

## Hybridná elektráreň

S výkonom 5,46 kWp v paneloch a 10,8 kWh v LiFePO4 batérií

### Ponuka obsahuje:



12x Fotovoltický panel  
Hybridný menič  
3x LiFePO4 batéria  
Nemecká konštrukcia  
AC a DC istenie  
Ostatný materiál  
Administratíva  
Ostatné služby

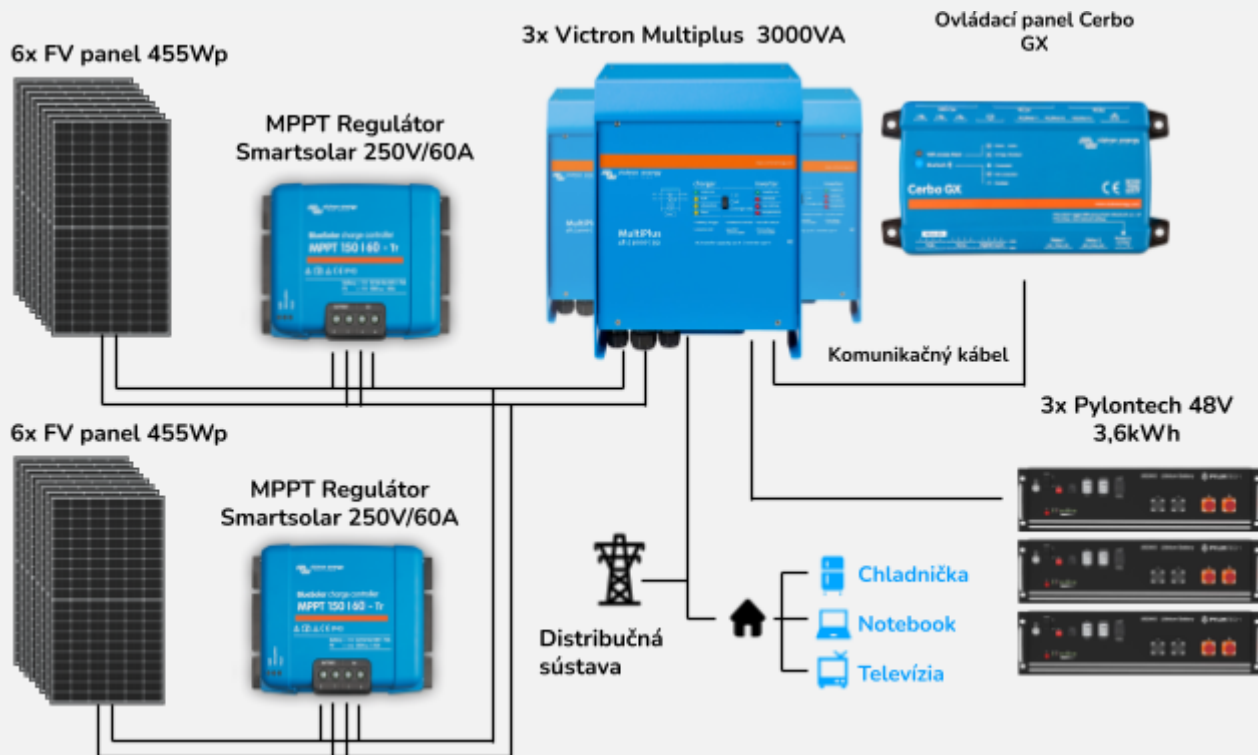
Monokryštalický panel 455Wp  
3x Victron Multiplus 3000 VA + Cerbo GX + 2x MPPT 250V/60A  
Pylontech US3000C Plus 48V 3,6 kWh  
Mounting Systems, GmbH  
ETI, Citel, OEZ  
Inštalačný materiál, kabeláž, chráničky, lišty  
Revízná správa, vybavenie dotácie a pripojenia do DIS  
Doprava, uvedenie do prevádzky, zaškolenie

Celková cena

19 000 € s DPH

Po odpočítaní dotácie (-1 500€)

17 500 € s DPH



## Prognóza energetických výnosov počas roka

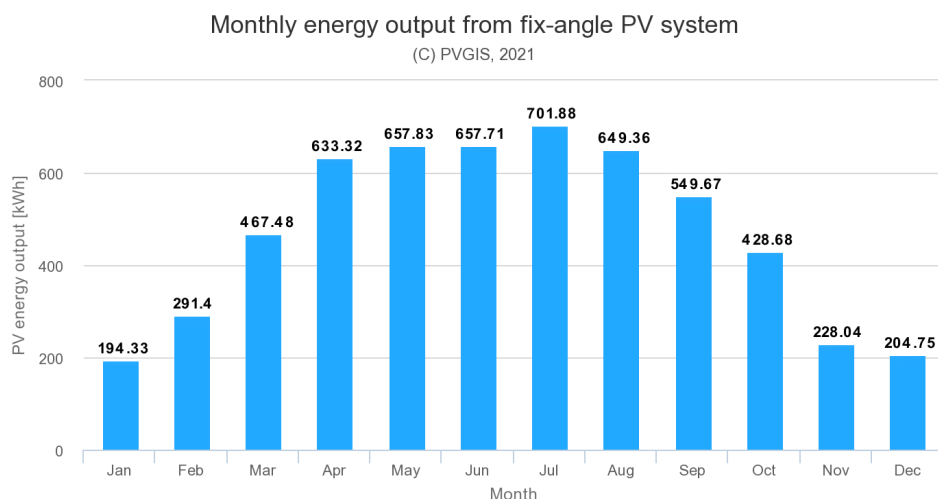
Na základe Vašej lokality, orientácie strechy a sklonu strechy Vám vieme vypočítať prognózu výroby elektrárne.

Výpočet sa odráža od priemerných dát poskytovaných Európskou úniou v rámci projektu JRC (odkaz: [https://re.jrc.ec.europa.eu/pvg\\_tools/en/tools.html](https://re.jrc.ec.europa.eu/pvg_tools/en/tools.html)).

\*štandardná aplikácia: orientácie strechy na juh, bez zatienevia a so sklonom 35 stupňov.  
Dôležitým predpokladom plného využitia výkonu je dostatočný odber energie počas dňa.

## Mesačná (denná) produkcia solárneho systému

Ukážková výroba sieťovej elektrárne s výkonom 5,46 kWp\*



### Priemerná denná výroba energie

v Januári cca **6,3 kWh / deň**  
v Máji cca **21,2 kWh / deň**  
v Júli cca **22,6 kWh / deň**  
v Septembri cca **17,7 kWh / deň**  
v Decembri cca **6,6 kWh / deň**

Za celý rok dokáže systém **vyrobiť cca 5664 kWh.**

Číslo	Položka	Typ	Počet
1	FV panely	Longi MONO- 455 Wp (poprípade iná dostupná alternatíva)	12
2	Menič	Victron Multiplus 3000VA + Cerbo GX	3
3	Regulátor	Victron MPPT SmartSolar 250/60	2
4	Batéria	Pylontech US3000C Plus 48V 3,6 kWh	3
5	Konštrukcia	Šikmá strecha Renusol Germany * <b>konštrukcia na rovnú</b>	1
6	Inštenie, kabeláž	Kabeláž, istenie na AC aj DC strane. ETI a Citel	1
7	Príslušenstvo	Solárny silový kábel 6mm, MC4 Páry	1
8	Montáž	+ doprava, oživenie, skúšky	1
9	Administratíva	Získanie dotácie od štátu	1
10	Administratíva	Pripojenie do distribučnej siete (komunikácia s DIS)	1
11	Administratíva	Projektová dokumentácia a revízna správa	1
12	Administratíva	Revízna správa	1
<b>Spolu</b>			<b>19 000 € s DPH</b>
<b>Spolu po odčítaní dotácie</b>		<b>-1 500 €</b>	<b>17 500 € s DPH</b>

## Voliteľné príslušenstvo

Solárny panel 455Wp + konštrukcia	+270 € / kus
Batéria Pylontech 3,6kWh	+1800 € / kus
PylonBox - rack na 8ks batérií Pylontech	+500 €
Wattrouter na reguláciu prebytkov + zapojenie	+500 €
Povinné príslušenstvo v prípade lokality spadajúcej pod ZSD a.s.	+290 €
Povinné príslušenstvo v prípade lokality spadajúcej pod SSD a.s	+50 €
* <b>konštrukcia na rovnú</b>	+1200 €

## Výhody našej ponuky

### 1 Záruky na zariadenia

#### ✓ Solárne panely

12 rokov na produkt a vyhotovenie  
25 rokov na dodávanie 80.6% nominálneho výkonu

#### ✓ Menič a batéria

Značky (Pylontech, Victron)  
5 rokov na menič, 10 rokov na batériu

### 2 Monitoring

- ✓ Wifi
- ✓ Monitoring výroby elektrárne
- ✓ Monitoring spotreby v domácnosti
- ✓ Možnosť riešenia problémov na diaľku



### 3 Riadenie prebytkov

### 4 10 Rokov na trhu

### 5 Certifikácie

Dizajn a inštalácia ostrovných fotovoltaických elektrární a poradca v oblasti fotovoltaiky.

### 6 Skúsenosti

Inštalácie, Administratíva, 10 rokov na trhu.

## O nás

Sme firma ktorá sa venuje predaju a výrobe energetických a ekologických produktov na e-shope, zároveň sme špecialisti na predaj, navrhovanie a inštalovanie solárnych systémov.

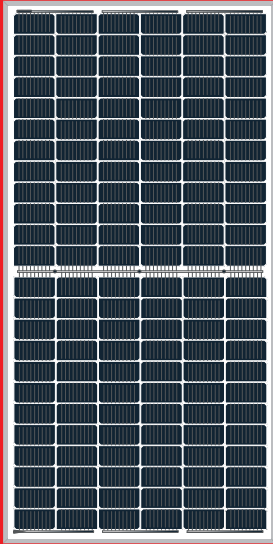
Na trhu pôsobíme od roku 2010, a neustále rastieme. Snažíme sa naším zákazníkom doručovať najkvalitnejšie riešenia navrhnuté na mieru podľa Vašich potrieb.

Dôraz kladieme nato, aby naše vedomosti na poli fotovoltiky boli čo najaktuálnejšie. To sa týka aktuálnych technológií, legislatívy, dotačných programov, či technických noriem.

Radi Vám doručíme Wow službu, či produkt, ktorú by sme si sami radi kúpili!



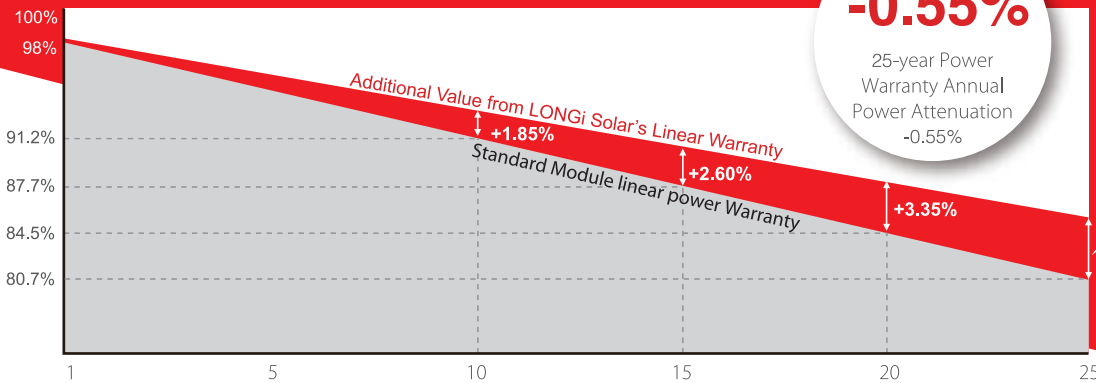
# LR4-72HPH 425~455M



**High Efficiency  
Low LID Mono PERC with  
Half-cut Technology**

\*Both 6BB & 9BB are available

12-year Warranty for Materials and Processing;  
25-year Warranty for Extra Linear Power Output



**-0.55%**

25-year Power  
Warranty Annual  
Power Attenuation  
-0.55%

**+4.10%**

## Complete System and Product Certifications

IEC 61215, IEC 61730, UL 61730  
ISO 9001:2008: ISO Quality Management System  
ISO 14001:2004: ISO Environment Management System  
TS62941: Guideline for module design qualification and type approval  
OHSAS 18001: 2007 Occupational Health and Safety



\* Specifications subject to technical changes and tests.  
LONGi Solar reserves the right of interpretation.

**Positive power tolerance** (0 ~ +5W) guaranteed

**High module conversion efficiency** (up to 20.9%)

**Slower power degradation** enabled by Low LID Mono PERC technology: first year <2%, 0.55% year 2-25

**Solid PID resistance** ensured by solar cell process optimization and careful module BOM selection

**Reduced resistive loss** with lower operating current

**Higher energy yield** with lower operating temperature

**Reduced hot spot risk** with optimized electrical design and lower operating current

# LONGi

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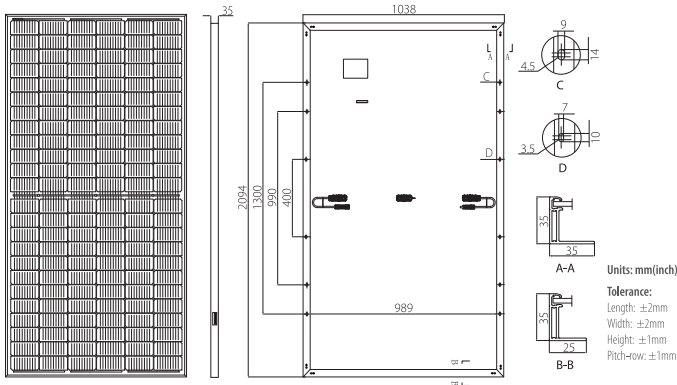
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\* These Modules are not offered, distributed or supplied to Germany by the LONGi Group.  
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20200401V11

# LR4-72HPH 425~455M

## Design (mm)



## Mechanical Parameters

Cell Orientation: 144 (6×24)  
Junction Box: IP68, three diodes  
Output Cable: 4mm<sup>2</sup>, 300mm in length,  
length can be customized  
Glass: Single glass  
3.2mm coated tempered glass  
Frame: Anodized aluminum alloy frame  
Weight: 23.5kg  
Dimension: 2094×1038×35mm  
Packaging: 30pcs per pallet  
150pcs per 20'GP  
660pcs per 40'HC

## Operating Parameters

Operational Temperature: -40 C ~ +85 C  
Power Output Tolerance: 0 ~ +5 W  
Voc and Isc Tolerance: ±3%  
Maximum System Voltage: DC1500V (IEC/UL)  
Maximum Series Fuse Rating: 20A  
Nominal Operating Cell Temperature: 45±2 C  
Safety Class: Class II  
Fire Rating: UL type 1 or 2

## Electrical Characteristics

Test uncertainty for Pmax: ±3%

Model Number	LR4-72HPH-425M		LR4-72HPH-430M		LR4-72HPH-435M		LR4-72HPH-440M		LR4-72HPH-445M		LR4-72HPH-450M		LR4-72HPH-455M	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax/W)	425	317.4	430	321.1	435	324.9	440	328.6	445	332.3	450	336.1	455	339.8
Open Circuit Voltage (Voc/V)	48.3	45.3	48.5	45.5	48.7	45.7	48.9	45.8	49.1	46.0	49.3	46.2	49.5	46.4
Short Circuit Current (Isc/A)	11.23	9.08	11.31	9.15	11.39	9.21	11.46	9.27	11.53	9.33	11.60	9.38	11.66	9.43
Voltage at Maximum Power (Vmp/V)	40.5	37.7	40.7	37.9	40.9	38.1	41.1	38.3	41.3	38.5	41.5	38.6	41.7	38.8
Current at Maximum Power (Imp/A)	10.50	8.42	10.57	8.47	10.64	8.53	10.71	8.59	10.78	8.64	10.85	8.70	10.92	8.75
Module Efficiency(%)	19.6		19.8		20.0		20.2		20.5		20.7		20.9	

STC (Standard Testing Conditions): Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25 C, Spectra at AM1.5

NOCT (Nominal Operating Cell Temperature): Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20 C, Spectra at AM1.5, Wind at 1m/s

## Temperature Ratings (STC)

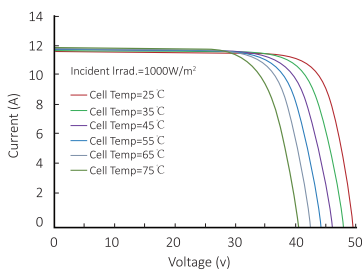
Temperature Coefficient of Isc	+0.048%/C
Temperature Coefficient of Voc	-0.270%/C
Temperature Coefficient of Pmax	-0.350%/C

## Mechanical Loading

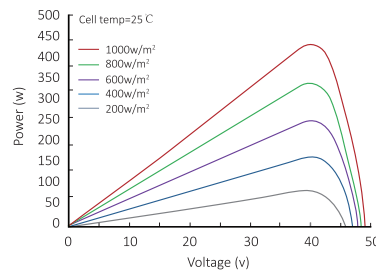
Front Side Maximum Static Loading	5400Pa
Rear Side Maximum Static Loading	2400Pa
Hailstone Test	25mm Hailstone at the speed of 23m/s

## I-V Curve

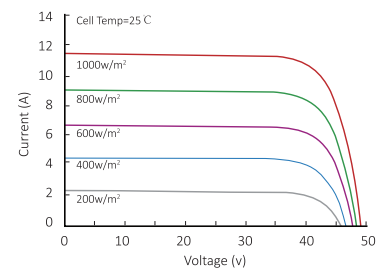
Current-Voltage Curve (LR4-72HPH-440M)



Power-Voltage Curve (LR4-72HPH-440M)



Current-Voltage Curve (LR4-72HPH-440M)



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20200401V11

# MultiPlus Inverter/Charger

800 VA – 5 kVA

Lithium Ion battery compatible

[www.victronenergy.com](http://www.victronenergy.com)



**MultiPlus**  
24/3000/70

### Two AC Outputs

The main output has no break functionality. The MultiPlus takes over the supply to the connected loads in the event of a grid failure or when shore/generator power is disconnected. This happens so fast (less than 20 milliseconds) that computers and other electronic equipment will continue to operate without disruption. The second output is live only when AC is available on the input of the MultiPlus. Loads that should not discharge the battery, like a water heater for example can be connected to this output (second output available on models rated at 3 kVA and more).

### Virtually unlimited power thanks to parallel operation

Up to 6 Multis can operate in parallel to achieve higher power output. Six 24/5000/120 units, for example, will provide 25 kW / 30 kVA output power with 720 Amps charging capacity.

### Three phase capability

In addition to parallel connection, three units of the same model can be configured for three phase output. But that's not all: up to 6 sets of three units can be parallel connected for a huge 75 kW / 90 kVA inverter and more than 2000 Amps charging capacity.

### PowerControl - Dealing with limited generator, shore side or grid power

The MultiPlus is a very powerful battery charger. It will therefore draw a lot of current from the generator or shore side supply (nearly 10 A per 5 kVA Multi at 230 VAC). With the Multi Control Panel a maximum generator or shore current can be set. The MultiPlus will then take account of other AC loads and use whatever is extra for charging, thus preventing the generator or shore supply from being overloaded.

### PowerAssist - Boosting the capacity of shore or generator power

This feature takes the principle of PowerControl to a further dimension. It allows the MultiPlus to supplement the capacity of the alternative source. Where peak power is so often required only for a limited period, the MultiPlus will make sure that insufficient shore or generator power is immediately compensated for by power from the battery. When the load reduces, the spare power is used to recharge the battery.

### Solar energy: AC power available even during a grid failure

The MultiPlus can be used in off grid as well as grid connected PV and other alternative energy systems. Loss of mains detection software is available.

### System configuring

- In case of a stand-alone application, if settings have to be changed, this can be done in a matter of minutes with a DIP switch setting procedure.
- Parallel and three phase applications can be configured with VE.Bus Quick Configure and VE.Bus System Configurator software.
- Off grid, grid interactive and self-consumption applications, involving grid-tie inverters and/or MPPT Solar Chargers can be configured with Assistants (dedicated software for specific applications).

### On-site Monitoring and control

Several options are available: Battery Monitor, Multi Control Panel, Ve.Net Blue Power Panel, Color Control Panel, smartphone or tablet (Bluetooth Smart), laptop or computer (USB or RS232).

### Remote Monitoring and control

Victron Ethernet Remote, Venus GX and the Color Control Panel.

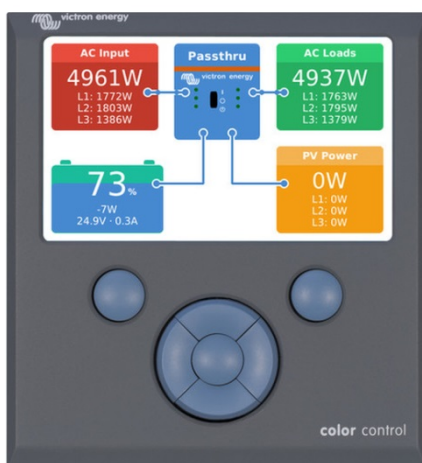
Data can be stored and displayed on our VRM (Victron Remote Management) website, free of charge.

### Remote configuring

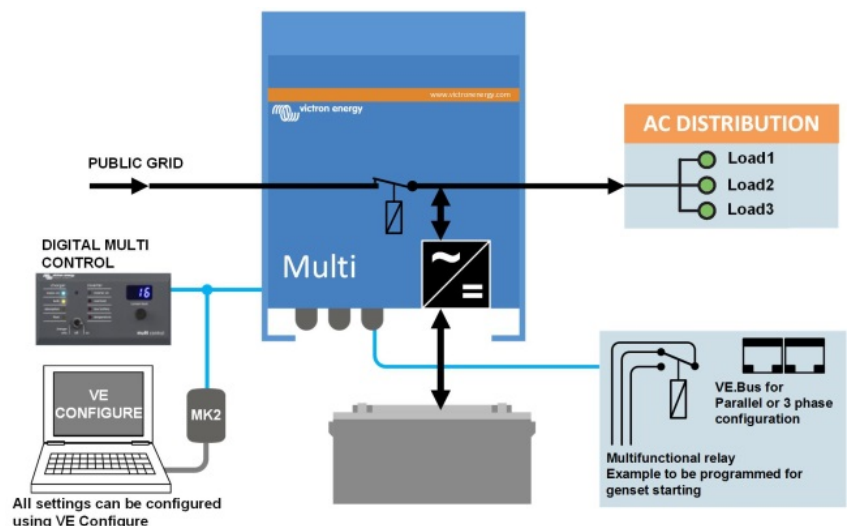
When connected to the Ethernet, systems with a Color Control panel can be accessed remotely and settings can be changed.



**MultiPlus Compact**  
12/2000/80



**Color Control Panel, showing a PV application**





MultiPlus	12 Volt 24 Volt 48 Volt	C 12/800/35 C 24/ 800/16	C 12/1200/50 C 24/1200/25	C 12/1600/70 C 24/1600/40	C 12/2000/80 C 24/2000/50	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
<b>INVERTER</b>							
Input voltage range (V DC)		9,5 – 17 V		19 – 33 V	38 – 66 V		
Output		Output voltage: 230 VAC ± 2%			Frequency: 50 Hz ± 0,1% (1)		
Cont. output power at 25°C (VA) (3)		800	1200	1600	2000	3000	5000
Cont. output power at 25°C (W)		700	1000	1300	1600	2400	4000
Cont. output power at 40°C (W)		650	900	1200	1400	2200	3700
Cont. output power at 65°C (W)		400	600	800	1000	1700	3000
Peak power (W)		1600	2400	3000	4000	6000	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
<b>CHARGER</b>							
AC Input		Input voltage range: 187-265 VAC		Input frequency: 45 – 65 Hz	Power factor: 1		
Charge voltage 'absorption' (V DC)		14,4 / 28,8 / 57,6					
Charge voltage 'float' (V DC)		13,8 / 27,6 / 55,2					
Storage mode (V DC)		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					
<b>GENERAL</b>							
Auxiliary output (5)		n. a.	n. a.	n. a.	n. a.	Yes (16A)	Yes (25A)
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%					
<b>ENCLOSURE</b>							
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 V AC-connection		G-ST18i connector		Spring-clamp	Screw terminals 13 mm <sup>2</sup> (6 AWG)		
Weight (kg)		10	10	10	12	18	30
Dimensions (hwxwd in mm)		375x214x110			520x255x125	362x258x218	444x328x240
<b>STANDARDS</b>							
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 60 Hz on request  
 2) Protection key:  
 a) output short circuit  
 b) overload  
 c) battery voltage too high  
 d) battery voltage too low  
 e) 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



### Digital Multi Control Panel

A convenient and low cost solution for remote monitoring, with a rotary knob to set PowerControl and PowerAssist levels.



### Blue Power Panel

Connects to a Multi or Quattro and all VE.Net devices, in particular the VE.Net Battery Controller. Graphic display of currents and voltages.

### Computer controlled operation and monitoring

Several interfaces are available:



#### Color Control GX

Provides monitor and control. Locally, and also remotely on the [VRM Portal](#).



#### MK3-USB VE.Bus to USB interface

Connects to a USB port ([see 'A guide to VEConfigure'](#))

#### VE.Bus to NMEA 2000 interface

Connects the device to a NMEA2000 marine electronics network. See the [NMEA2000 & MFD integration guide](#)



### BMV-700 Battery Monitor

The BMV-700 Battery Monitor features an advanced microprocessor control system combined with high resolution measuring systems for battery voltage and charge/discharge current. Besides this, the software includes complex calculation algorithms, like Peukert's formula, to exactly determine the state of charge of the battery. The BMV-700 selectively displays battery voltage, current, consumed Ah or time to go. The monitor also stores a host of data regarding performance and use of the battery. Several models available (see battery monitor documentation).



**LOW VOLTAGE ENERGY STORAGE SYSTEM  
-FOR RESIDENTIAL AND SME**

## Specification



Basic Parameters	US2000C	US3000C	Phantom-S
Nominal Voltage (V)	48	48	48
Nominal Capacity (Wh)	2400	3552	2400
Usable Capacity (Wh)	2280	3374.4	2200
Dimension (mm)	442*410*89	442*420*132	440*440*88.5
Weight (Kg)	24	32	24
Discharge Voltage (V)	44.5 ~ 53.5	44.5 ~ 53.5	44.5 ~ 53.5
Charge Voltage (V)	52.5 ~ 53.5	52.5~53.5	52.5~53.5
Charge / Discharge Current (A)	25(Recommend)	37 (Recommend)	25(Recommend)
	50 (Max@60s)	74 (Max@60s)	50 (Max@60s)
	90 (Peak@15s)	90 (Peak@15s)	100 (Peak@15s)
Communication Port	RS485, CAN	RS485, CAN	RS485, CAN
Single string quantity(pcs)	16	16	8
Working Temperature/°C	0~50	0~50	0~50
Shelf Temperature/°C	-20~60	-20~60	-20~60
Humidity	5%~95%	5%~95%	5%~95%
Altitude (m)	<2000	<2000	<2000
Design life	15 <sup>+</sup> Years (25°C/77°F)	15 <sup>+</sup> Years (25°C/77°F)	15 <sup>+</sup> Years (25°C/77°F)
Cycle Life	>6000, 25 C	>6000, 25 C	>6000, 25 C
Authentication Level	IEC62619/CE /UN38.3	VDE2510-50/IEC62619/UL1973 UL9540A/CE/UN38.3	IEC62619/CE /UN38.3
Feature	Pre-Charge Dual-active protection Flexible current steps Dry contact wake up	Pre-Charge Dual-active protection Flexible current steps Dry contact wake up	

**Cube the Force** |  **PYLONTECH**

# SmartSolar Charge Controllers 250V and 99% efficiency

## MPPT 250/60, 250/70, 250/85 & 250/100

www.victronenergy.com

### Ultra-fast Maximum Power Point Tracking (MPPT)

Especially in case of a clouded sky, when light intensity is changing continuously, an ultra-fast MPPT controller will improve energy harvest by up to 30% compared to PWM charge controllers and by up to 10% compared to slower MPPT controllers.

### Advanced Maximum Power Point Detection in case of partial shading conditions

If partial shading occurs, two or more maximum power points may be present on the power-voltage curve.

Conventional MPPTs tend to lock to a local MPP, which may not be the optimum MPP.

The innovative SmartSolar algorithm will always maximize energy harvest by locking to the optimum MPP.

### Outstanding conversion efficiency

No cooling fan. Maximum efficiency exceeds 99%.

### Flexible charge algorithm

Fully programmable charge algorithm (see the software page on our website), and eight pre-programmed algorithms, selectable with a rotary switch (see manual for details).

### Extensive electronic protection

Over-temperature protection and power derating when temperature is high.

PV short circuit and PV reverse polarity protection.

PV reverse current protection.

### Internal temperature sensor

Compensates absorption and float charge voltage for temperature.

### Bluetooth Smart built-in: dongle not needed

The wireless solution to set-up, monitor and update the controller using Apple and Android smartphones, tablets or other devices.

### VE.Direct

For a wired data connection to a Color Control panel, Venus GX, PC or other devices

### Remote on-off

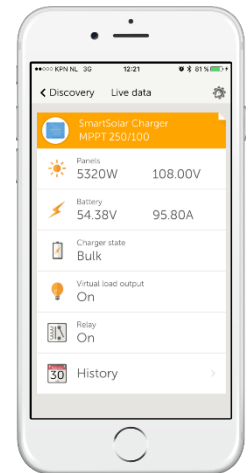
To connect for example to a VE.BUS BMS.

### Programmable relay

Can be programmed (a.o. with a smartphone) to trip on an alarm, or other events.

### Optional: pluggable LCD display

Remove the seal that protects the plug on the front of the controller, and plug-in the display.



**SmartSolar Charge Controller  
MPPT 250/100-Tr  
with pluggable display**



**SmartSolar Charge Controller  
MPPT 250/100-MC4  
without display**

SmartSolar Charge Controller	MPPT 250/60	MPPT 250/70	MPPT 250/85	MPPT 250/100
Battery voltage	12 / 24 / 48V Auto Select (software tool needed to select 36V)			
Rated charge current	60A	70A	85A	100A
Maximum PV power, 12V 1a,b)	860W	1000W	1200W	1450W
Maximum PV power, 24V 1a,b)	1720W	2000W	2400W	2900W
Maximum PV power, 48V 1a,b)	3440W	4000W	4900W	5800W
Max. PV short circuit current 2)	35A (max 30A per MC4 conn.)		70A (max 30A per MC4 conn.)	
Maximum PV open circuit voltage	250V absolute maximum coldest conditions 245V 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 / 57,6V (adjustable with: rotary switch, display, VE.Direct or Bluetooth)			
Charge voltage 'float'	Default setting: 13,8 / 27,6 / 41,4 / 55,2V (adjustable: rotary switch, display, VE.Direct or Bluetooth)			
Charge algorithm	multi-stage adaptive			
Temperature compensation	-16 mV / -32 mV / -68 mV / °C			
Protection	Battery reverse polarity (fuse, not user accessible) 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 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 (not synchronized)			
<b>ENCLOSURE</b>				
Colour	Blue (RAL 5012)			
PV terminals 3)	35 mm <sup>2</sup> / AWG2 (Tr models) Two sets of MC4 connectors (MC4 models 250/60 and 250/70) Three sets of MC4 connectors (MC4 models 250/85 and 250/100)			
Battery terminals	35 mm <sup>2</sup> / 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 MC4 models: 215 x 250 x 95		Tr models: 216 x 295 x 103 MC4 models: 246 x 295 x 103	
<b>STANDARDS</b>				
Safety	EN/IEC 62109-1			
1a) If more PV power is connected, the controller will limit input power to the stated maximum. 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 in case of reverse polarity connection of the PV array.				
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)				