



victron energy
B L U E P O W E R

MultiPlus inverter / charger

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Multi-functional, with intelligent power management

The MultiPlus is a powerful true sine wave inverter, a sophisticated battery charger that features adaptive charge technology, and a high-speed AC transfer switch in a single compact enclosure. Beside these primary functions, the Multi has several advanced features, as outlined below.

Two AC Outputs

The main output has no-break functionality. The Multi 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 one of the inputs 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 with 50A transfer switch only).

Virtually unlimited power thanks to parallel operation

Up to 6 Multi's can operate in parallel to achieve higher power output. Six 24/3000/70 units, for example, provide 15 kW / 18 kVA output power with 420 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 45 kW / 54 kVA inverter and 1260 A charger! (Please request VE.Bus enabled units for best 3 phase performance)

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

The Multi 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 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.

Four stage adaptive charger and dual bank battery charging

The main output provides a powerful charge to the battery system by means of advanced 'adaptive charge' software that fine-tunes the three stage automatic process to suit the condition of the battery, and adds a fourth stage for long periods of float charging. The adaptive charge process is described in more detail on the Phoenix Charger datasheet and on our website, under Technical Information. In addition to this, the Multi will charge a second battery using an independent trickle charge output intended for a main engine or generator starter battery.

System configuring has never been easier

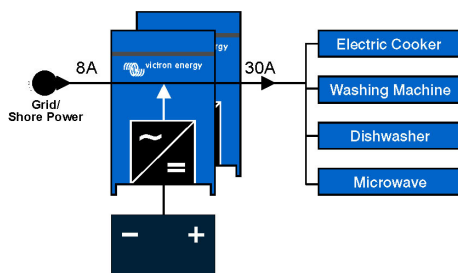
After installation, the MultiPlus is ready to go.

If settings have to be changed, this can be done in a matter of minutes with a new DIP switch setting procedure. Even parallel and 3-phase operation can be programmed with DIP switches: no computer needed!

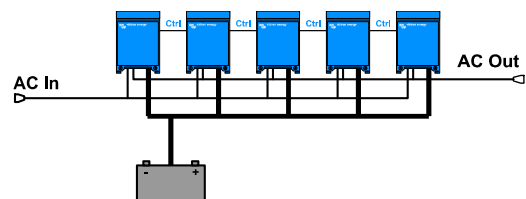
Alternatively, VE.Net can be used instead of the DIP switches.

And sophisticated software (VE.Bus Quick Configure and VE.Bus System Configurator) is available to configure several new, advanced, features.

PowerAssist with 2x MultiPlus in parallel



Five parallel units: output power 12,5 kW



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Specifications

Phoenix Multi/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	C12/2000/80 C24/2000/50	12/3000/120 (3) 24/3000/70 (3) 48/3000/35 (3)
PowerControl		Yes	Yes	Yes	Yes	Yes
PowerAssist		No	Yes	Yes	Yes	Yes
Transfer switch (A)		16	16	16	30	16 or 50
INVERTER						
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) (5)		800	1200	1600	2000	3000
Cont. output power at 25 °C (W)		700	1000	1300	1600	2500
Cont. output power at 40 °C (W)		650	900	1200	1450	2000
Peak power (W)		1600	2400	3000	4000	6000
Maximum efficiency (%)		92 / 94	93 / 94	93 / 94	93 / 94	93 / 94 / 95
Zero-load power (W)		8 / 10	8 / 10	8 / 10	9 / 11	15 / 15 / 16
Zero load power in AES mode (W)		5 / 8	5 / 8	5 / 8	7 / 9	10 / 10 / 12
Zero load power in Search mode (W)		2 / 3	2 / 3	2 / 3	3 / 4	4 / 5 / 5
Auxiliary output (A) (6)		n. a.	n. a.	n. a.	n. a.	Yes (10A)
CHARGER						
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
Charge current starter battery (A)		4				
Battery temperature sensor		yes				
GENERAL						
Programmable relay or relay driver (7)		relay driver (8)	relay driver (8)	relay driver (8)	relay driver (8)	relay
Protection (2)		a - g				a - h
Common Characteristics		Operating temp. range: -20 to +50 °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 studs	
230 V AC-connection		G-ST18i connector			Spring-clamp	Screw-clamp
Weight (kg)		10	10	10	12	18
Dimensions (hwxwd in mm)		375x214x110			520x255x125	362x258x218
STANDARDS						
Safety		EN 60335-1, EN 60335-2-29				
Emission / Immunity		EN55014-1, EN 61000-3-2 / EN 55014-2, EN 61000-3-3				
Automotive Directive		95/54/EC and 2004/104/EC				

1) Can be adjusted to 60 Hz; 120 V 60 Hz on request
2) Protection

- 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 high

3) Suitable for parallel and 3-phase operation
4) At 25 °C ambient

- 5) Non linear load, crest factor 3:1
- 6) Switches off when no external AC source available
Available on 3kVA models with 50A transfer switch only
- 7) Programmable relay which can be set for general alarm, DC undervoltage or genset start signal function
- 8) Open collector output 66V 40mA

Accessories



Digital Multi Control

This panel is intended for both Multi's and Quattro's. Allows PowerControl and PowerAssist current limit setting for two AC sources: a generator and shore-side current for example. Setting range: up to 200 Amps. The brightness of the LED's is automatically reduced during night time.



Computer controlled operation and monitoring (Victron Interface MK2)

Every MultiPlus is ready to communicate with a computer through its RS-485 data port. All you need to link to your PC is the data link as shown. This enables you to set and read out all parameters. (see also 'A guide to VEConfigure')



BMV-600 Battery Monitor

The BMV-600 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-600 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.

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