



victron energy

Phoenix Multi / MultiPlus.



Phoenix inverters



Skylla chargers



Phoenix chargers



Phoenix inverters



Centaur chargers



DC/DC Converters



Accessories



Distributors of electrical power products for the marine and mobile industries. System designers and bespoke panel builders.

ENERGY SOLUTIONS

POWER AT YOUR CONTROL

ES Victron Catalogue / Jan 2005

PHOENIX MULTI / MULTIPLUS



The Multi gets its name from the multiple functions it can perform. It's 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. Besides these primary functions, however the Multi has several advanced features that provide a range of new applications as listed below.

- Uninterrupted AC power (UPS function)
- Virtually unlimited power thanks to parallel operation
- Three phase capability
- PowerControl – Dealing with limited generator or shore side / grid power
- PowerAssist – Boosting the capacity of shore or generator power, an innovative feature of the MultiPlus
- Four stage adaptive charger and dual bank battery charging
- Electricity on Board

Phoenix Multi/MultiPlus 12 Volt	C12/800/35	C12/1200/50	C12/1600/70	12/2000/100	12/2500/120
Phoenix Multi/MultiPlus 24 Volt	C24/800/16	C24/1200/25	C24/1600/40	24/2000/60	24/3000/70
Phoenix Multi/MultiPlus 48 Volt		C48/1200/12	C48/1600/20		48/3000/35
PowerControl	yes	yes	yes	yes	yes
PowerAssist	no	with Plus option	with Plus option	yes	yes
INVERTER					
Input voltage range (v DC)	9,5-17volts 19-33volts 38-66volts				
Output	output voltage 230 VAC+/-2% frequency 50Hz +/-0.1%				
Cont. output power@25°C (VA)	800	1200	1600	2000	2500/3000/3000
Cont output power@25°C (W)	700	1000	1300	1600	2000/2500/2500
Cont output power@40°C (W)	650	900	1200	1300	1600/2000/2000
Peak power (W)	1600	2400	3000	4000	4500/6000/6000
Maximum efficiency (%)	92/94	93/94/95	93/94/95	93/94/95	93/94/95
Zero-load power (W)	4,5/6,0	4,5/6,0/7,0	4,5/6,0/7,0	4,5/6,0/7,0	4,5/6,0/7,0
CHARGER					
AC Input	Input voltage range 187-265 v AC Input frequency 45-55Hz Power Factor: 1				
Charge voltage "absorption" (v DC)	14,4 / 28,8 / 57,6 (can be programmed for custom requirements)				
Charge voltage "float" (v DC)	13,8 / 27,6 / 55,2 (can be programmed for custom requirements)				
Storage mode (v DC)	13,2 / 26,4 / 52,8 (can be programmed for custom requirements)				
Charge current house battery (A)	35 / 16	50 / 25 / 12	70 / 40 / 20	100 / 60	120 / 70 / 40
Charge current starter battery (A)	4				
Battery temperature sensor	yes				
GENERAL					
Transfer relay capacity	16 A	16 A	16 A	16 A	16 A (30A option)
Multi purpose relay driver or relay	relay driver	relay driver	relay driver	relay	relay
Protection	a,b,c,d,f,g,h			a - h	
Common Characteristics	Operating temp. range: 0-50°C (fan assisted cooling). Humidity (non condensing): max95%				
ENCLOSURE					
Common Characteristics	Material and colour: aluminium (blue RAL5012)			Protection category: IP21	
Battery-connection	Battery cables of 1.5 meter			M8 studs	
230 v AC-connection	G-ST18i connector			screw-clamp 2.5mm	
Weight (kg)	8	10	10	18	18
Dimensions (hwxwd in mm)	375 x 214 x 110mm			362 x 258 x 218mm	
STANDARDS					
Safety	EN 6035-1, EN 60335-2-29				
Emission Immunity	EN 50081-1, EN 55014-2				
Automotive Directive	95/54EC				
Protection key:	c) battery voltage to high		f) 230 v AC on inverter output		
a) output short circuit	d) battery voltage to low		g) input voltage ripple too high		
b) overload	e) battery reverse polarity detection		h) temperature to high		

PHOENIX INVERTERS



Developed for professional duty, the Phoenix range of inverters are suitable for the widest range of applications. The design criteria have been to produce a true sine wave inverter with optimised efficiency but without compromise in performance. Employing hybrid HF technology, the result is a top quality product with compact dimensions, light in weight and capable of supplying power, problem-free, to any load.

- Extra start-up power
- Virtually unlimited power thanks to parallel and 3-phase operation capability
- Up to 6 units Phoenix 24/3000 can operate in parallel to achieve higher power output
- To transfer the load to another AC source: the automatic transfer switch
- Computer interface
- New applications of high power inverters

Phoenix Inverter	12/220	12/300	12/600	C 12/1200	C 12/1600	12/1600 (5)	12/2500 (5)
	24/220	24/350	24/800	C 24/1200	C 24/1600	24/1600 (5)	24/3000 (5)
	48/220			C 48/1200	C 48/1600	48/1600 (5)	48/3000 (5)
Input Voltage Range (V)	10.5 - 15.5	10.5 - 15.5	10.5 - 15.5	9.5 - 16.0	9.5 - 16.0	9.5 - 16.0	9.5 - 16.0
	21.0 - 31.0	21.0 - 31.0	21.0 - 31.0	19.5 - 32.2	19.5 - 33.0	19.5 - 33.0	19.5 - 33.0
	22.0 - 62.0			38.0 - 66.0	38.0 - 66.0	38.0 - 66.0	38.0 - 66.0
Cont. Output power at 25°C (VA) (6)	220	300	600	1200	1600	1600	2500
	220	350	800	1200	1600	1600	3000
	220			1200	1600	1600	3000
Cont. Power at 25°C/40°C (W)	175/150	225/215	500/450	1000/900	1300/1200	1300/1200	2000/1600
	175/150	300/275	650/600	1000/900	1300/1200	1300/1200	2500/2000
	175/150			1000/900	1300/1200	1300/1200	2500/2000
Peak Power (W)	400	500	900	2200	2300	2300	4500
	400	600	1500	2200	2300	2300	6000
	400			2200	2300	2300	6000
Max efficiency 12/24/48 V (%)	90/90/92	90/91	92/94	93/94/95	93/94/95	93/94/95	93/94/95
Zero - load power 12/24/48 V (W)	2.5/3.0/4.0	3.0/3.5	4.0/4.6	8/11/13	8/11/13	8/12/15	15/15/16
Zero - load power in AES mode	0.5/0.8/1.2	0.7/0.8	0.4/0.7	5/8/10	5/8/10	5/9/10	10/10/12
Multi purpose relay driver or relay (7)				relay driver (8)	relay driver (8)	relay	relay
Protection (4)	a,b,d,h	a,b,d,h	a,b,d,h	a,b,c,d,f,g,h	a,b,c,d,f,g,h	a - h	a - h
(2,3) Common Characteristics	Output: 230 V ± 2% / 50Hz ± 0.2% Operating temp range: 0-50C (Fan assisted cooling) Humidity (non condensing): max 95%						
ENCLOSURE							
Material & Colour	Aluminium (blue Ral 5012)						
Battery - Connection	1	1	1	1	1	M8 Studs	M8 Studs
230 V AC-connection	IEC-320	IEC-320	IEC-320	G-ST18i	G-ST18i	Screw-clamp 2.5mm ²	Screw-clamp 2.5mm ²
Protection category	IP 20	IP 20	IP 20	IP 21	IP 21	IP 21	IP 21
Weight (kg)	2.1	3.3	6.5	10	10	12	18
Dimensions (HxWxD in mm)	98x130x178	98x13x208	107x187x227	375x214x110	375x214x110	362x258x218	362x258x218
STANDARDS							
Safety	EN 60950	EN 60950	EN 60950	EN 60335-1	EN 60335-1	EN 60335-1	EN 60335-1
Emission Immunity	EN 50081-1, EN 55014 - EN 55014-2						
Automotive Directive				95/54/EC	95/54/EC	95/54/EC	95/54/EC
1) Battery cables of 1.5 meter	c. Battery voltage too high		5) Suitable for parallel and 3-phase operation				
2) 115 V AC on request	d. Battery voltage too low		6) Non linear load, crest factor 3:1				
3) 60 Hz on request	e. Battery reverse polarity detection		7) Multipurpose relay which can be set for general alarm, DC undervoltage or genset start signal function				
4) Protection	f. 230 V AC on inverter output		8) Relay driver: open collector 66V 40mA				
a. Output short circuit	g. Input voltage ripple too high						
b. Overload	h. Temperature too high						

SKYLLA CHARGERS



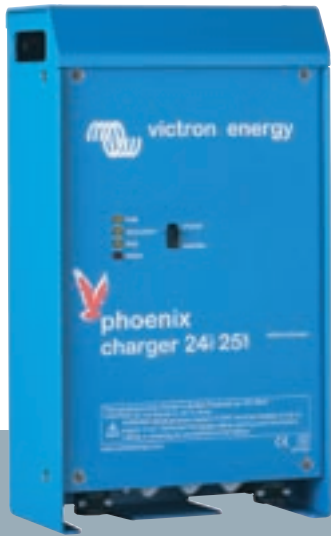
Charge voltage can be precisely adjusted to suit any sealed or unsealed battery system. In particular sealed maintenance free batteries must be charged correctly in order to ensure a long service life. Overvoltage will result in excessive gassing and venting of a sealed battery. The battery will dry out and fail.

- Controlled charging
- Use of TG chargers as a power supply
- Two outputs to charge 2 battery banks
- To increase battery life (temperature compensation)
- Battery voltage sense

Skylla Charger	24/30 TG	24/50 TG	24/80 TG	24/100 TG
Input voltage (v AC)	230			
Input voltage range (v AC)	185 - 264			
Frequency (Hz)	45 – 65			
Power factor	1			
Charge voltage "absorption" (v DC)	28,5 (can be programmed for custom requirements)			
Charge voltage "float" (v DC)	26,5 (can be programmed for custom requirements)			
Charge current house battery (A) ²	30	50	75	100
Charge current starter battery (A)	4	4	4	4
Charge characteristics	IUoUo (three step)			
Battery Capacity (Ah)	150-300	250-500	400-800	500-1000
Battery temperature sensor	yes	yes	yes	yes
Can be used as power supply	yes	yes	yes	yes
Potential free contacts	yes	yes	yes	yes
Forced cooling	yes	yes	yes	yes
Protection	a,b,c,d			
Operating temp range	-20° to 60°c			
Humidity (non condensing)	max 95%			
ENCLOSURE				
Material and colour	aluminium (blue RAL5012)			
Battery-connection	M8 studs			
230 v AC-connection	screw clamp 2,5mm ²			
Protection category	IP21			
Weight (kg)	5,5	5,5	10	10
Dimensions (hwxwd in mm)	365 x 250 x 147	365 x 250 x 147	365 x 250 x 257	365 x 250 x 257
STANDARDS				
Safety	EN 60335-2-29			
Emission	EN 55014, EN 61000-3-2, EN 61000-3-3			
Immunity	EN 55014-2			
Automotive Directive	95/54EC			
48v versions available				
Key:				
a. output short circuit				
b. battery reverse polarity detection				
c. battery voltage too high				
d. temperature too high				
² Upto 40° C ambient				

Adaptive 4 stage charge characteristics

PHOENIX CHARGERS



The Phoenix charger features a microprocessor controlled adaptive battery management system that can be preset to suit different types of batteries. The adaptive feature will automatically optimise the process relative to the way the battery is being used.

- The right amount of charge (variable absorption time)
- Preventing damage due to excessive gassing (battery safe mode)
- Less maintenance and ageing when battery not in use (storage mode)
- To increase battery life (temperature compensation)
- Battery voltage sense
- Computer interface

Phoenix Charger	12/30	12/50	24/16	24/25
Input voltage range (v AC)	90 – 265			
Frequency (Hz)	45 – 65			
Power factor	1			
Charge voltage "absorption" (v DC)	14,4 / 28,8 (can be programmed for custom requirements)			
Charge voltage "float" (v DC)	13,8 / 27,6 (can be programmed for custom requirements)			
Storage mode (v DC)	13,2 / 26,4 (can be programmed for custom requirements)			
Charge current house battery (A) ²	30	50	16	25
Charge current starter battery (A)	4	4	4	4
Charge characteristics	4 stage adaptive			
Battery Capacity (Ah)	100-400	200-800	100-200	100-400
Battery temperature sensor	yes	yes	yes	yes
Can be used as power supply	yes	yes	yes	yes
Forced cooling	yes	yes	yes	yes
Protection	a,b,c,d			
Operating temp range	-20° to 60°c			
Humidity (non condensing)	max 95%			

ENCLOSURE

Material and colour	aluminium (blue RAL5012)			
Battery-connection	M6 studs			
230 v AC-connection	screw clamp 4mm ²			
Protection category	IP21			
Weight (kg)	3,8			
Dimensions (hwxwd in mm)	350 x 200 x 108			

STANDARDS

Safety	EN 60335-2-29			
Emission	EN 55014, EN 61000-3-2, EN 61000-3-3			
Immunity	EN 55014-2			
Vibration	IEC68-2-6:10-150Hz/1.0G			
Automotive Directive	95/54EC			

BLUE POWER CHARGERS



Blue Power Charger	12/6	12/15	24/3	24/8
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Completely encapsulated waterproof, shockproof and ignition protected

Water, oil or dirt will not damage the Blue Power charger. The casing is made of cast aluminium and the electronics are moulded in resin.

- Protected against overheating
- Automatic three stage charging
- Two LEDs for status indication



victron energy

Quality without compromise.

CENTAUR CHARGERS



Quality without compromise.

Aluminium epoxy powder coated cases with drip shield and stainless steel fixings withstand the rigours of adverse environment: heat, humidity and salt air. Circuit boards are protected with an acrylic coating for maximum corrosion resistance. Temperature sensors ensure that power components will always operate within specified limits, if needed by automatic reduction of output current under extreme environmental conditions.

Universal 90 to 265 Volt input voltage range

All models will operate without any adjustment needed over a 90 to 265 Volt input voltage range, whether 50 Hz or 60 Hz.

Three outputs that each can supply the full output current

Three isolated outputs to simultaneously charge 3 battery banks. Each output is capable to supply the full rated current.

Three stage charging, with temperature compensation

The Centaur charges at bulk rate until the output has reduced to 70 % of the rated Amps, at which a 4 hour timer begins. After the timed period the charger switches to float rate. An internal temperature sensor is used to compensate the charge voltage with - 2 mV/°C (- 1 mV/°F) per cell. A dip switch is available to select the optimum charge/float voltages for Flooded Lead-acid, Gel or AGM batteries.

Centaur Charger	12/12	12/30 24/16	12/40	12/60 24/30	12/80 24/40	12/100 24/60	12/160 24/80	12/200 24/100
Input voltage range (v AC)	90 - 265 V							
Frequency (Hz)	45 - 65							
Power factor	1							
Charge voltage "absorption" (v DC)	14.3 / 28,5 (can be programmed by dip switch)							
Charge voltage "float" (v DC)	13.5 / 27.0 (can be programmed by dip switch)							
Charging outputs	3							
Charge current house battery (A)	12	30 / 16	40	60 / 30	80 / 40	100 / 60	160 / 80	200 / 100
Total output ammeter	yes							
Charge characteristics	IUoU (three step)							
Battery Capacity (Ah)	80 - 200	120 - 300 45 - 150	160 - 400	240 - 600 120 - 300	320 - 800 160 - 400	400-1000 240-600	640-1600 320-800	800-2000 400-1000
Battery temperature sensor	Internal							
Forced cooling	yes, temperature and current control fan							
Protection	Output short circuit, over temperature							
Operating temp range	-20° to 60°c							
Humidity (non condensing)	max 95%							
Ignition protected	Yes							
ENCLOSURE								
Material and colour	aluminium (blue RAL5012)							
Battery-connection	M6 studs			M8 studs				
AC-connection	screw clamp 4.0mm							
Protection category	IP21							
Weight (kg)	3.8	3.8	5.0	5.0	12.0	12.0	16.0	16.0
Dimensions (hwxwd in mm)	355 x 215 x 110		426 x 239 x 135		505 x 255 x 130		505 x 255 x 230	
STANDARDS								
Safety	EN 60335-2-29, UL 1236							
Emission	EN 55014, EN 61000-3-2, EN 61000-3-3							
Immunity	EN 55014-2							
Intelligent, microprocessor controlled version								
For the ultimate in battery charging we recommend our Microprocessor Controlled Phoenix range.								
Important features of the Phoenix Charger range are:								
<ul style="list-style-type: none"> • adaptive 4-stage charging with variable absorption time, BatterySafe mode and Storage mode • VENet: RS-485 interface for remote control, monitoring and computer assisted setting of all parameters • battery temperature sensor • battery voltage sensor 								

Possibly the widest range on the market

DC/DC CONVERTERS: ANY VOLTAGE YOU NEED



The Orion 24/12-20 and 24/12-30 can be used as a 12v battery charger

The Orion 24/12-20 and 24/12-30 can be used as a 13.8 volt battery charger for a 12 volt starter or accessory battery in an otherwise 24 volt system.

A super wide input range buck-boost regulator: the Orion 7-35/12-3

The Orion 7-35/12-3 is an isolated converter with a very wide input range, suitable for both 12 volt and 24 volt systems, and a fixed 12,6 volt output.

Isolated 24v battery charger: Orion 12/27,6-12

Input 9-18 v. output 27,6 v, current limit 12a, fan assisted cooling. Output voltage adjustable with potentiometer Weight 1,4 kg, Dimensions 64x163x160 mm

Possibly the widest range on the market! An ever-increasing amount of electric equipment is being used on vehicles and boats. Because most low-voltage equipment, such as navigation and radio equipment, mobile telephones or car hi-fi systems, is designed for 12 volts, Victron Energy supplies DC/DC converters which deliver a stable 12 volt supply from a 24 volt system. These products are also distinguished by high efficiency, together with absolute safety. An inferior supply can cause irreparable damage to your 12 volt system, but the use of an Orion voltage converter prevents problems of that type

Non Isolated Converters	Orion	Orion	Orion	Orion	Orion	Orion	Orion
	24/12-5	24/12-8	24/12-12	24/12-20	24/12-30	12/24-7	12/24-10
Input Voltage Range (V)	18-35	18-35	20-35	20-35	20-35	9-18	9-18
Output Voltage (V)	13,2	13,2	13,2	13,8	13,8	24	24
Max Output Current (A)	5,5	8	12	20	30	7	10
Fan Assisted Cooling (temp controlled)	no	no	no	no	yes	no	no
Galvanic Isolation	no	no	no	no	no	no	no
Off Load Current	<5mA	<5mA	<5mA	appr.25mA	appr.25mA	<15mA	<15mA
Temperature Increase After 30 Minutes at full Load (°c)	30	20	30	25	33	30	30
Weight (kg)	0,17	0,25	0,26	0,48	0,6	0,3	0,4
Dimensions (HxWxD)	49x88x68	49x88x98	49x88x98	49x88x126	49x88x151	49x88x98	49x88x126

Isolated Converters	Orion xx/yy-100w	Orion xx/yy-200w	Orion xx/yy-360w
Power Rating (W)	100 (12,5v/8A or 24v/4A)	200 (12,5v/16A or 24v/8A)	360 (12,5v/30A or 24v/15A)
Galvanic Isolation	yes	yes	yes
Temperature Increase After 30 minutes at Full Load (°c)	25	30	30
Fan Cooling (temp controlled)	no	yes	yes
Weight (kg)	0,5	0,6	1,4
Dimensions (HxWxD in mm)	49x88x152	49x88x182	64x163x160
Input Voltage	(xx): 12 v (9-18v) or 24 v (20-35v) or 48 v (30-60v) or 96 v (60-120v)		
Output Voltage	(yy): 12,5 v or 24 v		

Common Characteristics

Output voltage stability	2% (orion 12/24-7 and orion 12/24-10: + 0% / -5%)
Output voltage tolerance	3%
Output noise	<50 mV ms
Offload current	<25 mA (isolated converters)
Efficiency	Non isolated: appr. 92% Isolated: appr. 85%
Isolation	>400 Vms between input, output and case (isolated products only)
Operating temperature	-20°C to + 30°C. Derate linearly to 0A at 70°C
Humidity	Max 95% non condensing
Casework	Anodised aluminium
Connections	6.3mm push-on flat blade connectors
Protection:	Short circuit proof, Fuse and reverse connected diode across input,
Overheating	Reduction of output voltage
Overvoltage	Varistor (also protects against load dump)
Standards:	EN 50081-1, EN 50082-1, 95/45/EC

ACCESSORIES



BMV 501 battery monitor

Identifying exactly how much energy is left in a battery is not easy. A voltmeter is useful but will only indicate that the battery is flat when it's too late. In order to keep an accurate record of what is stored in the battery, it is necessary to keep account of all the factors that affect it and this is a complex matter. Once a reliable reading of the state of charge of the battery is available, however, life starts to get an awful lot less complicated. No more nasty surprises with batteries going flat unexpectedly and because it becomes possible to manage batteries on fact rather than guess work. It's amazing how much power you can have with a little extra knowledge!

Standard information

- Battery voltage
- Battery charge/discharge current
- State of charge: in ampere-hour or %
- Time to go: time till battery is flat at the current discharge rate
- Battery temperature

Advanced information

- Average depth of discharge
- The deepest discharge that occurred
- Number of charge/discharge cycles
- Number of times that the battery has been fully recharged
- Number of complete discharges
- Number of times that the under-voltage alarm has been triggered
- Number of times that the over-voltage alarm has been triggered

BMV Data-Link

Every BMV501 is ready for data connection with an isolated RS-232 interface port. All you need to link to your PC is the data link kit that consists of a communications cable, converter and the data-link software. With this you can download and process just about any aspect of battery and system performance

CYRIX battery combiner

The Cyrix battery combiner is a microprocessor controlled heavy duty relay that automatically connects batteries when one of them is being charged. There are 3 models in both 12 & 24V. 80 Amp, 160 Amp & 400 Amp capacity.

ARGO diode battery isolators

ARGO battery isolators feature Schottky diodes which have a low voltage drop of between 0.3 & 0.45 V. There are 6 models in the range, with capacities from 70 to 160 Amps with either 2 or 3 outputs.

ARGO FET battery isolators

ARGO FET battery isolators have virtually no voltage drop (0.02 & 0.1 V). There are 4 models in the range, with capacities from 100 to 200 Amps with either 2 or 3 outputs.

ARGO battery combiners

ARGO battery combiners allow 2 separate battery or DC supplies to feed a common circuit. They can be used to provide seamless transfer between supplies in the event of 1 supply failing and are suited to protecting critical functions such as engine management computers and navigation and safety equipment.

A selection of other quality electrical equipment available from Energy Solutions

Sonnenschien
2 volt Gel Batteries



Northern Lights Generators



Sonnenschien
12 volt Batteries



Cruz Pro Instruments



PMS Modular Switch Panels



Isolation Transformers



Panel Building



Optima
12 volt Batteries



Somy Ships Heating Systems



Varta
12 volt Batteries

