MultiPlus inverter / charger 2kVA and 3kVA

(120V/60Hz)   Lithium Ion battery compatible

www.victronenergy.com

Multiplus 24/3000/70

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. Next to these primary functions, the MultiPlus has several advanced features, as outlined below.

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 3kVA and more).

Virtually unlimited power thanks to parallel operation
Up to six Multi's can operate in parallel to achieve higher power output. Six 24/3000/70 units, for example, provide 15kW / 18kVA output power with 420 Amps of charging capacity.

Three phase capability
In addition to parallel connection, three units can be configured for three-phase output. But that's not all: with three strings of six parallel units a 45kW / 54kVA three phase inverter and 1260A charger can be built.

Split phase options
Two units can be stacked to provide 120-0-120V, and additional units can be paralleled up to a total of 6 units per phase, to supply up to 30kW / 36kVA of split phase power.
Alternatively, a split phase AC source can be obtained by connecting our autotransformer (see data sheet on www.victronenergy.com) to a 'European' inverter programmed to supply 240V / 60Hz.

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 20A per 3kVA MultiPlus at 120VAC). 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. The software 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 MultiPlus 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 DIP switch setting procedure. Even parallel and 3-phase operation can be programmed with DIP switches: no computer needed!
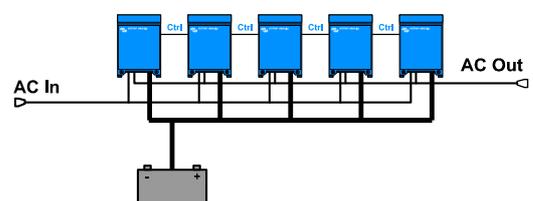Alternatively, VE.Net can be used instead of the DIP switches.
And sophisticated software (VE.Bus Quick Configure and VE.Bus System Configurator) is available to configure several new, advanced, features.

PowerAssist with 2x MultiPlus in parallel

Load 1
Load 2
Load 3
Load 4

8A   30A

Grid/
Shore Power
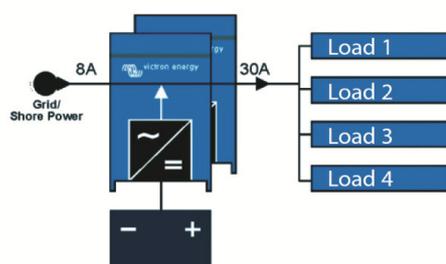
Five parallel units: output power 12,5 kW

AC In   AC Out

MultiPlus	12 Volt 24 Volt	12/2000/80 24/2000/50	12/3000/120 24/3000/70
PowerControl		Yes	
PowerAssist		Yes	
Transfer switch (A)		50	
Parallel and 3-phase operation		Yes	

INVERTER			
Input voltage range (V DC)		9,5 – 17 V	19 – 33 V
Output		Output voltage: 120 VAC ± 2%	Frequency: 60 Hz ± 0,1% (1)
Cont. output power at 75 °F (VA) (3)		2000	3000
Cont. output power at 75 °F (W)		1600	2500
Cont. output power at 100 °F (W)		1450	2200
Peak power (W)		4000	6000
Maximum efficiency (%)		92 / 94	93 / 94
Zero-load power (W)		9 / 11	15 / 15
Zero load power in AES mode (W)		7 / 8	10 / 10
Zero load power in Search mode (W)		3 / 4	4 / 5

CHARGER			
AC Input		Input voltage range: 95-140 VAC	Input frequency: 45 – 65 Hz	Power factor: 1
Charge voltage 'absorption' (V DC)		14,4 / 28,8	
Charge voltage 'float' (V DC)		13,8 / 27,6	
Storage mode (V DC)		13,2 / 26,4	
Charge current house battery (A) (4)	80 / 50		120 / 70
Charge current starter battery (A)		4	
Battery temperature sensor		yes	

GENERAL			
Auxiliary output (5)		n. a.	Yes (32A)
Programmable relay (6)		Yes (1x)	Yes (3x)
Protection (2)		a - g	
VE.Bus communication port		For parallel and three phase operation, remote monitoring and system integration	
General purpose com. port (7)		n. a.	Yes (2x)
Remote on-off		Yes	
Common Characteristics		Operating temp. range: 0 - 120°F (fan assisted cooling)	Humidity (non condensing): max 95%

ENCLOSURE			
Common Characteristics		Material & Colour: aluminium (blue RAL 5012)	Protection category: IP 21
Battery-connection		M8 bolts	M8 bolts (2 plus and 2 minus connections)
120 V AC-connection		Screw-terminal 6 AWG (13mm^2)	Screw-terminal 6 AWG (13mm^2)
Weight		13kg 25 lbs	19kg 40 lbs
Dimensions (hxwxd in mm and inches)		520x255x125 mm 20.5x10.0x5.0 inch	362x258x218 mm 14.3x10.2x8.6 inch

STANDARDS	
Safety	EN 60335-1, EN 60335-2-29
Emission Immunity	EN55014-1, EN 55014-2, EN 61000-3-3

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 75 ˚F ambient
5) Switches off when no external AC source available
6) Programmable relay that can a. o. be set for general alarm,
  DC undervoltage or genset start/stop function
    AC rating: 230V/4A
    DC rating: 4A up to 35VDC, 1A up to 60VDC
7) A. o. to communicate with a Lithium Ion battery BMS

Digital Multi Control
A convenient and low cost solution for remote monitoring, with a rotary knob to set Power Control and Power Assist 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:
- **MK2.2 VE.Bus to RS232 converter**
  Connects to the RS232 port of a computer (see 'A guide to VEConfigure')
- **MK2-USB VE.Bus to USB converter**
  Connects to a USB port (see 'A guide to VEConfigure')
- **VE.Net to VE.Bus converter**
   Interface to VE.Net (see VE.Net documentation)
- **VE.Bus to NMEA 2000 converter**
- **Victron Global Remote**
  The Global Remote is a modem which sends alarms, warnings and system status reports to cellular phones via text messages (SMS). It can also log data from Victron Battery Monitors, Multi's, Quattro's and Inverters to a website through a GPRS connection. Access to this website is free of charge.
- **Victron Ethernet Remote**
  To connect to Ethernet.

BMV Battery Monitor
The BMV 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 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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