARM6622	22			1.164	0,146			50
ARM6818	18		800	987	0,152	GREY RAL 7035		56
ARM6822	22			1.164	0,169			58
ARM6827	27			1.387	0,189			65
ARM6832	32			1.609	0,186			75
ARM6842	42			2.054	0,285			92
ARM6042			1.000		0,339			110
ARM8042		800			0,437			128
ARM8842			800		0,394			120

FPV

▶ 63 - 125A

1 - 2 pole magnetothermic circuit breaker for DC current

100% ENERGETIC

10 YEARS GUARANTEE

FPV-063 2P DC MCB

Supplemental protectors are designed to provide

Overcurrent protection in electrical appliances or equipment, where branch circuit protection is already protection or not necessary.

The devices are designed for direct current (*DC*) control circuit applications.

FPV-125 1P DC MCB

The high capacity circuit breaker is especially for solar photovoltaic systems.

The current is 63A to 125A and the voltage is 1,000VDC.
Standard according to IEC / EN60947-2.

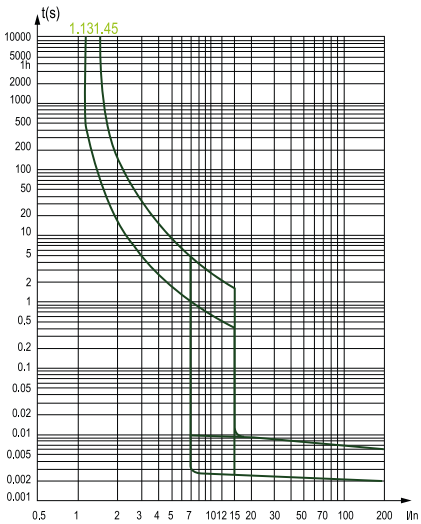
FPV-125 2P DC MCB

The high capacity circuit breaker is especially for solar photovoltaic systems.

The current is 63A to 125A and the voltage is 1,000VDC.
Standard according to IEC / EN60947-2.

MODEL		FPV-063-2P	FPV-125-1P	FPV-125-2P
Frame Degree Rated Current (*A*)		63	125	
Pole		2P	1P	2P
Rated Operating Voltage (*VDC*)		DC12V - DC - 1.200V		
Rated Current In (*A*)		63	125	
Rated Insulation Voltage Ui (*VDC*)		550	250	550
Ultimate Breaking Capacity Icu (*kA*)		6	10	
Run Breaking Capacity Ics (*%Icu*)		75		
Curve Type		C		
Trip Type		magneto - térmico		
Mechanical	Actual average value	20.000 times (*C.O.*)		
	Standard value	8.500	12.000	
Electric	Actual average value	2.500	6.000	
	Standard value	1.500	4.000	

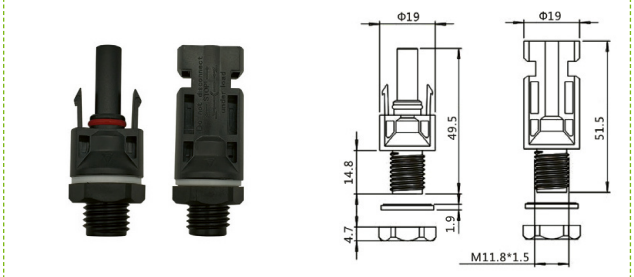
Characteristic curve



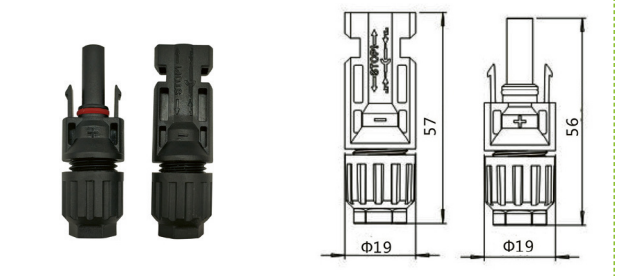
PV

▶ 1.000V — [30A]

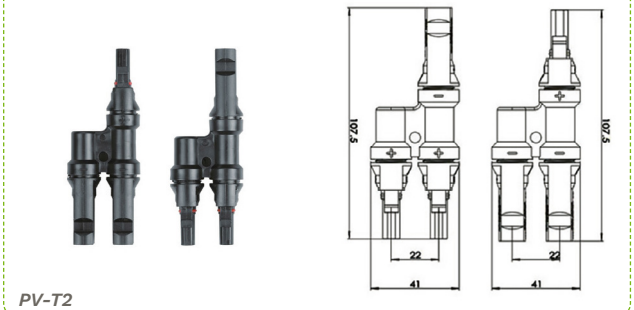
MC4 type PV connectors



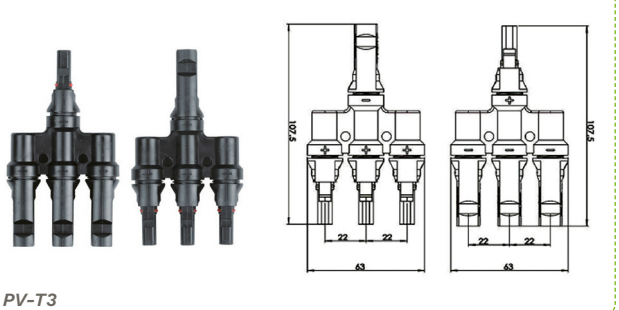
PV-M01



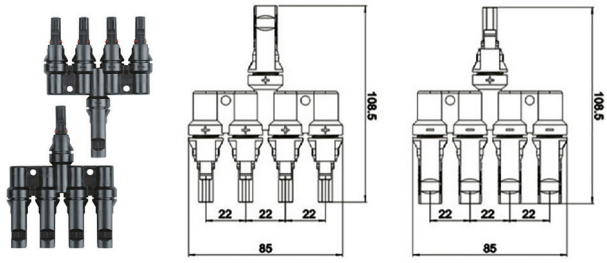
PV-M02



PV-T2



PV-T3



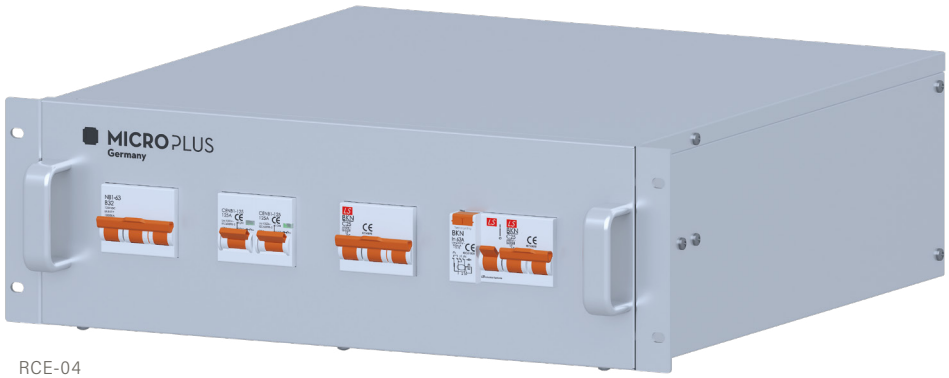
PV-T4

MODEL	PV-M01	PV-M02	PV-T2	PV-T3	PV-T4
Rated Voltage (VDC)	1.000				
Rated Current In (A)	30				
Test Voltage	6 KV (50 Hz 1 MIN)				
Temperature Range	-40°C — +85°C				
IP	IP67				
Constant Resistance	0,5 mΩ				
Safety Class	II				
Material	Cobre plateado				
Insulation Material	PPO				
Pin Dimensions	Ø 4				

RCE

▶ Electrical panel rack *[Monophase - Three-phase]*

With AC and DC protections



RCE-04

The **RCE** electrical cabinet in 19" **rack** format simplifies the assembly of battery systems. It offers protection at the input of solar panels (*PV*) by means of a DC thermal-magnetic switch and, optionally, protection against overvoltages. It also protects the batteries with a DC thermal-magnetic switch "FPV" (*see "FPV" on page 282*), and secures the network input and output in the home by means of differentials and thermal-magnetic switches.

This cabinet has additional features, such as a multifunction display to show information on voltage, consumption in watts, temperature, among others. It is also equipped with **MC4** connectors for the input of solar panels, as well as outputs for inverters and input and output connectors for generators and the electrical network.

It is easily installed in **ARI** and **ARV** cabinets, and it is possible to choose additional protections or customized systems according to specific needs.

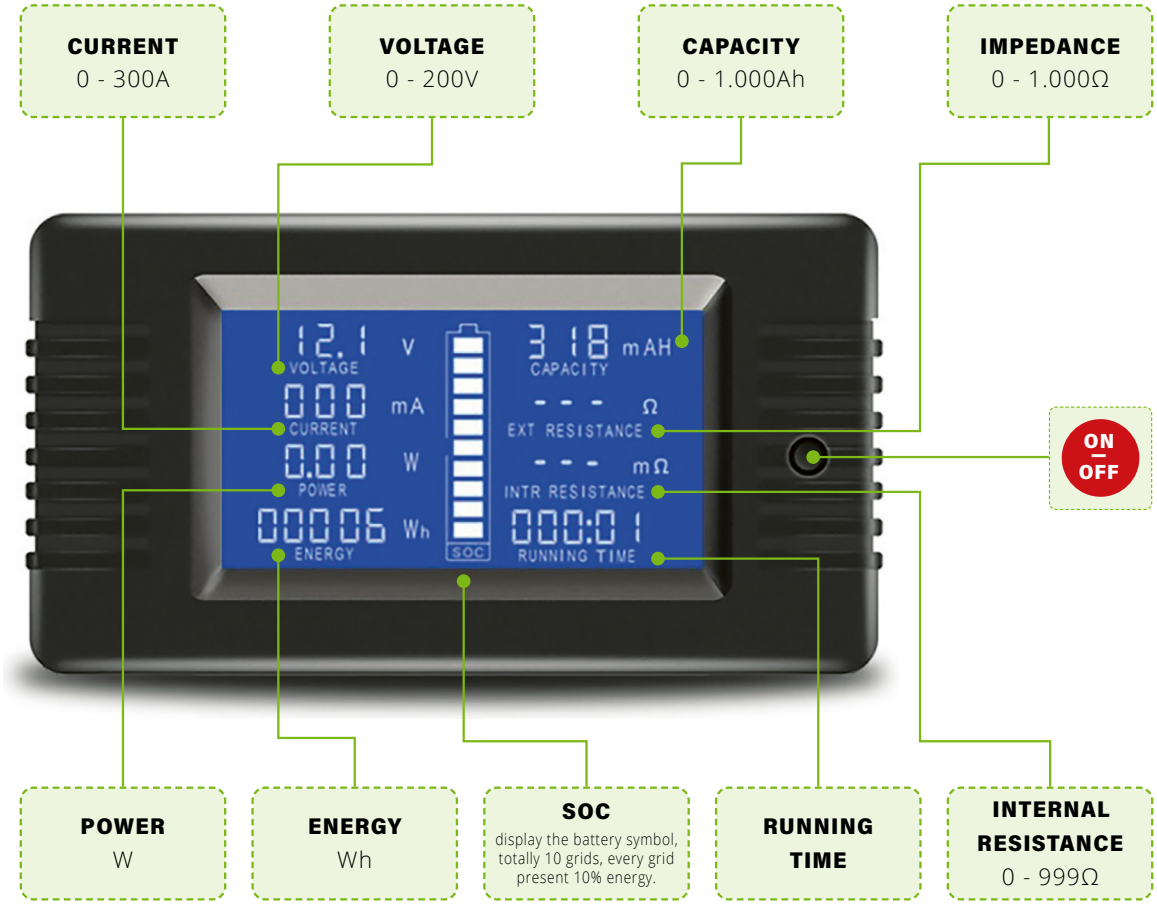
IT CAN BE MADE OF IN OTHER MEASURES ACCORDING TO THE NEEDS OF THE CLIENT

MODEL	RCE-01	RCE-02	RCE-03	RCE-04
PANEL PROTECTION				
Overvoltage protection	NO	2 POLES - 40 KA		3 POLES - 40 KA
Magnetothermal protection panels	2 POLES - 63A DC		2 POLES - 150A DC	
MC4 connectors input	2	4	6	
MC4 connectors output	2		4	
SYSTEM PROTECTION				
Magnetothermal protection batery	2 POLES - 125A DC			
Magnetothermal protection AC o GER.	2 POLES - 32A AC	2 POLES - 40A AC	2 POLES - 50A AC	3 POLES - 40A AC
AC PROTECTION				
Differential output	2 POLES - 40A - 30mA	2 POLES - 63A - 30mA		4 POLES - 63A - 30mA
Magnetothermal protection AC	2 POLES - 25A AC	2 POLES - 40A AC	2 POLES - 50A AC	3 POLES - 40A AC
Multifunction panel	Inverter output - Auxiliary grid direct output			
DIMENSIONS				
Dimension (*mm*)	485 x 421 x 10			
Weight (*Kg*)	8,9	9,3	9,8	10,2

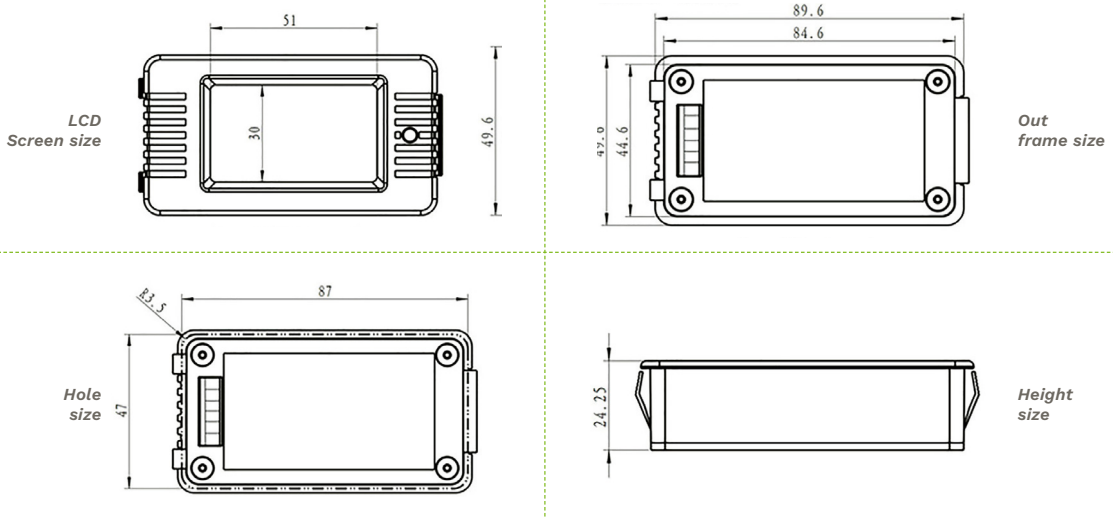
LZEM-15

[0 - 300A] — [0 - 200V] — [0 - 1.000Ah]

Multifunction DC battery meter



Dimension (mm)



DM

▶ *MPPT* lithium charge controller over WIFI

CONSTANT CURRENT - SPECIAL FOR LIGHTING

DM60-W *DM120-W* *DM160-W* *DM200-W*

MAIN FEATURES

1. Using **MovingTrack MPPT** maximum power point **track**ing technology, higher **track**ing efficiency and higher speed.
2. Both lead acid and lithium batteries are applicable, the operating parameters can be adjusted by remote control.
3. Using **UltraGreen** power control technology with extremely low power consumption and extremely low power consumption and standby current.
4. Constant voltage charging of a multi-stage lead-acid battery with temperature compensation.
5. Programmable load time / power control in 10 periods.
6. Battery charge and discharge protection for high and low temperature, with configurable operating temperature.
7. You can choose from a variety of smart power modes, with charging power that adjusts automatically based on battery level.
8. High precision digital constant current control algorithm, ensuring high efficiency and high precision of constant current.
9. Wireless infrared communication, which allows the configuration / reading of parameters, reading status, etc. 10.
10. Multiple protections, such as battery / PV reverse polarity protection, LED short circuit / open circuit protection against short circuit / open circuit / limited power, etc.
11. Extendable to IoT remote communication supervision function.

MODEL	DM060-W	MES060-W	DM120-W	MES120-W	DM160-W	MES160-W	DM200-W	MES200-W
Sensor	YES	NO	YES	NO	YES	NO	YES	NO
Controller type	W: wireless remote control;							
System voltage	12V		12V / 24V					
Static power consumption	Type R: ≤5 mA / 12V Type W: ≤20 mA / 12V		Type R: 6 mA / 12V 4 mA / 24 V Type W: 18 mA / 12V 13 mA / 24 V				Type R: ≤10 mA / 12 V ≤5 mA / 24 V Type W: ≤25 mA / 12 V ≤15 mA / 24 V	
Sleep power consumption	≤1 mA							
Load current	50 mA ~ 3000 mA		50 mA ~ 4200 mA		50 mA ~ 5.600 mA		150 mA ~ 7.000mA	
	(*adjustable · default 330mA*)							
Load voltage	5 V ~ 50 V		15 V ~ 50 V				15 V ~ 75 V	
Maximum load power	**60 W / 12 V**		**60 W / 12 V** **120 W / 24 V**		**80 W / 12 V** **160 W / 24 V**		**100 W / 12 V** **200 W / 24 V**	
Load conversion efficiency	85% - 96% (*Typical efficiency 95%*)							
Load current accuracy	≤3 % ±30 mA							
Intelligent power	High, Moderate, Low, Auto, USE, No • (*adjustable · default medium*)							
Load working period	9-Period + Pre-dawn lighting							
Period adjustment range	1min / 10min							
Power adjustment range	1% / 10%							
Maximum solar input power	130W / 12V		130W / 12 • 260W / 24V		200W / 12V • 400W / 24V		260W / 12V • 520W / 24V	
Maximum charge current	10A				15A		20A	
Maximum solar input voltage	≤50V		≤60V				≤100V	
MPPT Tracking efficiency	>99%							
Charging conversion eff.	85% - 98% (*typical efficiency 97%*)							
Over voltage	PB-16.0V • LI-overcharge voltage +2V • ×2, 24V system • (*default 16.0V*)							
Limited charge voltage	PB-15.5V • LI-overcharge voltage +1V • ×2, 24V system • (*default 15.5V*)							
Equalizing charge voltage	PB-14.6V • LI-None • ×2,24V system • (*default 14.6V*)							
Equalizing charge interval	30 days • (*default 30 days*)							
Boost charge voltage (*lead-acid*)	8.5V ~ 17.0V • x2,24V system (*ajustable · default 14.4V*)							
Charge voltage (*lithium*)								
Floating charge voltage (*lead-acid*)	8.5V ~ 17.0V • x2,24V system (*adjustable · default 13.8V*)							
Charge return voltage (*lithium*)								
Over discharge voltage	8.5V ~ 17.0V • x2,24V system • (*adjustable · default 11.0V*)							
Over discharge return voltage	8.5V ~ 17.0V • x2,24V system • (*adjustable · default 12.5V*)							
Temperature compensation coefficient	PB: -3.0mV / °C / 2V (*lithium battery: no compensation*)							
Light control voltage	3V ~ 11V system • ×2,24V 8.5V ~ 17.0V • x2,24V system • (*adjustable · default 5V*)							
Light control delay	0S ~ 60S / 2min ~ 60min • (*adjustable · default 10s*)							
High temperature charge	+40°C ~ +90°C • (*adjustable · default 65°C*)							
Low temperature charge	0°C ~ -35°C • (*aadjustable · default -35°C*)							
Operating temperature	-35°C ~ +65°C							
IP rating	IP67							
Protections	Battery reverse polarity protection, solar panel reverse polarity protection, solar panel over-voltage protection, lithium battery overcharge and over-discharge protection, lithium battery BMS overcharge detection protection, over temperature protection, load open circuit and short circuit protection,							
Weight	260g		400g		510g		770g	
Controller dimensions (*mm*)	80 x 82 x 22,6		114 x 82,3 x 24,5		142 x 82,3 x 24,5		155 x 114,4 x 34	
Controller mounting dimensions (*mm*)	65,5 x 75	66 x 75	82,3 x 74		82,3 x 102		102 x 123	102 x 116
Mounting hole diameter (*mm*)	Ø 3,5							

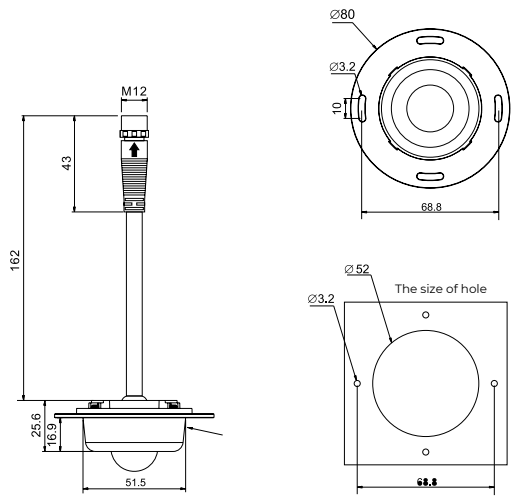
SR-COM

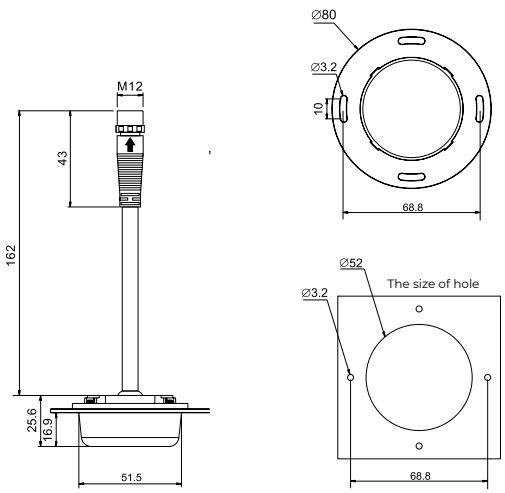
▶ *Sensors for MPPT controllers*

Infrared or microwave

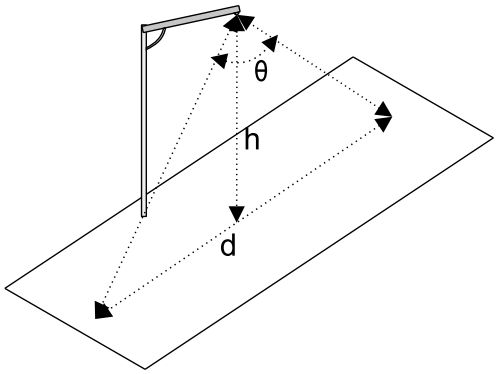
SR-COM-IR

SR-COM-WB





MODEL	SR-COM-IR	SR-COM-WB
Technology de control	IR (*Infrared*)	WB (*microwave*)
Angle (°) θ	60°	65°
Height (*m*) h	6 - 8	6 - 10
Wide (*m*) d	6 - 10	7 - 10
Overall dimensions (*mm*)	80 x 80 x 25,6	
Mounting dimensions (*mm*)	68,8 x 68,8	
Mounting hole diameter (*mm*)	3,2	



CU-ALL

▶ Infrared Remote Control

Commands for programming the controllers

1. There are two modes of infrared and wireless remote control available, the distance of the wireless remote control is adjustable.
2. Wireless remote control signals have excellent penetration and anti-interference ability.
3. Data communication adopts multi-time handshake protocol and data compression algorithm that enables fast and accurate data transmission.
4. It works with two AA batteries.
5. It has an LCD screen that shows the parameters and other informal ones.
6. Enters sleep mode automatically after 65 seconds of inactivity and is activated by pressing any key.
7. Power consumption in standby mode is very low, with a current of only 0.2uA.
8. Quickly wake up from standby mode.
9. Shows the battery level.
10. Designed in accordance with the ergonomic design and suitable for manual operation.

CU-ALL2

CU-ALL5

MODEL	CU-ALL2	CU-ALL5
Battery	Tipo AA (*x2*)	
Power supply voltage	3.0V	
Effective range	8 meters (*infrared mode*) • 15 meters (*WiFi mode*)	
Sleep power consumption	< 0.2uA	
Normal power consumption	5 mA	
Transient power consumption at the point of transmission	< 50mA	
Backlight power consumption	< 15mA	
Dimensions (*L x W x H*)	**122 x 61,5 x 22mm**	**139 x 77 x 44mm**
Weight	60g (*without battery*)	
No-operation time before auto power off (*s*)	65s	
Backlight time (*s*)	10s	
No. of 2.000mAH batteries set (*backlight and light turned off completely*)	50.000	30.000
Operating temperature	-25°C ~ 55°C	

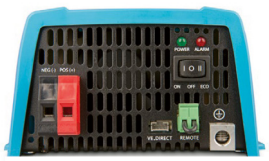
PHOENIX

▶ PHOENIX Inverters with port VE.Direct

250VA - 1.200VA • 230V and 120V • 50Hz or 60Hz

victron energy
BLUE POWER

Phoenix 12/375 VE.Direct



Phoenix 12/375 VE.Direct

Phoenix Inverter	12 volt 24 volt 48 volt	12/250 24/250 48/250	12/375 24/375 48/375	12/500 24/500 48/500	12/800 24/800 48/800	12/1200 24/1200 48/1200
Cont. power at 25°C (*1*)		250VA	375VA	500VA	800VA	1200VA
Cont. power at 25°C / 40°C		200 / 175W	300 / 260W	400 / 350W	650 / 560W	1000 / 850W
Peak power		400W	700W	900W	1500W	2200W
Output AC voltage / frequency (*adjustable*)			230VCA or 120VCA +/- 3%		50Hz or 60Hz +/- 0,1%	
Input voltage range		9,2 - 17 / 18,4 - 34,0 / 36,8 - 62,0V				
DC low shut down (*adjustable*)		9,3 / 18,6 / 37,2V				
Dynamic (*load dependent*) DC low shut down (*fully configurable*)		Dynamic cut-off, see: https://www.victronenergy.com/live/ve.direct:phoenix-inverters-dynamic-cutoff				
DC low restart and alarm (*adjustable*)		10,9 / 21,8 / 43,6V				
Battery charged detect (*adjustable*)		14,0 / 28,0 / 56,0V				
Max. efficiency		87 / 88 / 88%	89 / 89 / 90%	90 / 90 / 91%		91 / 91 / 92%
Zero-load power		4,2 / 5,2 / 7,9W	5,6 / 6,1 / 8,5W	6 / 6,5 / 9W	6,5 / 7 / 9,5W	7 / 8 / 10W
Default zero-load power in ECO mode (*default retry interval: 2,5 s, adjustable*)		0,8 / 1,3 / 2,5W	0,9 / 1,4 / 2,6W	1 / 1,5 / 3,0W		
ECO mode stop and start power setting		Adjustable				
Protection (*2*)		a - f				
Operating temperature range		-40 to +65°C (*fan assisted cooling*) Derate 1,25% per °C above 40°C				
Humidity (*non-condensing*)		max. 95%				
ENCLOSURE						
Material & Colour		Steel chassis and plastic cover (*blue Ral 5012*)				
Battery-connection		Screw terminals				
Maximum cable cross-section		10mm../ AWG8	10mm../ AWG8	10mm../ AWG8	25/10/10mm../ AWG4/8/8	35/25/25 mm² / AWG 2/4/4
Standard AC outlets		230V: Schuko (*CEE 7/4*), IEC-320 (*male plug included*) UK (*BS 1363*), AU/NZ (*AS/NZS 3112*) 120V: Nema 5-15R, GFCI				
Protection category		IP 21				
Weight		2,4kg	3,0kg	3,9kg	5,5kg	7,4kg
Dimensions (*h x w x d, mm*)		86 x 165 x 260		86 x 172 x 275	105 x 216 x 305 (*12V model: 105 x 230 x 325*)	117 x 232 x 327 (*12V model: 117 x 232 x 362*)
ACCESSORIES						
Remote on-off		Yes				
Automatic transfer switch		Filax				
STANDARDS						
Safety		EN-IEC 60335-1 / EN-IEC 62109-1				
EMC		EN 55014-1 / EN 55014-2 / IEC 61000-6-1 / IEC 61000-6-2 / IEC 61000-6-3				
Automotive Directive		ECE R10-4				

1) Nonlinear load, crest factor 3:1
2) Protection key:
a) output short circuit
b) overload
c) battery voltage too high
d) battery voltage too low
e) temperature too high
f) DC ripple too high

MADE IN EUROPE

PHOENIX SMART

▶ PHOENIX SMART Inverters with port VE.Direct

1.600VA - 5.000VA • 210V - 245V • 50Hz or 60Hz

victron energy
BLUE POWER

Phoenix Inverters Smart	12 Volt 24 Volt 48 Volt	12/1600 24/1600 48/1600	12/2000 24/2000 48/2000	12/3000 24/3000 48/3000	24/5000 48/5000
Parallel and 3-phase operation		No			
INVERTER					
Input voltage range		9,3 – 17 V 18,6 – 34 V 3,.2 – 68 V			
Output		Output voltage: 230 VCA ±2% 50 Hz or 60 Hz ± 0,1% (*1*)			
Cont. output power at 25°C (*1*)		1600 VA	2000 VA	3000 VA	5000 VA
Cont. output power at 25°C		1300 W	1600 W	2400 W	4000 W
Cont. output power at 40°C		1200 W	1450 W	2200 W	3700 W
Cont. output power at 65°C		800 W	1000 W	1700 W	2800 W
Peak power		3000 W	4000 W	6000 W	10000 W
Dynamic (*load dependent*) DC low shut down (*fully configurable*)		Dynamic cut-off, see https://www.victronenergy.com/live/ve.direct:phoenix-inverters-dynamic-cutoff			
Max. efficiency 12/ 24 /48 V		92 / 94 / 94%	92 / 94 / 94%	93 / 94 / 95%	95 / 96%
Zero load power 12 / 24 / 48 V		8 / 9 / 11 W	8 / 9 / 11 W	12 / 13 / 15 W	18 / 20 W
Zero load power in ECO mode		0,6 / 1,3 / 2,1 W	0,6 / 1,3 / 2,1 W	1,5 / 1,9 / 2,8 W	2,2 / 3,2 W
GENERAL					
Programmable relay (*2*)		Yes			
Stop & start power ECO-mode		adjustable			
Protection (*3*)		a – g			
Bluetooth wireless communication		For remote monitoring and system integration			
VE.Direct communication port		For remote monitoring and system integration			
Remote on-off		Yes			
Common Characteristics		Operating temperature range : -40 a +65°C (*fan assisted cooling*) Humidity (*non-condensing*): max. 95%			
ENCLOSURE					
Common Characteristics		Material & colour: steel (*blue RAL 5012; and black RAL 9017*) Protection category: IP21			
Battery-connection		M8 bolts	M8 bolts	12 V/24 V: 2+2 M8 bolts 48 V: M8 bolts	24 V: 2+2 M8 bolts 48 V: M8 bolts
230 Vac-connection		Screw terminals			
Weight		12kg	13kg	19kg	29kg / 28kg
Dimensions (*H x W x D*)		485 x 219 x 125mm	485 x 219 x 125mm	533 x 285 x 150mm (*12 V*) 485 x 285 x 150mm (*24 V/48 V*)	595 x 295 x 160mm (*24 V*) 555 x 295 x 160mm (*48 V*)
STANDARDS					
Safety		EN 60335-1			
Emission Immunity		EN 55014-1 / EN 55014-2/ IEC 61000-6-1 / IEC 61000-6-2 / IEC 61000-6-3			
Automotive Directive		ECE R10-5			

1) Non-linear load, crest factor 3:1 3:1
2) Programmable relay that can a.o. be set for general alarm, DC under voltage or genset start/stop function.
   a) AC rating: 230 V / 4 A
   b) DC rating: 4 A / 35 VDC, 1A / 60VDC

3) Protection key
   a) output short circuit
   b) overload
   c) battery voltage too high
   d) battery voltage too low
   e) temperature too high
   f) 230 V AC on inverter output
   g) input voltage ripple too higha

MULTIPLUS

▶ MULTIPLUS Inverter/Charger — 500VA - 2.000VA

12 / 24 / 48V

victron energy
BLUE POWER

MULTIPLUS	12 volt	12/500/20	12/800/35	12/1200/50	12/1600/70	12/2000/80
	24 volt	24/500/10	24/800/16	24/1200/25	24/1600/40	24/2000/50
	48 volt	48/500/6	48/800/9	48/1200/13	48/1600/20	48/2000/25
PowerControl / PowerAssist		No	Yes	Yes	Yes	Yes
Three Phase and parallel operation		No	Yes	Yes	Yes	Yes
Transfer switch		16 A	16 A	16 A	16 A	35 A
INVERTER						
Input voltage range		9,5 – 17 V / 19 – 33 V / 38– 66 V				
Output		Output voltage: 230 VCA ± 2 % • Frequency: 50 Hz ± 0,1 % (1)				
Cont. output power at 25 °C (3)		500 VA	800 VA	1200 VA	1600 VA	2000 VA
Cont. output power at 25 °C		430 W	700 W	1000 W	1300 W	1600 W
Cont. output power at 40 °C		400 W	650 W	900 W	1100 W	1400 W
Cont. output power at 65 °C		300 W	400 W	600 W	800 W	1000 W
Peak power		900 W	1600 W	2400 W	2800 W	3500 W
Maximum efficiency		90 / 91 / 92 %	92 / 93 / 94 %	93 / 94 / 95 %	93 / 94 / 95 %	93 / 94 / 95 %
Zero-load power		6 / 6 / 7 W	7 / 7 / 8 W	10 / 9 / 10 W	10 / 9 / 10 W	10 / 9 / 10 W
Zero-load power in search mode		2 / 2 / 3 W	2 / 2 / 3 W	3 / 3 / 3 W	3 / 3 / 3 W	3 / 3 / 3 W
CHARGER						
AC Input		Input voltage range: 187-265 VCA • Input frequency: 45 – 65 Hz				
Charge voltage 'absorption'		14,4 / 28,8 / 57,6 V				
Charge voltage 'float'		13,8 / 27,6 / 55,2 V				
Storage mode		13,2 / 26,4 / 52,8 V				
Charge current house battery (4)		20 / 10 / 6 A	35 / 16 / 9 A	50 / 25 / 13 A	70 / 40 / 20 A	80 / 50 / 25 A
Charge current starter battery		1 A (*12V and 24V models only*)				
Battery temperature sensor		Yes				
GENERAL						
Programmable relay (5)		Yes				
Protection (2)		a – g				
VE.Bus communication port		For parallel and three phase operation, remote monitoring and system integration (*RJ45-spliter ASS030065510 needed for 500 / 800 / 1200 VA models*)				
Remote on-off		On/off/charger only			On/off	
DIP switches		Yes (6)	Yes (6)	Yes (6)	Yes (7)	Yes (7)
Internal DC fuse		125 / 60 / 30 A	150 / 80 / 40 A	200 / 100 / 50 A	200 / 125 / 60 A	no
Common Characteristics		Operating temp. range: -40 to +65°C (*fan assisted cooling*) Humidity (*non-condensing*): max 95%				
ENCLOSURE						
Common Characteristics		Material & Colour: Steel/ABS (*blue RAL 5012*) • Protection category: IP 21				Steel (*RAL 5012*), IP22
Battery-connection		16 / 10 / 10 mm...	25 / 16 / 10 mm...	35 / 25 / 10 mm...	50 / 35 / 16 mm...	M8 bolts
230V AC-connection		G-ST18i connector				Screw
Weight		4,4 kg	6,4 kg	8,2 kg	10,2 kg	13,5 kg
Dimensions (*H x W x D*)		311 x 182 x 100 mm	360 x 240 x 100 mm	406 x 250 x 100 mm	470 x 265 x 120 mm	500 x 225 x 135 mm
STANDARDS						
Safety		EN-IEC 60335-1, EN-IEC 60335-2-29, EN 62109-1				
Emission Immunity		EN 55014-1, EN 55014-2, EN-IEC 61000-3-2, EN-IEC 61000-3-3, IEC 61000-6-1, IEC 61000-6-2, IEC 61000-6-3				
Automotive Directive		ECE R10-5				

1) Can be adjusted to 60Hz and to 240V

2) Protection:
a) Output short circuit
b) Overload
c) Battery voltage too high
d) Battery voltage too low
h) Temperature too high
f) 230VAC on inverter output
g) Input voltage ripple too high

3) Non-linear load, crest factor 3:1
4) At 25°C ambient
5) Programmable relay which can be set for::
general alarm, DC under voltage or generator start/stop signal function
AC rating: 230V/4A
DC rating: 4A up to 35VDC, 1A up to 60VDC
6) Remote / battery charge voltage / inverter frequency / search mode
7) Battery charge voltage / search mode

MADE IN EUROPE

MULTIPLUS C

▶ MULTIPLUS C Inverter / Charger — 800VA - 5KVA

12 / 24 / 48V

victron energy
BLUE POWER

MultiPlus C	12 volt 24 volt 48 volt	C12/800/35 C24/800/16	C12/1200/50 C24/1200/25	C12/1600/70 C24/1600/40	C12/2000/80 C24/2000/50	12/3000/120 24/3000/70 48/3000/35	24/5000/120 48/5000/70
PowerControl		Yes	Yes	Yes	Yes	Yes	Yes
PowerAssist		Yes	Yes	Yes	Yes	Yes	Yes
Transfer switch (A)		16	16	16	30	16 or 50	100
INVERTER							
Input voltage range (VDC)		9,5 – 17V • 19 – 33V • 38 – 66V					
Output		Output voltage: 230 VAC ± 2% • Frequency: 50 Hz ± 0,1% (1)					
Cont. output power at 25°C (VA) (3)		800	1.200	1.600	2.000	3.000	5.000
Cont. output power at 25°C (W)		700	1.000	1.300	1.600	2.400	4.000
Cont. output power at 40°C (W)		650	900	1.200	1.400	2.200	3.700
Cont. output power at 65°C (W)		400	600	800	1.000	1.700	3.000
Peak power (W)		1.600	2.400	3.000	4.000	6.000	10.000
Maximum efficiency (%)		92 / 94	93 / 94	93 / 94	93 / 94	93 / 94 / 95	94 / 95
Zero-load power (W)		8 / 10	8 / 10	8 / 10	9 / 11	20 / 20 / 25	30 / 35
Zero load power in AES mode (W)		5 / 8	5 / 8	5 / 8	7 / 9	15 / 15 / 20	25 / 30
Zero load power in Search mode (W)		2 / 3	2 / 3	2 / 3	3 / 4	8 / 10 / 12	10 / 15
CHARGER							
AC Input		Input voltage range: 187-265 VCA • Input frequency: 45 – 65 Hz • Power factor: 1					
Charge voltage 'absorption' (VDC)		14,4 / 28,8 / 57,6					
Charge voltage 'float' (VDC)		13,8 / 27,6 / 55,2					
Storage mode (VDC)		13,2 / 26,4 / 52,8					
Charge current house battery (A) (4)		35 / 16	50 / 25	70 / 40	80 / 50	120 / 70 / 35	120 / 70
Charge current starter battery (A)		4 (12 V and 24 V models only)					
Battery temperature sensor		Yes					
GENERAL							
Auxiliary output (5)		n. a.	n. a.	n. a.	n. a.	Yes (16A)	Yes (50A)
Programmable relay (6)		Yes					
Protection (2)		a – g					
VE.Bus communication port		For parallel and three phase operation, remote monitoring and system integration					
General purpose com. port		n. a.	n. a.	n. a.	n. a.	Yes	Yes
Remote on-off		Yes					
Common Characteristics		Operating temp. range: -40 to +65°C (fan assisted cooling) Humidity (non-condensing): max 95%					
ENCLOSURE							
Common Characteristics		Material & Colour: aluminium (blue RAL 5012) • Protection category: IP 21					
Battery-connection		battery cables of 1.5 meter			M8 bolts	Four M8 bolts (2 plus and 2 minus connections)	
230 Vac-connection		G-ST18i connector			Spring-clamp	Screw terminals 13 mm² (6 AWG)	M6 bolts
Weight (Kg)		10	10	10	12	18	30
Dimensions (H x W x D) (mm)		375 x 214 x 110			520 x 255 x 125	362 x 258 x 218	444 x 328 x 240
STANDARDS							
Safety		EN-IEC 60335-1 • EN-IEC 60335-2-29 • IEC 62109-1					
Emission, Immunity		EN 55014-1 • EN 55014-2 • EN-IEC 61000-3-2 • EN-IEC 61000-3-3 • IEC 61000-6-1 • IEC 61000-6-2 • IEC 61000-6-3					
Road vehicles		12V and 24V models: ECE R10-4					
Anti-islanding		See our website					

1) Can be adjusted to 60 HZ. 120 V models available on request

2) Protection key:
a) output short circuit
b) overload
c) battery voltage too high
d) battery voltage too low
h) temperature too high
f) 230 VAC on inverter output
g) input voltage ripple too high

3) Non-linear load, crest factor 3:1
4) At 25 .C ambient
5) Switches off when no external AC source available
6) Programmable relay that can a.o. be set for general alarm, DC under voltage or genset start/stop function
AC rating: 230 V/4A
DC rating: 4 A up to 35 VDC, 1 A up to 60 VDC
7) A.o. to communicate with a Lithium Ion battery BMS

MULTIPLUS-II

▶ MULTIPLUS-II Inverter / Charger — 3.000VA - 10.000VA

12 / 24 / 48V

victron energy
BLUE POWER

MultiPlus-II	12 volt 24 volt 48 volt	12/3000/120-32 24/3000/70-32 48/3000/35-32	24/5000/120-50 48/5000/70-50	48/8000/110-100	48/10000/140-100
PowerControl & PowerAssist		Yes			
Transfer switch		32 A	50 A	100 A	50 A
Maximum AC input current		32 A	50 A	100 A	50 A
INVERTER					
DC Input voltage range		12V - 9,5–17 V • 24 V - 19–33 V • 48 V – 38-66 V			
Output		Output voltage: 230 VAC ± 2 % • Frequency: 50 Hz ± 0,1 % (1)			
Cont. output power at 25 °C (3)		3.000 VA	5.000 VA	8.000 VA	10.000 VA
Cont. output power at 25°C		2.400 W	4.000 W	6.400 W	8.000 W
Cont. output power at 40 °C		2.200 W	3.700 W	5.500 W	7.000 W
Cont. output power at 65 °C		1.700 W	3.000 W	4.000 W	6.000 W
Maximum apparent feed-in power		3.000 VA	5.000 VA	8.000 VA	10.000 VA
Peak power		5.500 W	9.000 W	15.000 W	18.000 W
Maximum efficiency		93 % / 94 % / 95 %	96 %	95 %	96 %
Zero-load power		13 / 13 / 11 W	18 W	29 W	38 W
Zero load power in AES mode		9 / 9 / 7 W	12 W	19 W	27 W
Zero load power in Search mode		3 / 3 / 2 W	2 W	3 W	4 W
CHARGER					
AC Input		Input voltage range: 187-265 VAC • Input frequency: 45 – 65 Hz			
Charge voltage 'absorption'		14,4 / 28,8 / 57,6 V			
Charge voltage 'float'		13,8 / 27,6 / 55,2 V			
Storage mode		13,2 / 26,4 / 52,8 V			
Maximum battery charge current (4)		120 / 70 / 35 A	120 / 70 A	110 A	140 A
Battery temperature sensor		Yes			
GENERAL					
Auxiliary output		Yes (32 A)		Yes (50 A)	
External AC current sensor (optional)		50 A		100 A	
Programmable relay (5)		Yes			
Protection (2)		a – g			
VE.Bus communication port		For parallel (not for 8k and 10k models) and three phase operation, remote monitoring and system integration			
General purpose com. port		Yes, 2x			
Remote on-off		Yes			
Operating temperature range		-40 a +65 °C (fan assisted cooling)			
Humidity (non-condensing)		max. 95 %			
ENCLOSURE					
Material & Colour		Steel, blue RAL 5012			
Protection category		IP22			
Battery-connection		M8 bolts		Four M8 bolts (2 plus and 2 minus connections)	
230 Vac-connection		Screw terminals 13 mm..(6 AWG)		Bolts M6	Bolts M6
Weight		19 kg	30 kg	42 kg	49 kg
Dimensions (H x W x D) (mm)		546 x 275 x 147 499 x 268 x 141 499 x 268 x 141	565 x 328 x 240 560 x 320 x 141	642 x 363 x 206	677 x 363 x 206
STANDARDS					
Safety		EN-IEC 60335-1 • EN-IEC 60335-2-29 • EN-IEC 62109-1 • EN-IEC 62109-2			
Emission, Immunity		EN 55014-1 • EN 55014-2 • EN-IEC 61000-3-2 • EN-IEC 61000-3-3 •IEC 61000-6-1 • IEC 61000-6-2 • IEC 61000-6-3			
Uninterruptible power supply		Please consult the certificates on our website.			
Anti-islanding					

1) Can be adjusted to 60 Hz

2) Protection key:
a) output short circuit
b) overload
c) battery voltage too high
d) battery voltage too lowa
h) temperature too high
f) 230 VAC on inverter output
g) input voltage ripple too high

3) Non-linear load, crest factor 3:1
4) At 25°C ambient
5) Programmable relay which can be set for general alarm, DC under voltage or genset start/stop function. AC rating: 230V / 4A, DC rating: 4A up to 35VDC and 1A up to 60VDC

MADE IN EUROPE

MULTIPLUS-II-GX

▶ MULTIPLUS-II GX Inverter / Charger — 3.000VA - 5.000VA

24 / 48V

victron energy
BLUE POWER

MultiPlus-II-GX 24 volt / 48 volt	24/3000/70-32	48/3000/35-32	48/5000/70-50
PowerControl & PowerAssist	Yes		
Transfer switch	32 A		50 A
Maximum AC input current	32 A		50 A
Auxiliary output	Yes (*32 A*)		
INVERTER			
DC Input voltage range	19 – 33 V	38 – 66 V	
Output	Output voltage: 230 VAC ± 2 % • Frequency: 50 Hz ± 0,1 % (*1*)		
Cont. output power at 25 °C (*3*)	3.000 VA		5.000 VA
Cont. output power at 25 °C	2.400 W		4.000 W
Cont. output power at 40 °C	2.200 W		3.700 W
Cont. output power at 65 °C	1.700 W		3.000 W
Maximum apparent feed-in power	3.000 VA		5.000 VA
Peak power	5.500 W		9.000 W
Maximum efficiency	94 %	95 %	96 %
Zero-load power	13 W	11 W	18 W
Zero load power in AES mode	9 W	7 W	12 W
Zero load power in Search mode	3 W	2 W	2 W
CHARGER			
AC Input	Input voltage range: 187-265 VAC • Input frequency: 45 – 65 Hz		
Charge voltage 'absorption'	28,8 V	57,6 V	
Charge voltage 'float'	27,6 V	55,2 V	
Storage mode	26,4 V	52,8 V	
Maximum battery charge current (*4*)	70 A	35 A	70 A
Battery temperature sensor	Yes		
GENERAL			
Interfaces	BMS-Can • USB • Ethernet • VE.Direct • Wi-Fi		
External AC current sensor (*optional*)	50 A		100 A
Programmable relay (*5*)	Yes		
Protection (*2*)	a – g		
VE.Bus communication port	For parallel and three phase operation • remote monitoring and system integration		
General purpose com. port	Yes • 2x		
Remote on-off	Yes		
Operating temperature	-40 a +65 °C (*fan assisted cooling*)		
Humidity (*non-condensing*)	max. 95 %		
ENCLOSURE			
Material & Colour	Steel, blue RAL 5012		
Protection category	IP22		
Battery-connection	M8 bolts		
230 Vac-connection	Screw terminals 13 mm² (*6 AWG*)		
Weight	19 kg		30 kg
Dimensions (*H x W x D*)	506 x 275 x 147 mm		565 x 323 x 148 mm
STANDARDS			
Safety	EN-IEC 60335-1 • EN-IEC 60335-2-29,EN-IEC 62109-1 • EN-IEC 62109-2		
Emission • Immunity	EN 55014-1 • EN 55014-2 • EN-IEC 61000-3-2 • EN-IEC 61000-3-3 • IEC 61000-6-1 • IEC 61000-6-2 • IEC 61000-6-3		
Uninterruptible power supply	IEC 62040-1		
Anti-islanding	Please consult the certificates on our website.		

1) Can be adjusted to 60 Hz

2) Protection key:
a) output short circui
b) overload
c) battery voltage too high
d) battery voltage too low
h) temperature too high
f) 230 VAC on inverter output
g) input voltage ripple too high

3) Non-linear load, crest factor 3:1
4) At 25 °C ambient
5) Programmable relay which can be set for general alarm,
DC under voltage or genset start/stop function.
AC rating: 230 V / 4 A, DC rating: 4 A up to 35 VDC and 1 A up to 60 VDC

QUATTRO

▶ QUATTRO Inverter / Charger — 3.000VA - 15.000VA

12 / 24 / 48V

victron energy
BLUE POWER

QUATTRO	12 volt 24 volt 48 volt	12/3000/120-50/50 24/3000/70-50/50	12/5000/220-100/100 24/5000/120-100/100 48/5000/70-100/100	24/8000/200-100/100 48/8000/110-100/100	48/10000/140-100/100	48/15000/200-100/100
PowerControl / PowerAssist		Yes				
Integrated Transfer switch		Yes				
AC inputs (*2x*)		Input voltage range: 187-265 VCA • Input frequency: 45 – 65 Hz • Power factor: 1				
Maximum feed through current (*A*)		2 x 50	2 x 100	2 x 100	2 x 100	2 x 100
INVERTER						
Input voltage range (*VDC*)		9,5 – 17V • 19 – 33V • 38 – 66V				
Output (*1*)		Output voltage: 230 VCA ± 2% • Frequency: 50 Hz ± 0,1%				
Cont. output power at 25°C (*VA*) (*3*)		3.000	5.000	8.000	10.000	15.000
Cont. output power at 25°C (*W*)		2.400	4.000	6.400	8.000	12.000
Cont. output power at 40°C (*W*)		2.200	3.700	5.500	6.500	10.000
Cont. output power at 65° C (*W*)		1.700	3.000	3.600	4.500	7.000
Peak power (*W*)		6.000	10.000	16.000	20.000	25.000
Maximum efficiency (*%*)		93 / 94	94 / 94 / 95	94 / 96	96	
Zero-load power (*W*)		20 / 20	30 / 30 / 35	60 / 60	60	110
Zero load power in AES mode (*W*)		15 / 15	20 / 25 / 30	40 / 40	40	75
Zero load power in Search mode (*W*)		8 / 10	10 / 10 / 15	15 / 15	15	20
CHARGER						
Charge voltage 'absorption' (*VDC*)		14,4 / 28,8	14,4 / 28,8 / 57,6	28,8 / 57,6	57,6	
Charge voltage 'float' (*VDC*)		13,8 / 27,6	13,8 / 27,6 / 55,2	27,6 / 55,2	55,2	
Storage mode (*VDC*)		13,2 / 26,4	13,2 / 26,4 / 52,8	26,4 / 52,8	52,8	
Charge current house battery (*A*) (*4*)		120 / 70	220 / 120 / 70	200 / 110	140	200
Charge current starter battery (*A*)		4 (*12 V and 24 V models only*)				
Battery temperature sensor		Yes				
GENERAL						
Auxiliary output (*A*) (*5*)		25	50			
Programmable relay (*6*)		3x				
Protection (*2*)		a - g				
VE.Bus communication port		For parallel and three phase operation, remote monitoring and system integration				
General purpose com. port		2x				
Remote on-off		Yes				
Common Characteristics		Operating temp.: -40 a +65..C • Humidity (*non-condensing*): max. 95%				
Maximum altitude		3.500 m				
ENCLOSURE						
Common Characteristics		Material & Colour: aluminium (*blue RAL 5012*) • Protection category IP 21				
Battery-connection		Four M8 bolts (*2 plus and 2 minus connections*)				
230 Vac-connection		Screw terminals 13 mm² (*6 AWG*)	Bolts M6			
Weight (*Kg*)		19	34 / 30 / 30	45 / 41	51	72
Dimensions (*H x W x D in mm*)		362 x 258 x 218	470 x 350 x 280 444 x 328 x 240 444 x 328 x 240	470 x 350 x 280		572 x 488 x 344
STANDARDS						
Safety		EN-IEC 60335-1 • EN-IEC 60335-2-29 • EN-IEC 62109-1				
Emission, Immunity		EN 55014-1 • EN 55014-2 • EN-IEC 61000-3-2 • EN-IEC 61000-3-3 • IEC 61000-6-1 • IEC 61000-6-2 • IEC 61000-6-3				
Road vehicles		12V and 24V models: ECE R10-4				
Anti-islanding		See our website				

1) Can be adjusted to 60 HZ. 120 V models available on request

2) Protection key:
a) output short circuit
b) overload
c) battery voltage too high
d) battery voltage too low
h) temperature too high
f) 230 VAC on inverter output
g) input voltage ripple too high

3) Non-linear load, crest factor 3:1
4) At 25 .C ambient
5) Switches off when no external AC source available
6) Programmable relay that can a.o. be set for general alarm,
DC under voltage or genset start/stop function
AC rating: 230 V / 4 A
DC rating: 4 A up to 35 VDC, 1 A up to 60 VDC

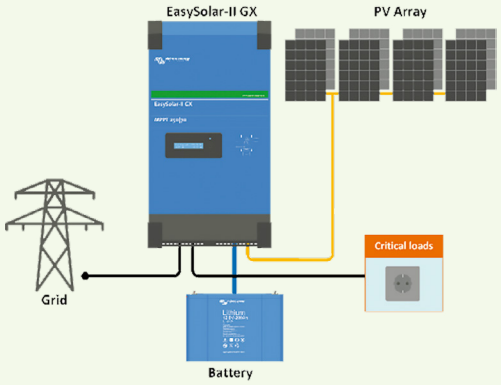
MADE IN EUROPE

EASYSOLAR-II-GX

▶ EASYSOLAR-II-GX inverter / charger — 3.000VA

48/3000/35-32 MPPT 250/70 GX

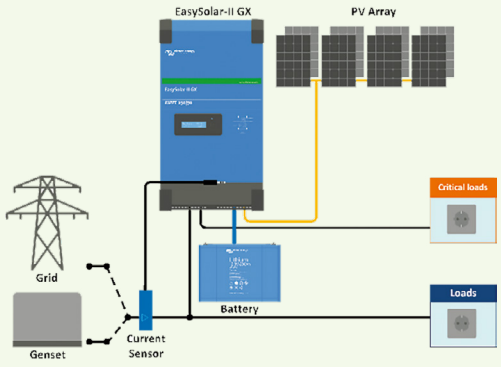
victron energy
BLUE POWER



GRID IN-LINE TOPOLOGY

The ***EasySolar-II GX*** will use excess PV power to charge the batteries or to feed power back into the grid and will discharge the battery or use power from the grid to supplement a shortage of PV power. In case of a power outage, the ***EasySolar-II GX*** will disconnect the grid and continue to supply the loads.

Loads that should shut down when AC input power is not available can be connected to a second output (not shown). These loads will be taken into account by the ***PowerControl*** and ***PowerAssist*** function in order to limit AC input current to a safe value.



GRID PARALLEL TOPOLOGY

The ***EasySolar-II GX*** will use data from the external AC current sensor (must be ordered separately) or power meter to optimise self-consumption and, if required, to prevent grid feed.

In case of a power outage, the ***EasySolar-II GX*** will continue to supply the critical loads.

EasySolar-II GX	EasySolar-II 48/3000/35-32 MPPT 250/70 GX
INVERTER / CHARGER	
PowerControl & PowerAssist	Yes
Transfer switch	32 A
Maximum AC input current	32 A
Auxiliary output	Yes (*32 A*)
INVERTER	
Input voltage range	38 – 66 V
Output	Output voltage: 230 VAC ± 2 % Frequency: 50 Hz ± 0,1 % (*1*)
Cont. output power at 25 °C (*3*)	3000 VA / 2400 W
Cont. output power at 40 °C / 65 °C	2200 W / 1700 W
Maximum apparent feed-in power	3000 VA
Peak power	5500 W
Maximum efficiency	95 %
Zero-load power	11 W
Zero load power in AES mode	7 W
Zero load power in Search mode	2 W
CHARGER	
AC Input	Input voltage range: 187-265 VAC • Input frequency: 45 – 65 Hz
Charge voltage 'absorption'	57,6 V
Charge voltage 'float'	55,2 V
Storage mode	52,8 V
Maximum battery charge current	35 A
Battery temperature sensor	Yes
Programmable relay (*5*)	Yes
Protection (*2*)	a – g
VE.Bus communication port	For parallel and three phase operation, remote monitoring and system integration
General purpose com. port	Yes, 2x
SMART CHARGE CONTROLLER	
Model	SmartSolar MPPT 250/70-Tr
Maximum output current	70 A
Maximum PV power	4000 W
Maximum PV open circuit voltage	250 V
Maximum efficiency	98 %
Self-consumption	20 mA
Charge voltage 'absorption', default	57,6 V
Charge voltage 'float', default	55,2 V
Protection (*2*)	a - e
GENERAL	
Interfaces	BMS-Can, USB, Ethernet, VE.Direct, Wi-Fi
Remote on-off	Yes
Operating temp. range	-40 a +65 °C (*fan assisted cooling*) Max. altitude 2000m
Humidity (*non-condensing*)	max. 95 %
ENCLOSURE	
Material & Colour	aluminium (*blue RAL 5012*)
Protection category	IP21
Battery-connection	M8 bolts
PV connection	Bolts M6
230 Vac-connection	Screw terminals 13 mm² (*6 AWG*)
Weight	26 kg
Dimensions (*H x W x D*)	506 x 275 x 237 mm
NORMAS	
Safety	EN-IEC 60335-1, EN-IEC 60335-2-29 EN-IEC 62109-1, EN-IEC 62109-2
Emission / Immunity	EN 55014-1, EN 55014-2 EN-IEC 61000-3-2, EN-IEC 61000-3-3 IEC 61000-6-1, IEC 61000-6-2, IEC 61000-6-3
Anti-islanding	See our website

BLUESOLAR

▶ BLUESOLAR PWM-LIGHT Charge Controllers

12 / 24V • 5 - 30A

victron energy
BLUE POWER

Blue Solar PWM-Light	12/24-5	12/24-10	12/24-20	12/24-30
Battery Voltage	12/24V (*with automatic system voltage detection*)			
Rated charge current	5 A	10 A	20 A	30 A
Automatic load disconnect	Yes			
Maximum solar voltage	28 V / 55 V (*1*)			
Self-consumption	< 10 mA			
Load output	Manual control + low voltage disconnect			
Protection	Battery reverse polarity (*fuse*) • Output short circuit • Over temperature			
Overload protection	Shut down after 60s in case of 130% load			
	Shut down after 5s in case of 160% load			
	Short circuit: immediate shut down			
Grounding	Common positive			
Operating temp. range	-20 to +50°C (*full load*)			
Humidity (*non-condensing*)	Max. 95 %			
BATTERY				
Charge voltage 'absorption'	14,2 V/28,4 V			
Charge voltage 'float'	13,8 V/27,6 V			
Low voltage load disconnect	11,2 V/22,4 V			
Low voltage load reconnect	12,6 V / 25,2 V (*manual*) • 13,1 V / 26,2 V (*automatic*)			
ENCLOSURE				
Protection class	IP20			
Terminal size	5 mm../ AWG10			
Weight	0,15 kg			0,2 kg
Dimensions (*H x W x D*)	70 x 133 x 33,5 mm			
STANDARDS				
Safety	IEC 62109-1			
EMC	EN 61000-6-1, EN 61000-6-3, ISO 7637-2			

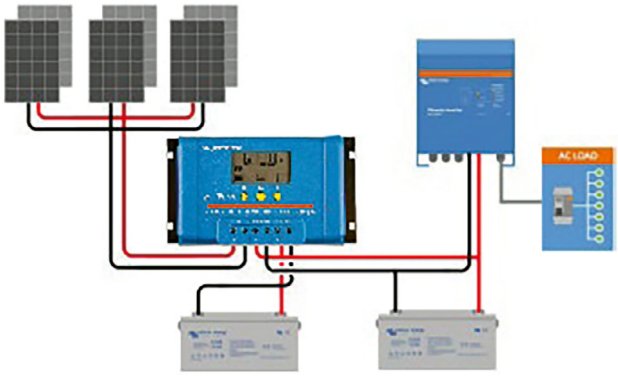
1) For 12V use 36 cell solar panels — For 24V use 72 cell solar panels or 2x 36 cell in series.
2) The controller switches to the lower float voltage level 2 hours after the absorption voltage has been reached. Whenever the battery voltage becomes lower than 13V, a new charge cycle is triggered.

BLUESOLAR

▶ BLUESOLAr Charge Controller PWM DUO LCD&USB

12 /24V • 20A

victron energy
BLUE POWER



BlueSolar PWM-DUO LCD-USB	12/24-20
Battery Voltage	12/24 V with automatic system voltage detection (*for $LiFePO_4$ no automatic system voltage detection*)
Rated charge current	20A
Second battery output	Yes
Load output	2 USB ports 5V/2A
Automatic load disconnect	10,5V / 21V
Maximum solar voltage	28V / 55V (*1*)
Self-consumption	10 mA
Protections	Battery reverse polarity (*fuse*) • Over temperature
Grounding	Common negative
Operating temp. range	-35 to +55°C (*full load*)
Humidity (*non-condensing*)	Max. 95%
DEFAULTS SETTINGS	
Charge voltage 'absorption' (*2*)	14,4V / 28,8V
Charge voltage 'float' (*2*)	13,7V / 27,4V
Battery temperature sensor	Yes, remote sensor (*included*)
Temperature compensation	-30mV/°C / -60mV/°C
ENCLOSURE	
Protection class	IP20
Terminal size	16 mm../ AWG6
Weight	0,30kg
Dimensions (*H x W x D*)	101,5 x 184,0 x 47,1 mm
STANDARDS	
Safety	IEC 62109-1
EMC	EN 61000-6-1 • EN 61000-6-3 • ISO 7637-2

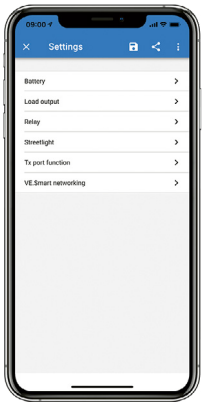
1) For 12V use 36 cell solar panels • For 24V use 72 cell solar panel or 2x 36 cell in series
2) See manual for alternative voltage settings

SMARTSOLAR

▶ SMARTSOLAR Charge Controllers with load output

MPPT 75/100 • MPPT 75/15 • MPPT 100/15 • MPPT 100/20 - 48V

victron energy
BLUE POWER



SmartSolar Charge Controller	MPPT 75/10	MPPT 75/15	MPPT 100/15	MPPT 100/20
Battery Voltage (*auto select*)	12 / 24V			12 / 24 / 48V
Rated charge current	10A	15A		20A
Nominal PV power, 12V 1a,b)	145W	220W		290W
Nominal PV power, 24V 1a,b)	290W	440W		580W
Nominal PV power, 48V 1a,b)	n.a.			1.160W
Max. PV short circuit current 2)	13A	15A		20A
Automatic load disconnect	Yes			
Maximum PV open circuit voltage	75V		100V	
Peak efficiency	98%			
Self-consumption - load on	12V: 19 mA • 24V: 16 mA			26 / 20 / 19 mA
Self-consumption - load off	12V: 10 mA • 24V: 8 mA			10 / 8 / 7 mA
Charge voltage 'absorption'	14,4V / 28,8V (*adjustable*)			14,4V / 28,8V / 57,6V (*adj.*)
Charge voltage 'float'	13,8V / 27,6V (*adjustable*)			13,8V / 27,6V / 55,2V (*adj.*)
Charge algorithm	multi-stage adaptive			
Temperature compensation	-16 mV / °C • -32 mV / °C resp.			
Max. continuous load current	15A			20A / 20A / 1A
Low voltage load disconnect	11,1V / 22,2V / 44,4V u 11,8V / 23,6V / 47,2V or Battery Life algorithm			
Low voltage load reconnect	13,1V / 26,2V / 52,4V o 14V / 28V / 56V or Battery Life algorithm			
Protection	Output short circuit / Over temperature			
Operating temperature	-30 a +60 °C (*full rated output up to 40°C*)			
Humidity	95%, non-condensing			
Data communication port	VE.Direct (*see the data communication white paper on our website*)			
ENCLOSURE				
Colour	Blue (*RAL 5012*)			
Power terminals	6 mm../ AWG10			
Protection category	IP43 (*electronic components*), IP22 (*connection area*)			
Weight	0,5 kg		0,6 kg	0,65 kg
Dimensions (*H x W x D*)	100 x 113 x 40 mm		100 x 113 x 50 mm	100 x 113 x 60 mm
STANDARDS				
Safety	EN/IEC 62109-1 • UL 1741, CSA C22.2			

1a) If more PV power is connected, the controller will limit input power.
1b) The PV voltage must exceed Vbat + 5V for the controller to start. Thereafter the minimum PV voltage is Vbat + 1V
2) A PV array with a higher short circuit current may damage the controller.

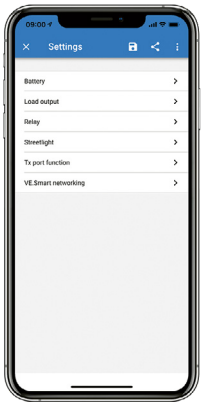
MADE IN EUROPE

SMARTSOLAR

▶ SMARTSOLAR Charge Controllers MPPT

MPPT 100/30 • MPPT 100/50

victron energy
BLUE POWER



SmartSolar Charge Controller	MPPT 100/30	MPPT 100/50
Battery Voltage	12/24V Auto Select	
Rated charge current	30A	50A
Nominal PV power, 12V 1a,b)	440W	700W
Nominal PV power, 24V 1a,b)	880W	1.400W
Maximum PV open circuit voltage	100V	100V
Max. PV short circuit current 2)	35A	60A
Maximum efficiency	98%	98%
Self-consumption	12V: 30 mA • 24V: 20 mA	
Charge voltage 'absorption'	Default setting: 14,4V / 28,8V (*adjustable*)	
Charge voltage 'float'	Default setting: 13,8V / 27,6V (*adjustable*)	
Charge algorithm	multi-stage adaptive	
Temperature compensation	-16 mV / °C, -32 mV / °C resp.	
Protection	PV reverse polarity • Output short circuit • Over temperature	
Operating temperature	-30 to +60°C (*full rated output up to 40°C*)	
Humidity	95%, non-condensing	
Data communication port	VE.Direct • See the data communication white paper on our website	
ENCLOSURE		
Colour	Blue (*RAL 5012*)	
Power terminals	16 mm../ AWG6	
Protection category	IP43 (*electronic components*), IP22 (*connection area*)	
Weight	1,3 kg	
Dimensions (*H x W x D*)	130 x 186 x 70 mm	
STANDARDS		
Safety	EN/IEC 62109-1 • UL 1741, CSA C22.2	

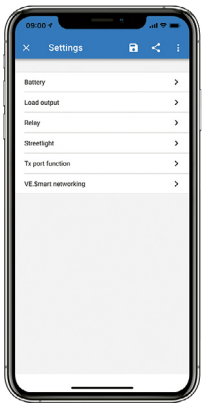
1a) If more PV power is connected, the controller will limit input power.
1b) The PV voltage must exceed Vbat + 5V for the controller to start. Thereafter the minimum PV voltage is Vbat + 1V.
2) A PV array with a higher short circuit current may damage the controller.

SMARTSOLAR

▶ SMARTSOLAR Charge Controller MPPT

MPPT 150/35 • MPPT 150/45

victron energy
BLUE POWER



SmartSolar Charge Controller	MPPT 150/35	MPPT 150/45
Battery Voltage	12 / 24 / 48V Auto Select (*software tool needed to select 36V*)	
Rated charge current	35 A	45 A
Nominal PV power 1a, b)	35 A 12 V: 500 W / 24 V: 1000 W / 36 V: 1500 W / 48 V: 2000 W 45 A 12 V: 650 W / 24 V: 1300 W / 36 V: 1950 W / 48 V: 2600 W	
Max. PV short circuit current 2)	40 A	50 A
Maximum PV open circuit voltage	150 V absolute maximum coldest conditions • 145 V start-up and operating maximum	
Maximum efficiency	98%	
Self-consumption	12V: 20 mA • 24V: 15 mA • 48V: 10mA	
Charge voltage 'absorption'	Default setting: 14,4 / 28,8 / 43,2 / 57,6V (*adjustable*)	
Charge voltage 'float'	Default setting: 13,8 / 27,6 / 41,4 / 55,2V (*adjustable*)	
Charge algorithm	multi-stage adaptive (*eight pre-programmed algorithms*)	
Temperature compensation	-16 mV / -32 mV / -64 mV / °C	
Protection	PV reverse polarity • Output short circuit • Over temperature	
Operating temperature	-30 to +60°C (*full rated output up to 40°C*)	
Humidity	95%, non-condensing	
Data communication port	VE.Direct (*see the data communication white paper on our website*)	
ENCLOSURE		
Colour	Blue (*RAL 5012*)	
Power terminals	16 mm../ AWG6	
Protection category	IP43 (*electronic components*), IP22 (*connection area*)	
Weight	1,25 kg	
Dimensions (*H x W x D*)	130 x 186 x 70 mm	
STANDARDS		
Safety	EN/IEC 62109-1 • UL 1741 • CSA C22.2	

1a) If more PV power is connected, the controller will limit input power.
1b) The PV voltage must exceed Vbat + 5V for the controller to start.
Thereafter the minimum PV voltage is Vbat + 1V.
2) A PV array with a higher short circuit current may damage the controller.

MADE IN EUROPE

SMARTSOLAR

▶ SMARTSOLAR Charge Controllers

with screw- or MC4 PV connection MPPT 150/45 up to MPPT 150/70

victron energy
BLUE POWER

SmartSolar Charge Controller	150/45	150/60	150/70
Battery Voltage	12 / 24 / 48V Auto Select (*software tool needed to select 36V*)		
Rated charge current	45 A	60 A	70 A
Nominal PV power, 12 V 1a,b)	650 W	860 W	1.000 W
Nominal PV power, 24 V 1a,b)	1.300 W	1.720 W	2.000 W
Nominal PV power, 36 V 1a,b)	1.950 W	2.580 W	3.000 W
Nominal PV power, 48 V 1a,b)	2.600 W	3.440 W	4.000 W
Max. PV short circuit current 2)	50 A (*max 30A per MC4 conn.*)		
Maximum PV open circuit voltage	150 V absolute maximum coldest conditions • 145 V start-up and operating maximum		
Maximum efficiency	98 %		
Self-consumption	Less than 35mA @ 12V / 20mA @ 48V		
Charge voltage 'absorption'	Default setting: 14,4 / 28,8 / 43,2 / 57,6 V (*adjustable with: rotary switch, display, VE.Direct or Bluetooth*)		
Charge voltage 'float'	Default setting: 13,8 / 27,6 / 41,4 / 55,2 V (*adjustable with: rotary switch, display, VE.Direct or Bluetooth*)		
Charge voltage 'equalization'	Default setting: 16,2 V / 32,4 V / 48,6 V / 64,8 V (*adjustable*)		
Charge algorithm	multi-stage adaptive (*eight pre-programmed algorithms*) or user defined algorithm		
Temperature compensation	-16 mV / -32 mV / -64 mV / °C		
Protection	PV reverse polarity/Output short circuit/Over temperature		
Operating temperature	-30 to +60°C (*full rated output up to 40°C*)		
Humidity	95%, non-condensing		
Maximum altitude	5000m (*full rated output up to 2000m*)		
Environmental condition	Indoor, unconditioned		
Pollution degree	PD3		
Data communication port	VE.Direct or Bluetooth		
Remote on/off	Yes (*2 pole connector*)		
Programmable relay	DPST AC rating: 240VAC / 4A DC rating: 4A up to 35VDC, 1A up to 60VDC		
Parallel operation	Yes: up to 10 units can be synchronized with Bluetooth		
ENCLOSURE			
Colour	Blue (*RAL 5012*)		
PV terminals 3)	35 mm../ AWG2 (*Tr models*) • Two pairs of MC4 connectors (*MC4 models*)		
Battery terminals	35mm../ AWG2		
Protection category	IP43 (*electronic components*), IP22 (*connection area*)		
Weight	3 kg		
Dimensions (*H x W x D*) in mm	Tr models: 185 x 250 x 95 mm • MC4 models: 215 x 250 x 95 mm		
STANDARDS			
Safety	EN/IEC 62109-1 • UL 1741 • CSA C22.2		

1a) If more PV power is connected, the controller will limit input power.
1b) The PV voltage must exceed Vbat + 5V for the controller to start. Thereafter the minimum PV voltage is Vbat + 1V.
2) A PV array with a higher short circuit current may damage the controller.
3) MC4 models: several splitter pairs may be needed to parallel the strings of solar panels
Maximum current per MC4 connector: 30A (*the MC4 connectors are parallel connected to one MPPT tracker*)

SMARTSOLAR

▶ SMARTSOLAR Charge Controllers

with VE.Can interface MPPT 250/70 VE.Can up to MPPT 250/100 VE.Can

victron energy
BLUE POWER

SmartSolar

SmartSolar Charge Controller with VE.Can interface	250/70	250/85	250/100
Battery Voltage	12/24/48 V Auto Select (*36 V: manual*)		
Rated charge current	70 A	85 A	100 A
Nominal PV power, 12 V 1a,b)	1.000 W	1.200 W	1.450 W
Nominal PV power, 24 V 1a,b)	2.000 W	2.400 W	2.900 W
Nominal PV power, 36 V 1a,b)	3.000 W	3.600 W	4.350 W
Nominal PV power, 48 V 1a,b)	4.000 W	4.900 W	5.800 W
Max. PV short circuit current 2)	35 A (*max 30A per MC4 conn.*)	70 A (*max 30A per MC4 conn.*)	
Maximum PV open circuit voltage	250 V absolute maximum coldest conditions • 245 V start-up and operating maximum		
Maximum efficiency	99 %		
Self-consumption	Less than 35mA @ 12V / 20mA @ 48V		
Charge voltage 'absorption'	Default setting: 14,4 / 28,8 / 43,2 / 57,6 V (*adjustable with: rotary switch, display, VE.Direct or Bluetooth*)		
Charge voltage 'float'	Default setting: 13,8 / 27,6 / 41,4 / 55,2 V (*adjustable with: rotary switch, display, VE.Direct or Bluetooth*)		
Charge voltage 'equalization'	Default setting: 16,2 V / 32,4 V / 48,6 V / 64,8 V (*adjustable*)		
Charge algorithm	adaptativa multietapas (*eight pre-programmed algorithms*) or user defined algorithm		
Temperature compensation	-16 mV / -32 mV / -64 mV / °C		
Protection	PV reverse polarity / Output short circuit / Over temperature		
Operating temperature	-30 a +60 °C (*full rated output up to 40°C*)		
Humidity	95%, non-condensing		
Maximum altitude	5.000 m (*full rated output up to 2000m*)		
Environmental condition	Indoor, unconditioned		
Pollution degree	PD3		
Data communication	VE.Can, VE.Direct y Bluetooth		
Remote on/off	Yes (*2 pole connector*)		
Programmable relay	DPST AC rating: 240 VAC / 4 A DC rating: 4 A up to 35 VDC, 1 A up to 60 VDC		
Parallel operation	Yes, parallel synchronised operation with VE.Can (*max. 25 units*) or Bluetooth (*max. 10 units*)		
ENCLOSURE			
Colour	Blue (*RAL 5012*)		
PV terminals 3)	35 mm../ AWG2 (*Tr models*), Two pairs of MC4 connectors (*MC4 models*)	35 mm../ AWG2 (*Tr models*), Three pairs of MC4 connectors (*MC4 models*)	
Battery terminals	35mm../ AWG2		
Protection category	IP43 (*electronic components*), IP22 (*connection area*)		
Weight	3 kg	4,5 kg	
Dimensions (*H x W x D*) in mm	Tr models: 185 x 250 x 95 mm MC4 models: 215 x 250 x 95 mm	Tr models: 216 x 295 x 103 MC4 models: 246 x 295 x 103	
STANDARDS			
Safety	EN/IEC 62109-1 • UL 1741 • CSA C22.2		

1a) If more PV power is connected, the controller will limit input power.
1b) The PV voltage must exceed Vbat + 5 V for the controller to start. Thereafter the minimum PV voltage is Vbat + 1 V.
2) A PV array with a higher short circuit current may damage the controller.
3) MC4 models: several splitter pairs may be needed to parallel the strings of solar panels
Maximum current per MC4 connector: 30 A (*the MC4 connectors are parallel connected to one MPPT tracker*)

MADE IN EUROPE

SMARTSOLAR

▶ SmartSolar MPPT RS - Isolated

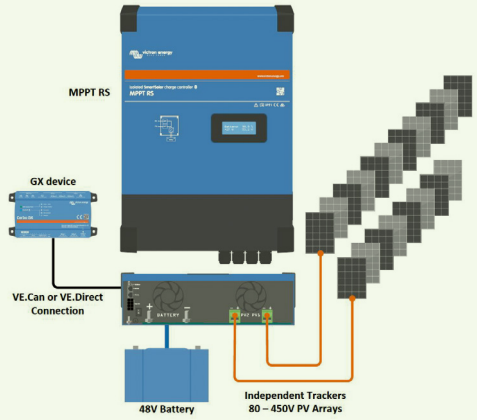
5.76kW & 11.52kW Solar Charge Controller with 450V PV input

victron energy
BLUE POWER

CONFIGURE AND MONITOR WITH VICTRONCONNECT

The built-in Bluetooth Smart connection allows for quick monitoring and settings adjustment.

The built in 30 day history shows individual performance of the separate MPPT trackers.



SYSTEM EXAMPLE DIAGRAM

The 100A **MPPT RS** combined with a GX device, charging a 48V battery with 2 separate solar PV strings

Isolated SmartSolar MPPT RS	450|100	450|200
CHARGER		
Battery Voltage	48 V	
Rated charge current	100 A	200 A
Maximum charge power	5,8 kW a 57,6 V	11,5 kW a 57,6 V
Charge voltage 'absorption'	Default setting: 57,6 V (*adjustable*)	
Charge voltage 'float'	Default setting: 55,2 V (*adjustable*)	
Programmable voltage range	Minimum: 36 V • Maximum: 62 V	
Charge algorithm	Multi-stage adaptive (*adjustable*)	
Battery temperature sensor	Included	
Maximum efficiency	96 %	
Self-consumption	15 mA	
SOLAR		
Maximum DC PV voltage	450 V	
Start-up voltage	120 V	
MPPT operating voltage range	80 – 450 V (*1*)	
Number of trackers	2	4
Max. PV operational input current	18 A per tracker	
Max. PV short circuit current 2)	20 A per tracker	
Max. DC output charging power	4000 W per tracker 5760 W total	4000 W per tracker 11520 W total
Maximum PV array size per tracker (*3*)	7200 Wp (*450 V x 20 A*) (*3*)	
PV Isolation fail level (*4*)	100 kΩ	
GENERAL		
Synchronised Parallel Operation	Yes, up to 25 units with VE.Can	
Programmable relay (*5*)	Yes	
Protection	PV reverse polarity Output short circuit • Over temperature	
Data communication	VE.Direct port, VE.Can port & Bluetooth (*6*)	
General purpose analogue/digital in port	Yes, 2x	
Remote on-off	Yes	
Operating temperature range	-40 a +60°C (*fan assisted cooling*)	
Humidity (*non-condensing*)	Max. 95%	
ENCLOSURE		
Material & Colour	steel, blue RAL 5012	
Protection category	IP21	
Battery-connection	M8 bolts	
Power terminals PV input	2.5...16mm2	
Weight	7,9 kg	13,7 kg
Dimensions (*H x W x D*) in mm	440 x 313 x 126	487 x 434 x 146
NORMAS		
Safety	EN-IEC 62109-1, EN-IEC 62109-2	

1) MPPT operating voltage range is constrained by battery voltage - PV Voc should not exceed 8 x battery float voltage. For example, a 52,8V float voltage results in a maximum PV Voc of 422,4V. See product manual for further information.
2) A higher short circuit current may damage the controller if PV array is connected in reverse polarity.
3) Max. 450 Voc result in appr. 360 Vmpp, therefor the maximum PV array is appr. 360V x 20A = 7200Wp
4) The MPPT RS will test for sufficient resistive isolation between PV+ and GND, and PV- and GND. In the event of a resistance below the threshold, the unit will stop charging, display the error, and send the error signal to the GX device (*if connected*) for audible and email notification.
5) Programmable relay which can be set for general alarm, DC under voltage or genset start/stop function. DC rating: 4A up to 35VDC and 1A up to 70VDC
6) The MPPT RS is currently not compatible with VE.Smart Network

BLUE SMART

▶ BLUE SMART IP65 Charger

12/24V • 25 - 13A

victron energy
BLUE POWER

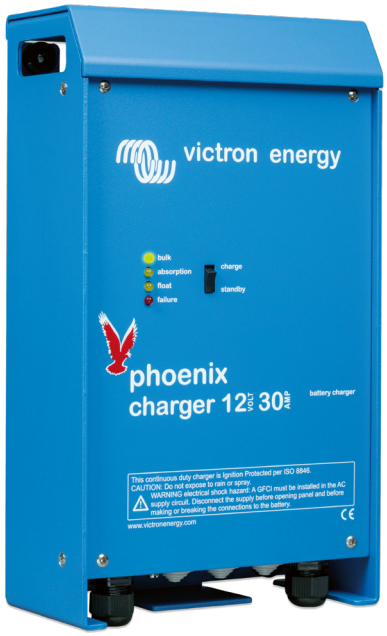
THE VICTRONCONNECT APP

Setup, readout and configure your **Blue Smart IP65** Charger via your smartphone.

You can display the status of your charger and battery and even control the functions of your charger using the **VictronConnect app**.

On your screen the readout of voltage and current is default available.

BlueSmart IP65 Charger	12 V 4/5/7/10/15/25 A	24 V 5/8/13 A
Input voltage	230 VCA	
Efficiency	94%	95%
Standby power consumption	0,5 W	
Minimum battery voltage	Starts charging from down to 0V	
Charge voltage 'absorption'	*Normal:* 14,4 V • *High:* 14,7 V • *Li-Ion:* 14,2 V	*Normal:* 28,8 V • *High:* 29,4 V • *Li-Ion:* 28,4 V
Charge voltage 'float'	*Normal:* 13,8 V • *High:* 13,8 V • *Li-Ion:* 13,5 V	*Normal:* 27,6 V • *High:* 27,6 V • *Li-Ion:* 27,0 V
Charge voltage 'storage'	*Normal:* 13,2 V • *High:* 13,2 V • *Li-Ion:* 13,5 V	*Normal:* 26,4 V • *High::* 26,4 V • *Li-Ion:* 27,0 V
Charge current	4 / 5 / 7 / 10 / 15 / 25 A	5 / 8 / 13 A
Low current mode	2 / 2 / 2 / 3 / 4 / 10 A	2 / 3 / 4 A
Temperature compensation (*lead-acid batteries only*)	16 mV/°C	32 mV/°C
Can be used as power supply	Si	
Back current drain	0,7 Ah/month (*1 mA*)	
Protection	Reverse polarity • Output short circuitte • Over temperature	
Operating temp. range	-40 a +60°C (*full rated output up to 30°C • (cables retain flexibility at low temperature*)	
Humidity (*non-condensing*)	Max 95 %	
ENCLOSURE		
Battery-connection	Black and red cable of 1,5 meter	
230 VAC-connection	Cable of 1,5 meter with • CE 7/16, CE 7/17, BS 1363 plug (*UK*) or AS/NZS 3112 plug	
Protection category	IP65 (*splash and dust proof*)	
Weight	IP65 12V 25A 24V 13A: 1,9kg • Other: 0,9kg	
Dimensions (*H x W x D*)	IP65s 12V 4/5A: IP65 12V 7A 24V 5A: IP65 12V 10/15A 24V 8A: IP65 12V 25A 24V 13A:	45 x 81 x 182 mm 47 x 95 x 190 mm 60 x 105 x 190 mm 75 x 140 x 240 mm
STANDARDS		
Safety	EN 60335-1 • EN 60335-2-29	
Emission	EN 55014-1 • EN 61000-6-3 • EN 61000-3-2	
Immunity	EN 55014-2 • EN 61000-6-1 • EN 61000-6-2 • EN 61000-3-3	



PHOENIX

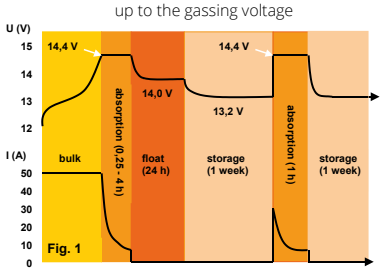
▶ PHOENIX Battery Charger

12/24V • 30 - 25A

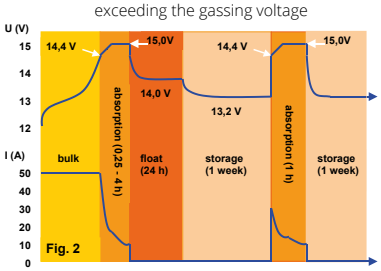
victron energy
BLUE POWER

CHARGE CURVES

up to the gassing voltage



exceeding the gassing voltage



Phoenix Charger	12/30	12/50	24/16	24/25
Input voltage range (*VAC*)	90 - 265			
Input voltage range (*VDC*)	90 - 400			
Frequency (*Hz*)	45 - 65			
Power factor	1			
Charge voltage 'absorption' (*VDC*)	14,4	14,4	28,8	28,8
Charge voltage 'float' (*VDC*)	13,8	13,8	27,6	27,6
Storage mode (*V DC*)	13,2	13,2	26,4	26,4
Charge current house batt. (*A*) (*2*)	30	50	16	25
Charge current starter batt. (*A*)	4	4	4	4
Charge characteristic	4 stage adaptive			
Battery capacity (*Ah*)	100-400	200-800	100-200	100-400
Temperature sensor	√	√	√	√
Can be used as power supply	√	√	√	√
Forced cooling	√	√	√	√
Protection (*1*)	a, b, c, d			
Operating temp. range	-20 a 60°C (*0 - 140°F*)			
Humidity (*non-condensing*)	Max. 95%			
ENCLOSURE				
Material & Colour	aluminium (*blue RAL 5012*)			
Battery-connection	M6 studs			
AC-connection	screw-clamp 4 mm² (*AWG 11*)			
Protection category	IP 21			
Weight (*Kg*)	3,8 (*8*)			
Dimensions (*H x W x D, in mm*)	350 x 200 x 108 mm			
STANDARDS				
Safety	EN 60335-1 • EN 60335-2-29			
Emission Immunity	EN 55014-1 • EN 61000-3-2,			
Automotive Directive	EN 55014-2 • EN 61000-3-3			
Vibration	IEC68-2-6:10-150Hz/1.0G			

1) Protection key:
a) Output short circuit
b) Battery reverse polarity detection
c) Battery voltage too high
d) Temperature too high

2) Up to 40°C (*100°F*) ambient

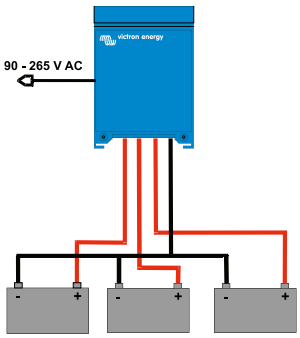
CENTAUR

▶ CENTAUR charger

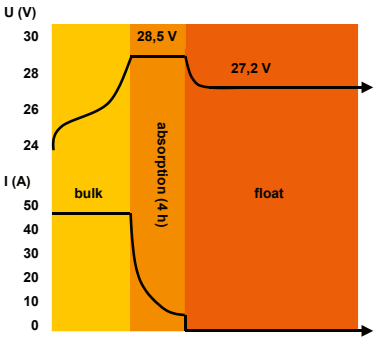
12/24V • 100 - 60A

victron energy
BLUE POWER

Application example



Charge curve



Centaur charger	12V / 24V	12/20	12/30 24/16	12/40	12/50	12/60 24/30	12/80 24/40	12/100 24/60
Input voltage (*VAC*)		90 – 265						
Input voltage (*VDC*)		90 – 400						
Input frequency (*Hz*)		45 – 65						
Power factor		1						
Charge voltage 'absorption' (*VDC*)		14,3 / 28,5 (*1*)						
Charge voltage 'float' (*VDC*)		13,5 / 27,0 (*1*)						
Output banks		3						
Charge current (*A*) (*2*)		20	30 / 16	40	50	60 / 30	80 / 40	100 / 60
Total output ammeter		Yes						
Charge characteristic		IUoU (*Three stage charging*)						
Recommended battery capacity (*Ah*)		80 - 200	120 - 300 45 - 150	160 - 400	200 - 500	240 - 600 120 - 300	320 - 800 160 - 400	400 - 1.000 240 - 600
Temperature sensor		Internal - 2mV / °C (*- 1mV / °F*) per cell						
Forced cooling		Yes, temperature and current controlled fan						
Protection		Output short circuit, over temperature						
Operating temp. range		- 20 a 60°C (*0 - 140°F*)						
Ignition protected		Yes						
Humidity (*non-condensing*)		max 95%						
ENCLOSURE								
Material & Colour		aluminium (*blue RAL 5012*)						
Battery-connection		M6 studs		M8 studs				
AC-connection		screw-clamp 4 mm..(*AWG 6*)						
Protection category		IP 20						
Weight (*Kg*)		3,8		5			12	
Dimensions (*H x W x D, in mm*)		355 x 215 x 110		426 x 239 x 135			505 x 255 x 130	
STANDARDS								
Safety		EN 60335-1 • EN 60335-2-29 • UL 1236						
Emission Immunity		EN 55014-1 • EN 61000-3-2						
Automotive Directive		EN 55014-2 • EN 61000-3-3						

1) Standard setting. Optimum charge/float voltages for Flooded Lead-acid, Gel-Cell or AGM batteries selectable by DIP switch.
2) Up to 40°C (*100°F*) ambient. Output will reduce to approximately 80% of nominalat 50°C (*120°F*) and 60% of nominal at 60°C (*140°F*).

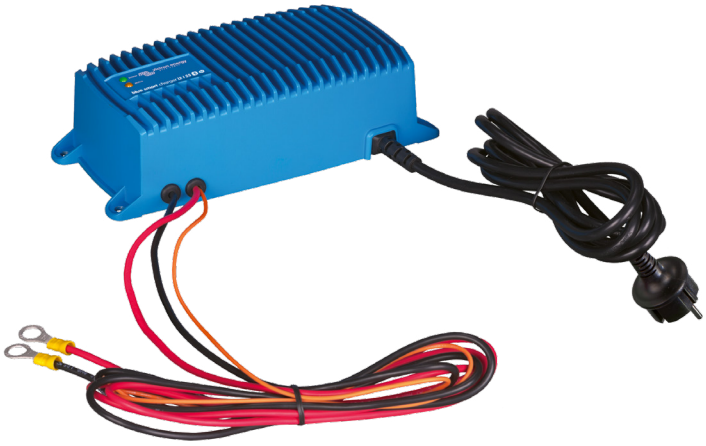
MADE IN EUROPE

BLUE SMART

▶ **BLUE SMART charger • IP67**

12V (7 / 13 / 17 / 25A) • 24V (5 / 8 / 12A)

victron energy
BLUE POWER



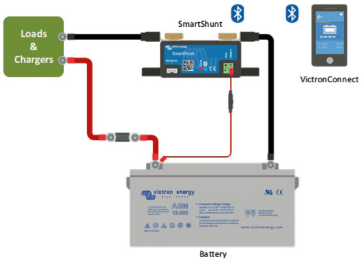
Blue Smart IP67 charger	12/7	12/13	12/17	12/25	24/5	24/8	24/12
Input voltage range and frequency	180-265 VAC 45-65 Hz						
Efficiency	93%	93%	95%	95%	94%	96%	96%
No load power consumption	0,5W						
Charge voltage 'absorption'	Normal: 14,4V • High: 14,7V • Li-ion: 14,2V				Normal: 28,8V • High: 294V • Li-ion: 28,4V		
Charge voltage 'float'	Normal: 13,8V • High: 13,8V • Li-ion: 13,5V				Normal: 27,6V • High: 27,6V • Li-ion: 27,0V		
Charge voltage 'storage'	Normal: 13,2V • High: 13,2V • Li-ion: 13,5V				Normal: 26,4V • High: 26,4V • Li-ion: 27,0V		
Charge current, normal mode	7A	13A	17A	25A	5A	8A	12A
Charge current, LOW	2A	4A	6A	10A	2A	3A	4A
Charge algorithm	5-stage adaptive						
Can be used as power supply	yes						
Protection	Battery reverse polarity (*fuse*) • Output short circuit • Over temperature						
Operating temp. range	-30°C to +60°C (*full rated output up to 40°C*) • Derate 3% per °C above 40°C						
Humidity	Up to 100%						
Start interrupt option (*Si*)	Short circuit proof, current limit 0,5 A Output voltage: max one volt lower than main output						
ENCLOSURE							
Material & Colour	aluminium (*blue RAL 5012*)						
Battery-connection	Black and red cable of 1,5 meter						
230 Vac-connection	Cable of 1,5 meter with CEE 7/7 plug						
Protection category	IP67						
Weight (*Kg*)	1,8		2,4		1,8	2,4	
Dimensions (*H x W x D, in mm*)	85 x 211 x 60		99 x 219 x 65		85 x 211 x 60	99 x 219 x 65	
NORMATIVAS							
Safety	EN 60335-1 • EN 60335-2-29						
Emission Immunity	EN 55014-1 • EN 61000-6-3 • EN 61000-3-2						
Automotive Directive	EN 55014-2 • EN 61000-6-1 • EN 61000-6-2 • EN 61000-3-3						

SMARTHUNT

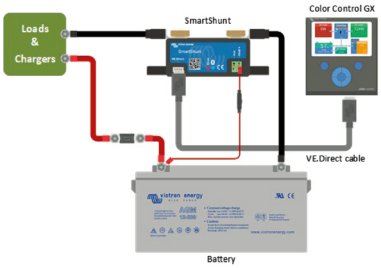
▶ The Smart Battery Shunt

500A / 1.000A / 2.000A

victron energy
BLUE POWER



Basic SmartShunt wiring



Connecting a SmartShunt to a GX device

The **SmartShunt** is an all in one battery monitor, only without a display. Your phone acts as the display.

The **SmartShunt** connects via Bluetooth to the VictronConnect App on your phone (or tablet) and you can conveniently read out all monitored battery parameters, like state of charge, time to go, historical information and much more.

Alternatively, the **SmartShunt** can be connected and be read by a GX device. Connection to the **SmartShunt** is made via a VE.Direct cable.

The **SmartShunt** is a good alternative for a BMV battery monitor, especially for systems where battery monitoring is needed but less wiring and clutter is wanted.

The **SmartShunt** is equipped with Bluetooth, a VE.Direct port and a connection that can be used to monitor a second battery, for midpoint monitoring, or to connect a temperature sensor.

SmartShunt	500A / 1000A / 2000A
Supply voltage range	6,5 – 70V CC
Current draw	< 1mA
Input voltage range, auxiliary battery	6,5 – 70V CC
Battery capacity (*Ah*)	1 - 9.999Ah
Operating temperature range	-40 +50°C (*-40 - 120°F*)
Measures voltage of second battery, or temperature, or midpoint	Yes
Temperature measurement range	-20 +50°C
VE.Direct communication port	Yes
RESOLUTION & ACCURACY	
Current	± 0,01A
Voltage	± 0,01V
Amp hours	± 0,1 Ah
State of charge (*0 - 100%*)	± 0,1%
Time to go	± 1 min
Temperature (*if optional temperature sensor connected*)	± 1°C/°F (*0 - 50°C or 30 - 120°F*)
Accuracy of current measurement	± 0,4%
Offset	Less than 20 / 40 / 80 mA
Accuracy of voltage measurement	± 0,3%
INSTALLATION & DIMENSIONS	
Dimensions (*H x W x D*)	500A: 46 x 120 x 54 mm 1.000A: 68 x 120 x 54 mm 2.000A: 68 x 120 x 76 mm
Protection category	IP21
STANDARDS	
Safety	EN 60335-1
Emission / Immunity	EN-IEC 61000-6-1 EN-IEC 61000-6-2 EN-IEC 61000-6-3
Automotive	EN 50498
ACCESSORIES	
Cables (*included*)	Two cables with 1A fuse, for '+' connection and starter battery or midpoint connection
Temperature sensor	Optional (*ASS000100000*)

MADE IN EUROPE

VICTRON ACCESSORIES

▶ Monitors and battery monitoring screens

GX LTE 4G

LYNX SHUNT VE.CAN

VE.DIRECT BLUETOOTH SMART DONGLE

BMV-712 SMART

BMV-702

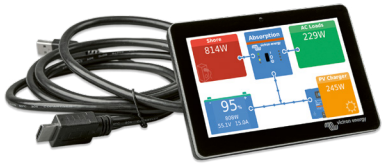
CERBO GX

ORION 12/24/48

BATTERY BALANCER

Colour CONTROL GX

RJ45 NETWORK CABLES



GX TOUCH 50

DIGITAL MULTI CONTROL 200/200 GX

VE. BUS SMART DONGLE

BUSBARS 150, 250 & 600 AMPS

BATERY SWITCH ON / OFF 275A

ARV *installation in a factory*

ARI *installation in a kitchen*

MICRO PLUS
Germany

ARI *installation in a workshop*

Double height **CAT** *installation*

Electric charging *stations with containers*


MICRO PLUS
Germany
MICRO PLUS
Germany


Germany


Electric CAR
CHARGER


Electric CAR
CHARGER

MEDICAL CLINIC

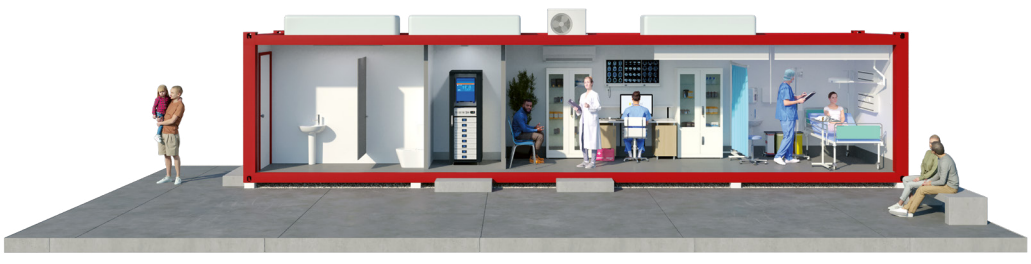
▶ Portable and self-sufficient hospital

This 40-foot container is intended for rural areas, areas far from electrical power or small towns for medical assistance in places where there are no hospitals.

This container is transportable by truck and also stackable in maritime containers, so its transport is normal compared to other types of containers.

The measurements are standard and are approved to be able to be introduced into the stowage of the same as well as their anchors.

The panels to produce the energy travel inside the container as well as the structure that only needs to be screwed on the top. Depending on the amount of energy we need, this number of panels can be increased as well as the accumulation of batteries that it carries inside, so each container is designed for each destination and with the requirements that the client needs.



They can be

20" or 40" containers.

Inside we have bathrooms for men and women with their corresponding water that we normally store from rain.

In the other cavity of the container there is the battery equipment, inverter and controllers.

Energy can be produced during the day and feed the mini hospital, but also when the light goes out and dusk begins, the energy generated during the day is stored in the batteries from **MicroPlus Germany** and can supply energy during the night.

In the medical care compartment there is a table with a chair for the doctor and two chairs for customer care, an articulated table for examining the customer as well as all the medical utensils necessary for first aid. The medical equipment can vary according to the needs you want. This allows you to have a hospital in any region of the country with its own energy within an hour to be able to attend to any emergency or any epidemic or vaccination of the population. This hospital can be transported to another town in a matter of hours.

In short, a system of containers that can be joined (*even several*) to make a larger hospital. And resolve in record time the assistance for first aid, detecting diseases, such as delivery rooms; increasing the quality of assistance to the population that governments must take into account to make day to day life easier.

MOBILE BANK

▶ In 20 - 40 feet container, with 3 ATM and office.

This 20 or 40 foot container is intended for rural areas, areas far from electricity or small towns to assist clients with banking transactions or cash withdrawals from ATMs, in places where there are no banks.

This container is transportable by truck and also stackable in maritime containers, so its transport is normal compared to other types of containers.

The measurements are standard and they are approved to be able to be introduced into the stowage of the same as well as their anchors.

The panels to produce the energy travel inside the container as well as the structure that only needs to be screwed on the top. Depending on the amount of energy we need, this number of panels can be increased as well as the accumulation of batteries that it carries inside, so each container is designed for each destination and with the requirements that the client needs.

Inside we have bathrooms for women and men with their corresponding water that we normally store from the rain.

They can be

20" or 40" containers.

In 20 - 40 feet container, with 3 ATM and office.

In the other cavity of the container there is the battery equipment, inverter and controllers. The energy can be produced during the day and feed the bank and its ATMs, but also when the light goes out and dusk begins the energy generated during the day is stored in the batteries from **MicroPlus Germany** and can supply energy during the night to the ATM terminals.

In the MobileBank compartment there is a table with a chair for the director and two chairs for customer service. The office equipment can vary according to the needs desired. This allows within an hour to have a MobileBank in any region of the country with its own energy to be able to attend to any need, event of the population. This MobileBank can be transported to another town in a matter of hours.

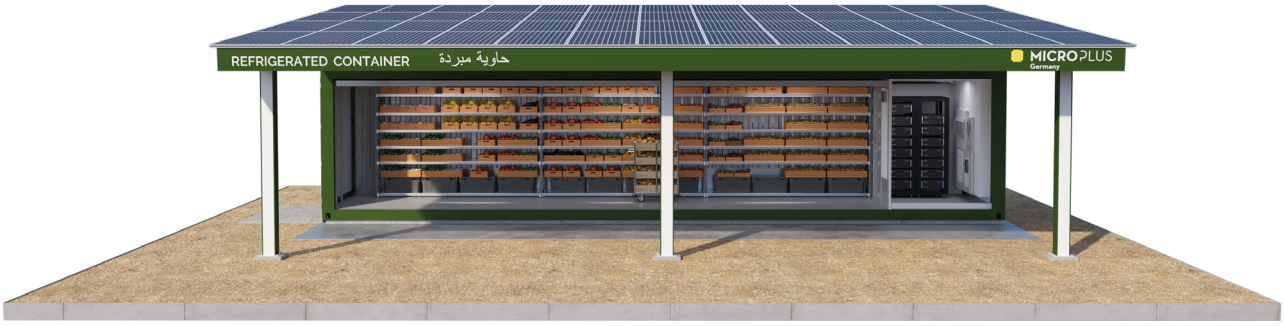
In short, a system of containers that can be joined (*even several*) to make a larger banking complex.

Its great rigidity and robustness will avoid possible vandalism, any complement that is needed will be made to the client's measure.

Some African countries require banks to have a branch in towns that do not even have electricity, and this would be the optimal solution for this purpose.

REFRIGERATED SOLAR CONTAINERS
for fruits and vegetables

- **Estimated photovoltaic production 140kW**
  44kW battery storage



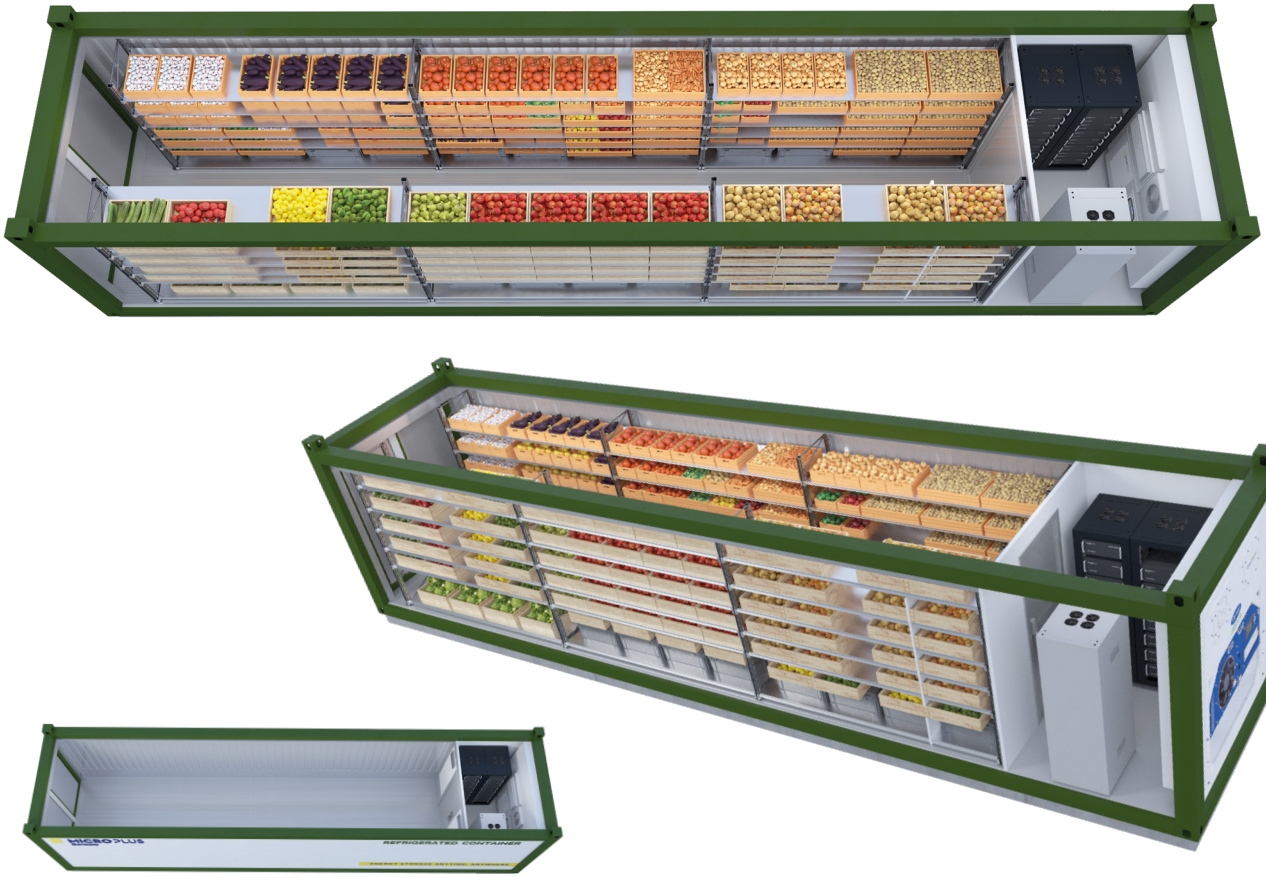
Introducing the new **MicroPlus Germany** solution for food storage containers.

It is a 40-foot container with a special air conditioning system to cool from 6 to 10° of temperature, adjustable inside the container, with battery accumulators and an inverter to work together with the air conditioning. Powered by photovoltaic panels that would be placed on top of the container at the destination farm.

This system allows (*all those who are agricultural organizations*) to be able to preserve tomatoes or any other vegetable, so that any country in Africa or America does not have problems of deterioration, since they are subjected (*after harvest*) to high temperatures and the mere fact that the possibility of placing these fruits in these containers will facilitate their conservation until they are transported to other cold chambers or transported to other countries.

These containers are insulated, the interior is made of stainless steel and has electric lighting.

Solar energy containers, with air conditioning system, batteries and inverter



MODEL /REF	CC-140
SOLAR PANEL	
Number of panels (*units*) 540Wp	40
Total panel power (*Wp*)	21.600
Minimum daily generation: 4 hours of sun (*Wp*)	86.400
Maximum daily generation: 6 hours of sun (*Wp*)	**129.600**
STORED ENERGY	
Lithium battery voltage (*Vdc*)	51.2
Module model	MP-BT/51.2-0280
Number of lithium battery modules (*pcs*)	4
Energy stored in batteries (*Wh*)	**57.200**
INVERTER / CONTROLLER	
Inverter model	QUATTRO 48/10.000/140/100
Maximum inverter power (*Wp*)	20.000
Nominal inverter power (*W*)	10.000
Output voltage (*Vac*)	230
Regulator charge current (*ADC*)	2 x SMART SOLAR MPPT 450-200
DIMENSIONS	
Container (*width x length x height*) (*m*)	12 x 2,44 x 2,59
Weight (*kg*)	4.250

CONTENEDOR-20

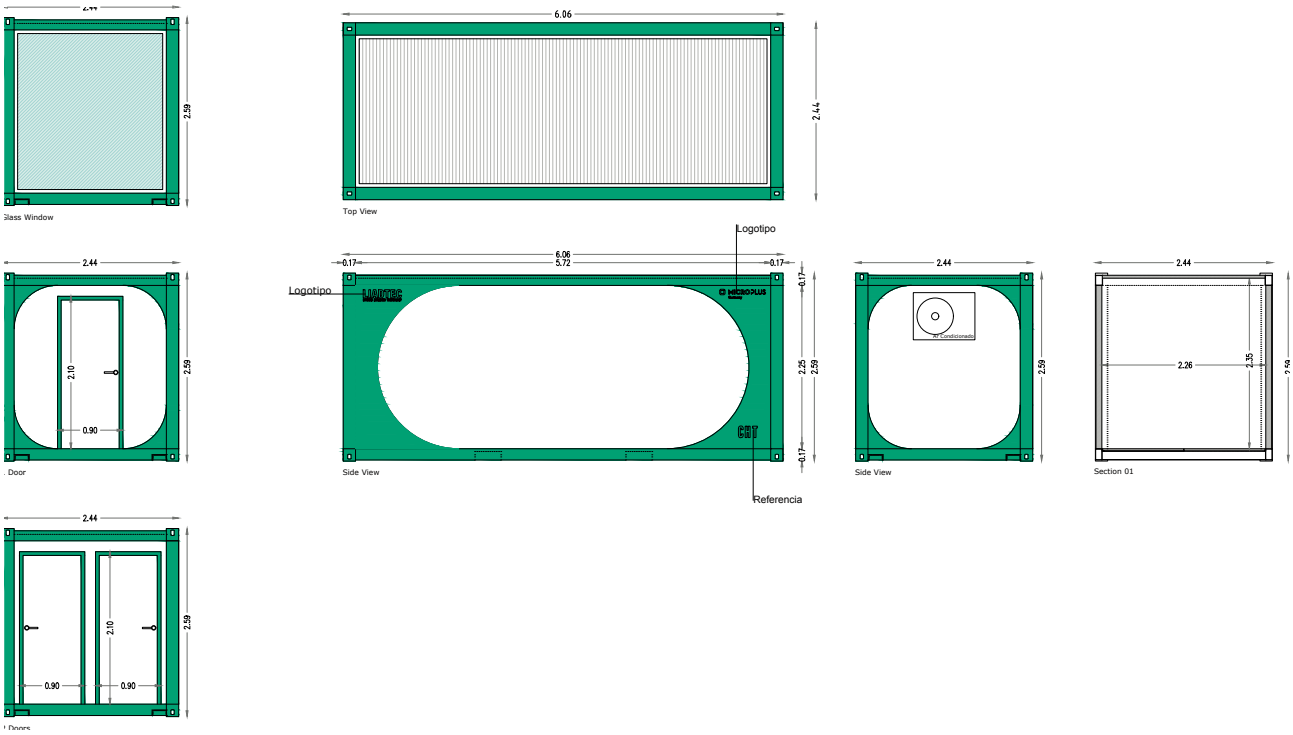
▶ 20" containers

The containers are made of high-quality iron, all sides are made of 4 cm fireproof sandwich panels and with metal reinfo**RCE**ments on the inside to prevent vandalism.

The doors are made of reinfo**RCE**d steel to prevent intrusion; with safety locks to the floor and the floor is made of fireproof wood panels with marine applications so that they do not deteriorate over a long period of time.

All these containers have a 10-year guarantee.

The measurements of the 20" containers are those attached in this graph.



MICRO PLUS
Germany

CONTENEDOR-40

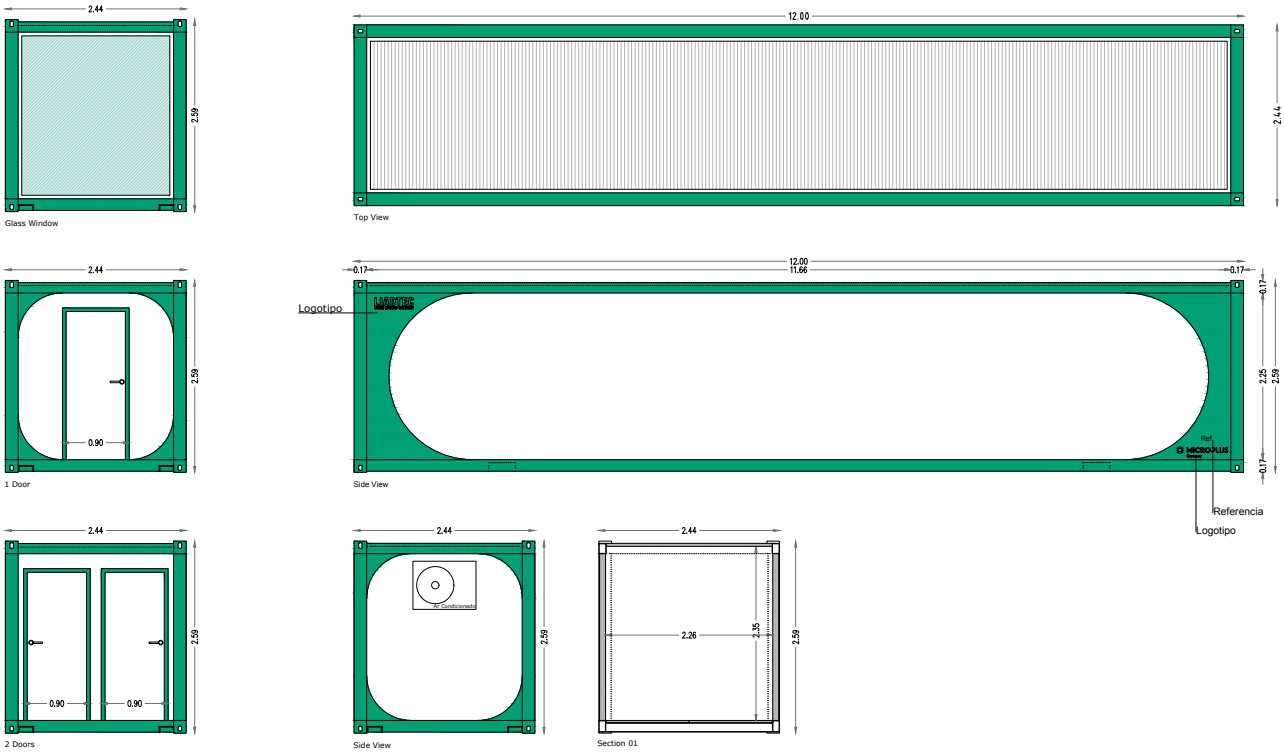
▶ 40” containers

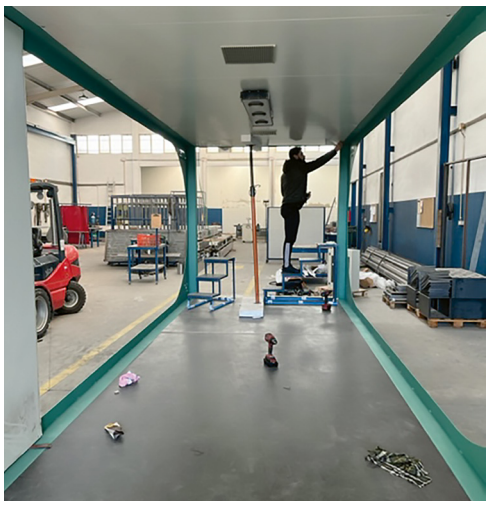
We offer the ability to manufacture custom containers, whether 10, 20 or 40 feet, to meet the specific needs of each client. These containers are designed to house both batteries and other electrical components, adapting in a versatile way to various applications.

Our containers can be customized with side doors, thus facilitating access to the batteries. In addition, we have stackable manufacturing options, which optimizes space in places where efficiency is required.

We highlight the manufacture of refrigerated solar containers, ideal for supplying energy to banking systems, mobile hospitals and other critical applications. We are committed to meeting the demands of different sectors, from charging electric vehicles to any other specific need that our clients may have.

The measurements of the 40” containers are those attached in this graph.





ALPHABETICAL INDEX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