MARINE INTERNATIONAL PTE LTD



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VOL. 3

MARINE INTERNATIONAL PTE LTD

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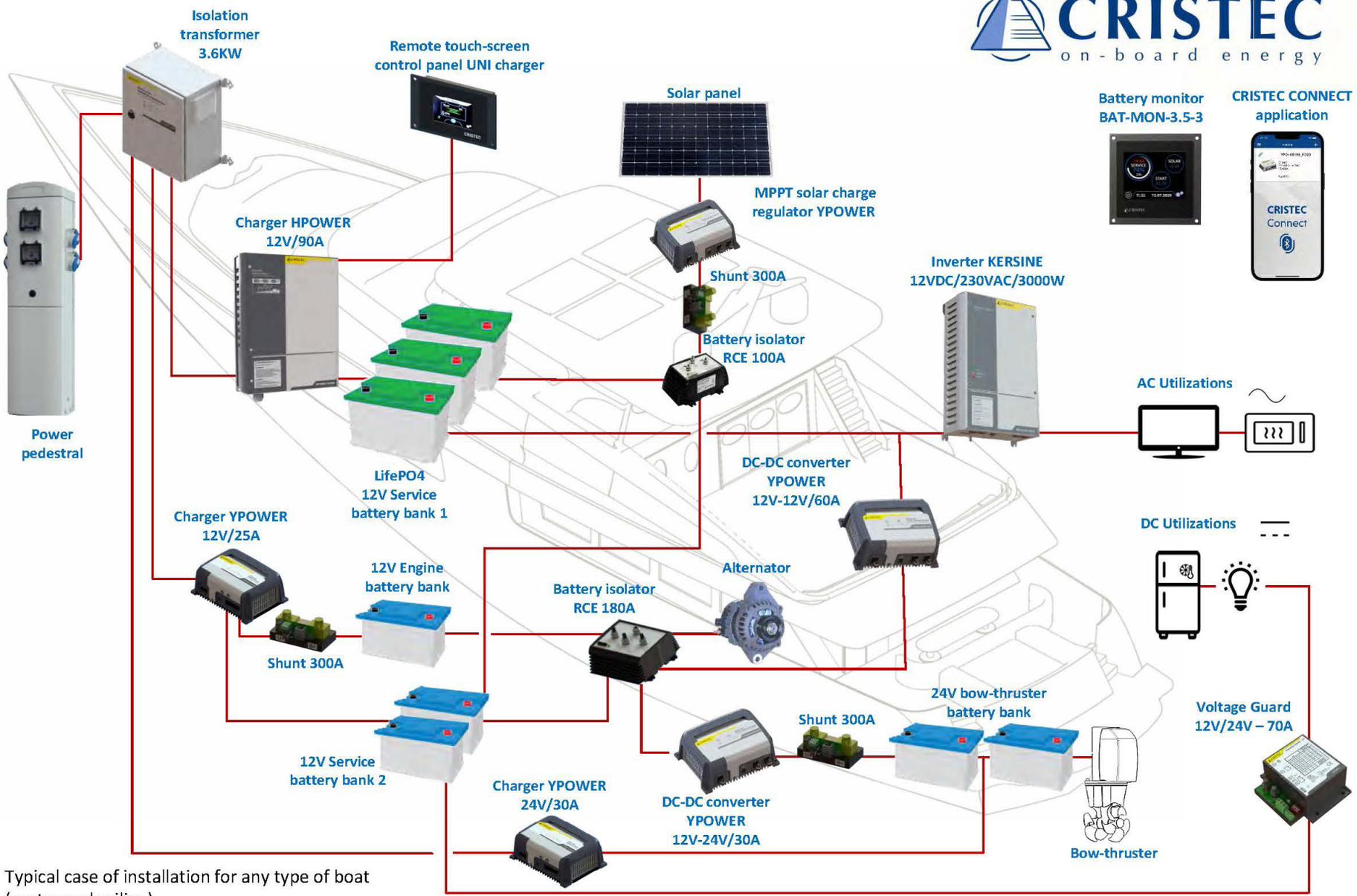
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POWER SUPPLY



Typical case of installation for any type of boat (motor and sailing)

YPower Range

DC-DC Battery Charger

YPOWER DC-DC chargers-converters have been designed to charge a 12, 24, 36 or 48V battery bank from a 12, 24, 36 or 48V network.

The most typical case of use is the 24V bow-thruster battery bank charge from the 12V onboard network (model YPO12-24/30).

They also allow a LiFePO4 battery to be recharged from a Lead battery connected to an alternator.

Thanks to their large scale of input and output voltages, they can be configured as a simple converter or as a battery charger.

In this case, the charging curve delivered is comparable to the one of a smart charger:
– 5 steps
– all types of batteries (wet & sealed Lead, Calcium Lead, gel, AGM, Lithium, etc.)

Cooling is done naturally.



Shore-Power Units

CRISTEC YPOWER shore-power units combine an AC distribution system & automatic battery charger in a single cabinet.

The 12V charger is a brand new YPOWER model available either in 16, 25, or 40A with 3 fully isolated banks.

It operates from 90 to 265VAC, 47 to 65Hz, and delivers a smart 5-step charging curve for all battery types including LiFe PO.

High temperature efficient the charger delivers rated charge up to +60°C without derating.

Entirely silent as fanless the unit integrates a 16A/30mA RCD double pole main breaker and 2 single pole breakers 10A (more as an option).

The AC and DC connectors meet worldwide highest quality and safety standards.

Designed and manufactured in France the product has a standard 3-year warranty.

A remote-colored tactile display is available as an option to monitor battery voltage and temperature, charger current, AC voltage, and frequency as well as possible alarms.



MODEL	PART NUMBER	Circuit Breaker Bipolar Differential	Number of 10A MCBs	Output Voltage	Charger Current	Recommended Battery Bank (Ah)*	Charger Outputs	Weight (Kg)	Dimensions L x H xP (mm)
12V/16A	UEYPO/12-16/2D	30mA/16A	2	12V	16A	100 - 200 Ah	3	4,4	389 x 214,5 x 137,2 mm
	UEYPO/12-16/3D		3						
	UEYPO/12-16/4D		4						
12V/25A	UEYPO/12-25/2D		2		25A	200 - 300 Ah			
	UEYPO/12-25/3D		3						
	UEYPO/12-25/4D		4						

Innovative Battery Chargers

Scable chargers that meet current and future needs, specific charging profiles and communication protocols upon request. Parallel stacking feature allows up to four chargers to work together to combine the output current.





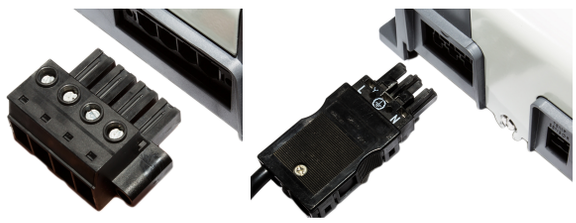
Silent Operating

Plug & Play Connectors

Worldwide Use

High Temperature Performance

- Rated charge up to +60°C with no derating
- Can be installed in an engine room
- Model 12V/40A Ignition protected according to standards SAE J1171 and ISO8846



Easy Connection

- Quick, reliable and friendly mounting
- AC & DC plug connectors included

5-Stage Charging Profile

- Boost: charges batteries to 80% of full charge
- Absorption: slowly completes remaining charge to 100%
- Floating: maintains battery charge
- Automatic refresh: prevents sulphation and revitalizes batteries, selectable by internal switch
- Reboost: new automatic Boost phase if battery demand needs it.
- Power-supply mode is also available.
- IU mode by inhibiting the BOOST using an internal switch.



Adaptive Charge

Presence of a custom-made and simultaneous recharge of 3 battery banks, including one dedicated to the motor battery.

YPOWER chargers are compatible with all types of batteries:

- Opened classic lead
- Sealed, Gel or AGM
- Spiral sealed
- Lithium Iron Phosphate (LiFePO4) with BMS

Part Number	YPO12-16ST	YPO12-25ST	YPO24-12ST	YPO24-20ST	YPO24-30ST
Model	12V/16A	12V/25A	24V/12A	24V/20A	24V/30A
Recommended Battery Bank (Ah)	100-200Ah	200-300Ah	100-200Ah	200-300Ah	300-500Ah
INPUT					
Voltage	From 90 to 265VAC single-phase automatic				
Frequency	From 47 to 65Hz automatic				
Input Current Consumption 230/115VAC	1,1/2,2A	1,7/3,4A	1,7/3,4A	2,9/5,9A	4,5/8,8A
Recommended Power for a Generator	280W	435W	420W	700W	1050W
Power Factor	1				
Removable Input Fuses	T6,3A/250V SCHURTER MST 250 Ref. 0034.6623 (F101)		T6,3A/250V SCHURTER MST 250 Ref.0034.6623 (F101)	T15A/250V 6,3x32 (F101)	
OUTPUT					
Number Of Battery Banks	3 (including one for the engine battery) : +BAT E, +BAT 1 et +BAT 2 (integrated Mosfet splitter) Each bank can be used individually and deliver the rated current				
Total Rated Current (+/-7%) / Rated Power	16A/228W	25A/356W	12A/342W	20A/570W	30A/855W
Charging Curve	IU or IUoU through internal dip switches (Boost. Absorption and Floating - factory setting) - Selectable automatic Refresh				
Battery Type	Lead sealed as factory setting - Other choices through internal setting (Calcium Lead, gel, AGM, LifePO4, Opened, etc.)				
Boost Voltage	14,4VDC for Lead sealed battery (factory setting)		28,8VDC for Lead sealed battery (factory setting)		
Floating Voltage	13,8VDC for Lead sealed battery (factory setting)		27,6VDC for Lead sealed battery (factory setting)		
Automotive Fuse in the Minus Pole-BAT	1 x 20A/32V (F500)	1 x 30A/32V (F500)	1 x 15A/32V (F500)	1 x 25A/32V (F500)	2 x 20A/32V (F500, F501)
ENVIRONMENT					
Cooling	Natural (fanless) - Electric fan controlled in temperature and current for 12V/60A and 24V/30A models				
Sound Level	0		0		<50dBa at 1m
Operating Temperature (230VAC)	From -20°C to +60°C, derating from 60°C, automatic charger switch off, automatic restart when temperature decreases				
Storage Temperature	From -20°C to +70°C				
Relative Humidity	Up to 70% (95% without condensation)				
CASING					
Material	Casing comprises 3 parts : 1. Aluminium sink frame | 2. Thermoplastic body | 3. Aluminium clasp				
Dimensions (length,height,depth) / weight	236 x 180 x 96 mm / 2,1kg		236 x 180 x 96 mm / 2,1kg	289 x 195 x 106 mm / 3,5kg	
Fixing Center Distance	219 x 155 mm		219 x 155 mm	272 x 170 mm	
Fixing Screw (Wall)	4 M5 round screws				
Protection Factor	IP22				
STANDARDS					
CE / CEM	EN61204-3				
CE / Security - Others	EN60335-2-29 - J1171/ISO8846 for model 12V/40A, ABYC A-31, Pending UL and CSA				
PROTECTIONS					
Against leaking input surges by VDR rupture (voltage dependent resistor) - Not covered by warranty. Against output polarity reversal by fuse rupture (removable automotive type). Against short-circuit and surge. Against abormal overheating by cutting off the charger (internal temperature probe - automatic restart)					
OPTIONS					
Temperature Probe	Output voltage compensation : -18mV/°C		Output voltage compensation : -36mV/°C		
Communication	CAN-BUS interface				

YPower+ Battery Charger



Silent Operating

CRISTEC is the only manufacturer to offer a 12V 60A charger with natural convection (without a fan). This specificity gives the YPOWER+ chargers a completely silent operation and an optimized lifespan. It is therefore possible to install them anywhere on board, including under a berth.

Worldwide Use

Automatic detection of the power supply network, from 90 to 265VAC and from 47 to 65Hz.

4 Independent Outputs

The YPOWER+ chargers are the only chargers having 4 independent outputs, including one dedicated to the engine battery. (*Except models 12V 16A & 25A, 24V 12A).

Remote Control

The chargers are fitted with a CAN-Bus interface as standard (according to models).

Low Energy Bluetooth

The chargers are equipped with Bluetooth Low Energy (BLE), a variant of “classic” Bluetooth (except the OE version – first fit Original Equipment). The major advantage of BLE is its low power consumption (it consumes half as much as a classic Bluetooth).

5-Stage Charging Profile

- Boost: charges batteries to 80% of full charge

- Absorption: slowly completes remaining charge to 100%

- Floating: maintains battery charge

- Automatic refresh: prevents sulphation and revitalizes batteries, selectable by internal pushbutton

- Reboost: new automatic Boost phase if DC consumers and the state of batteries so require. In addition, DC power-supply mode is also available.

Thermal Withstand

Chargers have full charge up to +60°C with no loss, resistant to harsh environments. They can be installed in the engine room thanks to ISO8846 compliance – Protection against ignition of flammable gases.

Easy Connection

Plug & Play connection, secure, simple, and fast without opening the charger. AC and DC connectors included (except OE version – first fit Original Equipment).

Adaptive Charge

Custom-made and simultaneous recharge of 4 battery banks (except models 12V 16A & 25A, 24V 12A - 3 banks). YPOWER+ chargers are compatible with all types of batteries:
- Opened classic lead
- Sealed, gel or AGM
- Spiral sealed
- Lithium Iron Phosphate (LiFePO4) with BMS
- Other technologies: contact us

Part Number	YPO12-16STPL (OEPL)	YPO12-25STPL (OEPL)	YPO24-12STPL (OEPL)	YPO12-40STPL (OEPL)	YPO12-60STPL (OEPL)	YPO24-20STPL (OEPL)	YPO12-30STPL (OEPL)
Model*	12V/16A	12V/25A	24V/12A	12V-40A	12V-60A	24V-20A	24V-30A
Recommended Battery Bank**	100-200Ah	200-300Ah	100-200Ah	300-500Ah	500-700Ah	200-300Ah	300-500Ah
INPUT							
Voltage	From 90 to 265VAC single-phase automatic						
Frequency	From 47 to 65Hz automatic						
Current Consumed 230/115VAC	1.1/2.2A	1.7/3.4A	1.7/3.4A	2.7/5.6A	4.4/8.7A	2.9/5.9A	4.5/8.8A
Recommended Power for a Generator	280W	435W	420W	700W	1050W	700W	1050W
Power Factor	1						
Efficiency	>90%						
Input Fuse	T6.3A/250V - SCHURTER Ref. 0001.1032			T15A/250V - 6.3x32 (F101)			
OUTPUT							
Number of Battery Banks	3 seperate positive terminals : +BAT E, +BAT 1 and +BAT 2 (intergrated MOSFET splitter) 1 negative terminal : -BAT. Each bank can be used individually and delivers the rated current			4 seperate positive terminals : +BAT E, +BAT 1, +BAT 2 and +BAT 3 (integrated MOSFET splitter) 1 negative terminal : -BAT Each bank can be used individually and delivers the rated current			
Nominal Current (+/-7%) @ Rated Power	16A/228W	25A/356W	12A/342W	40A/570W	60A/855W	20A/570W	30A/855W
Charging Curve	Charging curve selection by internal push-button, Bluetooth or CAN-Bus (Boost, Absorption, Floatingand Refresh)						
Battery Type	Sealed lead as factory setting - Gel, AGM, calcium lead, LiFePO4, DC power-supply mode, etc. Specific request demand						
Boost Voltage for sealed lead battery (factory setting)	14.4VDC		28.8VDC	14.4VDC		28.8VDC	
Floating Voltage for sealed lead battery (factory setting)	13.8VDC		27.6VDC	13.8VDC		27.6VDC	
Peak to Peak Ripple and Noise	<2% (at rated conditions)						
Automotive fuses mounted in series in minus pole -BAT	1 x 20A/32V (F400)	1 x 30A/32V (F400)	1 x 15A/32V (F400)	3 x 30A/32V (F400, F401, F402)	4 x 30A/32V (F400, F401, F402, F403)	1 x 30A/32V (F400)	2 x 30A/32V (F400, F401)
ENVIRONMENT							
Cooling	Natural (Fanless)						
Sound Level	0						
Operating T° at 230VAC	From -20°C to +60°C, derating from 60°C						
Storage T°	From -20°C to +70°C						
Relative Humidity	Up to 70% (95% without condensation)						
CASING							
Material	Casing compromises 3 parts : Aluminium sink frame / Thermoplastic body / Aluminium clasp						
Dimensions (length, height, depth) / Weight	236 x 180 x 96 mm / 2kg			289 x 195 x106 mm / 3.5kg	289 x 195 x 106 mm / 3.7kg	289 x 195 x 106 mm / 3.6kg	
Fixing Center Distance	219 x 155 mm			272 x 170 mm			
Fixing Screw (Wall)	4 M5 round head screws						
Protection Factor	IP22						
Electronic Card Protection	Water-repellent varnish (marine environment)						
STANDARDS							
CE Declaration of Conformity	Available on request						
CE / EMC	EN61204-3						
CE / Security	EN60335-2-29, ISO8846						
PROTECTIONS							
	Against transient input overvoltage by varisitor (Not covered by warranty) Against output polarity reversal by fuses Against short-circuits and output overloads Against abnormal overheating						
COMMUNICATION							
	CAN-Bus (according to models) / Bluetooth as standard (optional on OE version)			CAN-Bus / Bluetooth as standard (optional on OE version)			
OPTIONS							
	Temperature probe / Bluetooth (OE versions)						

*Versions 24V 40A, 36V 20A & 48V 15A pending
**Recommended battery capacity for lead type betteries, ratio C/10. Consult us for lithium batteries capacity

YPower+ Shore-Power Units

12V/40A & 12V/60A



The new CRISTEC shore-power units combine, in a single cabinet, the AC protection and distribution, as well as an automatic battery charger.

The complete system meets the European standards in force and makes it possible to optimize size and assembly time.

User protection consists of a two-pole differential RCD (Residual Current Device) and the distributions are made by 2 to 6 two-pole circuit breakers (Over Current Protection Device).

The battery charger function is ensured by an HF switch-mode electronic card, stemming from the latest YPOWER+ generation.

Availability models 12V 40A & 60A – Q2 2023 – Other models – TBA

Silent Operating

Cristec offers shore-power units with natural convection (without fan). This specificity gives them a completely silent operation and an optimized lifespan.

Worldwide Use

Automatic detection of the power supply network, from 90 to 265VAC and from 47 to 65Hz.

4 Independent Outputs

The shore-power units have 4 independent charger outputs, including one dedicated to the engine battery (*except models 12V 16A & 25A, 3 banks).

Remote Control

The shore-power units are fitted with a CAN-Bus interface as standard (according to models).

Adaptive Charging

Custom-made and simultaneous recharge of 4 battery banks. (*except models 12 16A & 25A, 3 banks). YPOWER+ shore-power units are compatible with all types of batteries :
- Opened classic lead
- Sealed, gel or AGM
- Spiral sealed
- Lithium Iron Phosphate (LiFePO4) with BMS

	AC Electrical Panel				Battery Charger			
Model	Main RCD	AC Outputs	16A Circuit Breakers	10A Circuit Breakers	Voltage	Nominal Current	Recommended Battery Bank	Number of Outputs
UEYPOP/12-40/3D	30mA/16A	3	-	3	12V	40A	300-500Ah	4
UEYPOP/12-40/4D		4		4				
UEYPOP/12-40/4D3	30mA/32 A		3	1				
UEYPOP/12-60/3D	30mA/16A	3	-	3		60A	500-700Ah	
UEYPOP/12-60/4D		4		4				
UEYPOP/12-60/4D3	30mA/32 A		3	1				

*Recommended battery capacity foe lead type batteries, ratio C/10.

Model	YPOWER+ 12V-40A	YPOWER+ 12V-60A
Casing		
Material	Casing : • Frame and cover of EZ stainless steel • Anodized aluminium heatsink	
Painting	• RAL 7015 satin slate gray frame • RAL 7047 satin gray cover	
Dimensions (Length, Height, Depth) / Weight	350 x 241 x 171 mm - 7kg	
Fixing Center Distance	180 x 133 mm	
Fixing Screw (Wall)	4 x M5 Round Head Screws	
Protection Factor	IP20	
Environment		
Operating Temperature	From -20°C to + 60°C, derating from 60°C	
Cooling	Natural (fanless)	
Relative Humidity	Up to 70% (95% without condensation)	
Input		
Voltage	115VAC / 230VAC +/-15% single-phase	
Frequency	50/60Hz	
Current Consumed 230/115VAC	2.7/5.6A	4.4/8.7A
Efficiency	>90%	
Output		
Number of Battery Banks	4 seperate positive terminals : +BAT E, +BAT 1, +BAT 2 and +BAT 3 (integrated MOSFET splitter) 1 negative terminal : -BAT Each bank can be used individually and delivers the rated current	
Nominal Current (+/-7%) @ Rated Power	40A/570W	60A/855W
Charging Curve	Charging curve selection by internal push-button, Bluetooth or CAN-Bus (depending on model) (Boost, Absorption, Floating and Refresh)	
Battery Type	Sealed as factory setting - Other selections by pushbutton : Gel, AGM, calcium lead, LiFePO4, DC power-supply mode, etc. Specific request on demand	
Automotive Fuses Mounted in Series in Minus Pole -BAT	3 x 30A/32V (F400, F401, F402)	4 x 30A/32V (F400, F401, F402, F403)
Electrical Protections		
	Against transient input overvoltage by varistor (not covered by warranty) Against output polarity reversal by fuses Against abnormal overheating	
Standards		
CE / EMC	NF EN61000-6-1, NF EN61000-6-2	
Communication		
	CAN-Bus / Bluetooth as standard	
Options		
Temperature Probe	Output voltage compensation -18mV/°C	

*Versions 24V 40A, 36V 20A & 48V 15A pending
**Recommended battery capacity for lead type betteries, ratio C/10. Consult us for lithium batteries capacity

YPower MPPT Solar Charge Regulators

YPOWER fanless solar charge regulators are designed for installations in 12 or 24V, medium & high power.

MPPT technology (Maximum Power Point Tracking) increases the efficiency of solar panels enabling them to recharge batteries faster.

Thanks to a charge regulation similar to a smart battery charger, it matches all battery types: wet & sealed Lead, Calcium Lead, gel, AGM, Lithium, etc.

Input voltage detection is not automatic to avoid any major malfunction in the event of a faulty output battery.



Cooling is done naturally

Remote control can be done through a serial BUS-CAN interface

Mechanical Characteristics

- Input/output connection : with M6 connectors
- Indicator : 2 bicolour LEDs
- Casing : 4 x M5 external fixings for easy wall mounting
- Natural cooling (fanless)
- Protection factor : IP22
- Dimensions : 236 x 180 x 96 mm
- Weight : 2.2 kg

Input/Output Characteristics

- Input voltage : 10 to 45VDC or 10 to 80VDC according to models
- Output voltage : 12 or 24VDC (from 0 to 32VDC)
- Nominal power : 800W
- Max. output current : 20 to 60A according to models
- Isolation Input/Output : no as 0V is common
- 5-step charging curve : Boost, Absorption, Floating, Refresh & Reboost
- Battery type selection through push-button or CAN-BUS
- Efficiency : > 96%
- Ripple : < 1%
- Remote control : serial CAN-BUS interface

Item Code
YPO45-12-60/MPPT
YPO45-24-30/MPPT
YPO80-12-40/MPPT
YPO80-24-25/MPPT

Applications

YPOWER DC-DC battery chargers adapt to different markets and applications:

- Professional marine: naval, service boat, fishing boat, passenger boat, tug, barge, lighthouse and beacon.
- Recreational marine: yachting, sailing boat, motor boat, electric boat, catamaran, speedboat, etc.
- Mobile :
  • Emergency vehicles: firemen, ambulance, rescue, depollution, etc.
  • Recreational vehicles: motorhome, golf course, etc.
  • Special vehicles: surveillance, transport of animals, Van, public works, etc.
- Industry: automated cleaning, on-board cameras, recognition robots, telecommunications, etc.
- Wind-powered: land sites
- Solar: isolated sites

Protections

- PCB: water-repellent varnish
- Input and Output: current limitation, automatic power limitation for an ambient temperature > 60°C

KERSINE High-Power Inverters

KERSINE high-power inverters are powerful enough to power high-power devices (microwave ovens, coffee machines, hair dryers, etc.).

They deliver 3KW, continuously, regardless of the type of device connected, and up to + 50°C ambient.

Thanks to high-quality sinewave signals, voltage and frequency are always stable.

Their installation is simple thanks to professional connectors on terminals.

KERSINE inverters have built-in alarms, as well as 2 transfer relays (30A) which provide, in particular, the UPS function.



High Power

They are powerful enough to power high-power AC devices (microwave ovens, coffee machines, hair dryers, etc.).

Easy and Robust Installation

Installation is simple thanks to the supplied AC output cable.

Thermal Withstand

They deliver 3kW, continuously, regardless of the type of device connected, and up to + 50°C ambient.

CAN-Bus Interface

A serial CAN-Bus interface allows control and configuration of KERSINE inverters in real-time.

Pure Sinewave

Thanks to their sinusoidal signal without harmonic distortion, your devices are protected and energy loss is reduced.

Parallel Mounting

The inverters can be parallel-mounted to increase the output power. Three-phase operation is also possible (with 3 units).

Model	KERSINE 12VDC 230VAC 3000VA	KERSINE 24VDC 230VAC 3000VA	KERSINE 48VDC 230VAC 3000VA
Part Number	KERS12-230/3000	KERS24-230/3000	KERS48-230/3000[2]
DC INPUT			
Voltage	10.5V - 16V	21V - 32V	42V - 64V
Maximum Current	300A	150A	75A
On Mode @ No Load Mode	12W		
Efficiency	88%		
Input Fuse	400A	200A	100A
AC Output			
Voltage Range	220/230/240VAC[3]		
Frequency Selectable	50/60Hz		
Rated Power	3000W		
Peak Power 3s	3500W		
Earth Relay	1 x 30A		
Waveform	Sinusoidal THD < 3%		
Parallel Mounting	Up to 4 units in parallel mode / 3 for three-phase[1]		
AC Fuses (Phase and Neutral)	25A		
Environment			
Cooling	Electric fans controlled in T° and current		
Operating Temperature	From -20°C to +50°C, derating from 50°C		
Storage Temperature	From -40°C to +70°C		
Relative Humidity	Up to 70% (95% without condensation)		
Casing			
Length, Height, Depth / Weight	270 x 360 x 130mm / 6.8kg		
Protection Factor	IP23		
Electronic Card Protection	Water-Repellent Varnish (Marine Environment)		
Communication Port	CAN-Bus as standard - Bluetooth (pending)		
Standards			
CE Declaration of Conformity	Available on request		
CE / EMC	EN61204-3		
CE / Security - Others	EN60335-2-29 - E-marking (pending)		
Protections			
Input	Reverse Polarity (fuses) / Under voltage / Over voltage		
Output	Short-circuit / Overload / Over Temperature		

1,2 : Pending | 3 : 115VAC models pending

HPower

Innovative Battery Chargers

Performances

- 5-stage charging profile to ensure fast and complete charging, power-supply mode available

- Full power up to +50°C ambient with no derating allowing rated charge for intensive use in hot or confined place

- 3 isolated battery banks, with no current limitation

- Suitable for all battery types : flooded, Lead-sealed, Calcium-Lead, AGM, gel, Lithium, etc.

- Increased battery life



Worldwide Use

- 90-265VAC/47-65Hz auto-ranging (some models have 400V 3-phase input : 24V 60A, 24V 100A & 48V 50A)

- Rated operation regardless the available AC voltage including from a genset

- Memory function : in case of unstable AC network the charger will not reset to prevent battery overcharging

- Best in class protection : removable fuses and varistor, coated circuit board for marine environment, automatic burn-in test

Ergonomics

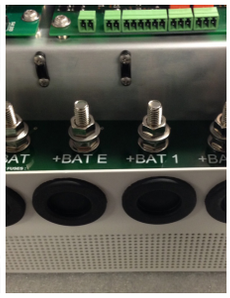
- Lightweight rugged aluminium casing with special coating for marine environment

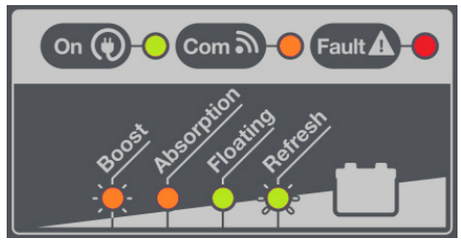
- Optimal accessibility : specific secured connection compartment

- Readability comfort dedicated LEDs and icons on the front









Applications

HPOWER AC-DC battery chargers adapt to different markets and applications:

- Professional marine : naval, service boat, fishing boat, passenger boat, tug, barge, lighthouse and beacon.

- Recreational marine : yachting, sailing boat, motor boat, electric boat, catamaran, speedboat, etc.

- Mobile :
  - Emergency vehicles : firemen, ambulance, rescue, depollution, etc.
  - Recreational vehicles : motorhome, golf course, etc.
  - Special vehicles : surveillance, transport of animals, van, public works etc.

- Industry : automated cleaning, on-board camera, recognition robots, telecommunications, etc.

- Wind-powered : landsites

- Solar : isolated sites

Part Number	HPO12-90	HPO24-45	HPO24-60	HPO24-80	HPO24-100
Model	12V/90A	24V/45A	24V/60A	24V/80A	24V/100A
Recommended Battery Bank (Pb)*	600-1000Ah	300-600Ah	500-800Ah	700-1000Ah	800-1300Ah
INPUT					
Voltage	From 90 to 265VAC single-phase automatic				
Frequency	From 47 to 65Hz automatic				
Input Current Consumption 230/115VAC	6,0A/16,0A		9,0A/20,0A	11,0A/20,0A	15,0A/30,0A
Recommended Power for a Generator	1600W		2100W	2800W	3520W
Power Factor	1				
Effiency	87% typical				
Removable Input Fuses	2 x 20A 250Vac (6,3x32) (F1/F2)		2 x 25A 250Vac (6,3x32) (F1/F2)		2 x 32A 250Vac (6,3x32) (F1/F2)
OUTPUT					
Number of Battery Banks	3 (including one for the engine battery) : +BAT E, +BAT 1 et +BAT 2 (integrated) 1 negative -BAT Each bank can be used individually and deliver the rated current				
Connection On Threaded Rods	M6				M8
Rated Current / Power	90A/1282W	45A/1282W	60A/1710W	80A/2280W	100A/2850W
Charging Profile	IU or IUoU through internal dip switches (Boost, Absorption and Floating - factory setting). Selectable automatic Refresh				
Battery Type	Lead-sealed as factory setting - Gel, AGM, Calcium Lead, Lithium, DC power-supply mode, etc. Specific request on demand				
Boost Voltage	14,4VDC as factory setting for Lead-sealed	28,8VDC as factory setting for Lead-sealed			
Floating Voltage	13,4VDC as factory setting for Lead-sealed	27,6VDC as factory setting for Lead-sealed			
Regulation Tolerance Before Output Diode and Fuse	< 1% (at rated conditions)				
Peak to Peak Ripple	< 1% (at rated conditions)				
Automotive Fuse in the Minus Pole -BAT	4 x 30A/32V	2 x 30A/32V	3 x 25A/32V	4 x 25A/32V	4 x 30A/32V
ENVIRONMENT					
Cooling	Electric fan controlled in temperature and current				
Sound Level	< 50 dBa at 1m				
Operating Temperature	Rated charge from -20°C to +50°C. Automatic charger switch off above 60°C; automatic restart when temperature decreases				
Storage Temperature	From -20°C to +70°C				
Relative Humidity	Up to 96% without condensation				
CASING					
Material	Painted Aluminium				
Dimensions (length, height, depth) / Weight	270 x 360 x 130 mm / 6,8kg				270 x 410 x 130 mm / 9,0kg
Fixing Screw (Wall)	4 x M6 round screws				
Protection Factor	IP23				
PCB Protection	Water-repellent varnish				
STANDARDS					
CE / CEM	EN61204-3				
CE / Security	EN60335-2-29				
PROTECTIONS					
	Against leaking input surge by VDR (Voltage Dependant Resistor) - Not covered by warranty				
	Against output polarity reversal by fuse rupture				
	Against short-circuit and surge				
	Against abnormal overheating by cutting off the charger				
OPTIONS					
Temperature Probe	Output voltage compensation (12V : -18mV/°C • 24V : -36mV/°C) 2.8m : STP-UNI-2.8 • 5m : STP-UNI-5.0				
Prallel Mounting	KIT-HPO-LINK : up to 4 units with real time balancing feature				
24" Remote Color Touch-Screen Control Panel	UNI-DISPLAY-R : also available integrated on the front panel				

*Recommended battery capacity Lead-sealed, C/10 ratio. For Lithium batteries, please consult us

HPower

Battery Chargers : 48V, From 30 to 50A

Performances

- 5-stage charging profile to ensure fast and complete charging, power-supply mode available

- Full power up to +50°C ambient with no derating allowing rated charge for intensive use in hot or confined place

- 3 isolated battery banks, with no current limitation

- Suitable for all battery types : flooded, Lead-sealed, Calcium-Lead, AGM, gel, Lithium, etc.

- Increased battery life



Worldwide Use

- 90-265VAC/47-65Hz auto-ranging (some models have 400V 3-phase input : 24V 60A, 24V 100A & 48V 50A)

- Rated operation regardless the available AC voltage including from a genset

- Memory function : in case of unstable AC network the charger will not reset to prevent battery overcharging

- Best in class protection : removable fuses and varistor, coated circuit board for marine environment, automatic burn-in test



Ergonomics

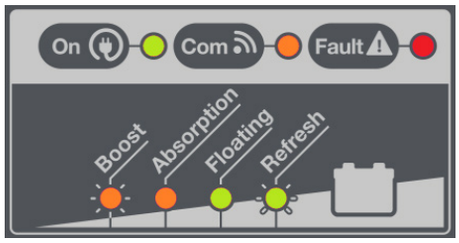
- Lightweight rugged aluminium casing with special coating for marine environment

- Optimal accessibility : specific secured connection compartment

- Readability comfort dedicated LEDs and icons on the front







Applications

HPOWER AC-DC battery chargers adapt to different markets and applications:

- Professional marine : naval, service boat, fishing boat, passenger boat, tug, barge, lighthouse and beacon.

- Recreational marine : yachting, sailing boat, motor boat, electric boat, catamaran, speedboat, etc.

- Mobile :
  - Emergency vehicles : firemen, ambulance, rescue, depollution, etc.
  - Recreational vehicles : motorhome, golf course, etc.
  - Special vehicles : surveillance, transport of animals, van, public works etc.

- Industry : automated cleaning, on-board camera, recognition robots, telecommunications, etc.

- Wind-powered : landsites

- Solar : isolated sites

Part Number	HPO48-30	HPO48-50
Model	48V / 30A	48V / 50A
Recommended Battery Bank (Pb)*	150 - 400Ah	250 - 700Ah
INPUT		
Voltage	From 90 to 265VAC single-phase automatic (**)	
Frequency	From 47 to 65Hz automatic	
Input Current Consumption 230/115VAC	9,0A/20,0A	15,0A/30,0A
Recommended Power for a Generator	2100W	3520W
Power Factor	1	
Effiency	87% typical	
Removable Input Fuses	2 x 25A 250VAC (6,3x32) (F1/F2)	2 x 32A 250VAC (6,3x32) (F1/F2)
OUTPUT		
Number of Battery Banks	3 (including one for the engine battery) : +BAT E, +BAT 1 et +BAT 2 (integrated isolator), 1 negative -BAT Each bank can be used individually and deliver the rated current	
Connection On Threaded Rods	M6	
Rated Current / Power	30A / 1710W	50A / 2850W
Charging Profile	IU or IUoU through internal dip switches (Boost, Absorption and Floating - factory setting). Selectable automatic Refresh	
Battery Type	Lead-sealed as factory setting - Gel, AGM, Calcium Lead, Lithium, DC power-supply mode, etc. Specific request on demand	
Boost Voltage	57,6VDC as factory setting for Lead-sealed	
Floating Voltage	52,2VDC as factory setting for Lead-sealed	
Regulation Tolerance Before Output Diode and Fuse	< 1% (at rated conditions)	
Peak to Peak Ripple	< 1% (at rated conditions)	
Automotive Fuse in the Minus Pole -BAT	2 x 20A/80V	3 x 20A/80V
ENVIRONMENT		
Cooling	Electric fan controlled in temperature and current	
Sound Level	< 50 dBa at 1m	
Operating Temperature	Rated charge from -20°C to +50°C, derating above 50°C. Automatic charger switch off above 60°C; automatic restart when temperature decreases	
Storage Temperature	From -20°C to +70°C	
Relative Humidity	Up to 96% without condensation	
CASING		
Material	Painted Aluminium	
Dimensions (length, height, depth) / Weight	270 x 360 x 130 mm / 6,8kg	270 x 410 x 130 mm / 9,0kg
Fixing Screw (Wall)	4 x M6 round screws	
Protection Factor	IP23	
PCB Protection	Water-repellent varnish	
STANDARDS		
CE / CEM	EN61204-3	
CE / Security	EN60335-2-29	
PROTECTIONS		
	Against leaking input surge by VDR (Voltage Dependant Resistor) - Not covered by warranty	
	Against output polarity reversal by fuse rupture	
	Against short-circuit and surge	
	Against abnormal overheating by cutting off the charger	
OPTIONS		
Temperature Probe	Output voltage compensation (-72mV/°C) 2.8m : STP-UNI-2.8 • 5m : STP-UNI-5.0	
Prallel Mounting	KIT-HPO-LINK : up to 4 units with real time balancing feature	
24" Remote Color Touch-Screen Control Panel	UNI-DISPLAY-R : also available integrated on the front panel	

*Recommended battery capacity Lead-sealed, C/10 ratio. For Lithium batteries, please consult us.
**Can be supplied in 144VDC (121-169VDC). Precautions : high voltage DC fuses upstream of the charger on the + and - poles.

HPower DNV
Battery Chargers



Presentation

Specialised in the design of automatic battery chargers for more than 30 years, Cristec is proud to offer you high-quality battery chargers for the toughest conditions for professional and recreational purposes: HPOWER. They offer unwavering reliability thanks to a proven HF technology, for professional use in severe environmental conditions.

Parallel Operation

The chargers can be connected in parallel to increase the charging power: by up to 4 units (balancing through the Master-Slave function).

DNV Certified Version

Integrated 2.4' touch-screen control panel and relay board.
Certification: TAE 00003JC.

3 Isolated Battery Banks

Simultaneous recharge of 3 independent battery banks, without any current limitation.

Performance

Up to +50°C ambient with no derating allowing rated charge for intensive use in hot or confined places.

CAN-BUS Interface

A serial CAN-BUS interface allows real-time control and configuration of HPOWER chargers.

Easy and Robust Installation

Aluminum housing is treated to withstand the marine environment and a secure wiring compartment.

Part Number	HPO12-90-CERT	HPO24-45-CERT	HPO24-60-CERT	HPO24-80-CERT	HPO24-100-CERT
Model	12V/90A	24V/45A	24V/60A	24V/80A	24V/100A
Recommended Battery Bank (Pb)*	600-1200Ah	300-600Ah	500-800Ah	700-1000Ah	800-1300Ah
INPUT					
Voltage	From 90 to 265VAC single-phase automatic				
Frequency	From 47 to 65Hz automatic				
Input Current Consumption 230/115VAC	6,0A/16,0A		9,0A/20,0A	11,0A/20,0A	15,0A/30,0A
Recommended Power for a Generator	1600W		2100W	2800W	3520W
Power Factor	1				
Effiency	87% typical				
Removable Input Fuses	2 x 20A 250VAC (6,3x32) (F1/F2)		2 x 25A 250VAC (6,3x32) (F1/F2)		2 x 32A 250VAC (6,3x32) (F1/F2)
OUTPUT					
Number of Battery Banks	3 (including one for the engine battery) : +BAT E, +BAT 1 et +BAT 2 (integrated isolator), 1 negative -BAT. Each bank can be used individually and deliver the rated current				
Connection On Threaded Rods	M6				M8
Rated Current / Power	90A/1282W	45A/1282W	60A/1710W	80A/2280W	100A/2850W
Charging Profile	IU or IUoU through internal dip switches (Boost, Absorption and Floating - factory setting). Selectable automatic Refresh				
Battery Type	Lead-sealed as factory setting - Gel, AGM, Calcium Lead, Lithium, DC power-supply mode, etc. Specific request on demand				
Boost Voltage	14,4VDC as factory setting for Lead-sealed	28,8VDC as factory setting for Lead-sealed			
Floating Voltage	13,8VDC as factory setting for Lead-sealed	27,6VDC as factory setting for Lead-sealed			
Regulation Tolerance Before Output Diode and Fuse	< 1% (at rated conditions)				
Peak to Peak Ripple	< 1% (at rated conditions)				
Automotive Fuse in the Minus Pole -BAT	4 x 30A/32V	2 x 30A/32V	3 x 25A/32V	4 x 25A/32V	4 x 30A/32V
ENVIRONMENT					
Cooling	Electric fan controlled in temperature and current				
Sound Level	< 50 dBa at 1m				
Operating Temperature	Rated charge from -20°C to +50°C, derating above 50°C. Automatic charger switch off above 60°C; automatic restart when temperature decreases				
Storage Temperature	From -20°C to +70°C				
Relative Humidity	Up to 96% without condensation				
CASING					
Material	Painted Aluminium				
Dimensions (length, height, depth) / Weight	270 x 360 x 130 mm / 6,8kg				270 x 410 x 130 mm / 9,0kg
Fixing Screw (Wall)	4 x M6 round screws				
Protection Factor	IP23				
PCB Protection	Water-repellent varnish				
24" Remote Color Touch-Screen Control Panel	Integrated on the front panel				
STANDARDS					
CE / CEM	EN61204-3				
CE / Security	EN60335-2-29				
PROTECTIONS					
	Against leaking input surge by VDR (Voltage Dependant Resistor) - Not covered by warranty				
	Against output polarity reversal by fuse rupture				
	Against short-circuit and surge				
	Against abnormal overheating by cutting off the charger				
OPTIONS					
Temperature Probe	Output voltage compensation (12V : -18mV/°C • 24V : -36mV/°C) 2.8m : STP-UNI-2.8 • 5m : STP-UNI-5.0				

*Recommended battery capacity Lead-sealed, C/10 ratio. For Lithium batteries, please consult us

Isolated DC/DC Converters

SD Range

DC-DC converters can be used to increase or decrease the voltage, to power electrical and electronic equipment.

With a galvanic isolation between input and output, DC/DC converters are available in 12, 24, and 48V.

They can operate as a battery charger: the charging voltage is adjustable by an external potentiometer.

Finally, there may be up to 3 converters in parallel to increase the available power.



Characteristics

- Presentation :
  - Closed box
  - Fixing on screw terminals
- Output Power :
  - 195W
- Output Electric Characteristics :
  - Typical efficiency : 75 %
  - Ligne regulation : 1 %
  - Load regulation : 2 % (10 to 100 %)
- Dielectric Rigidity :
  - Input/output > 1000Vdc.
- Cooling :
  - Natural

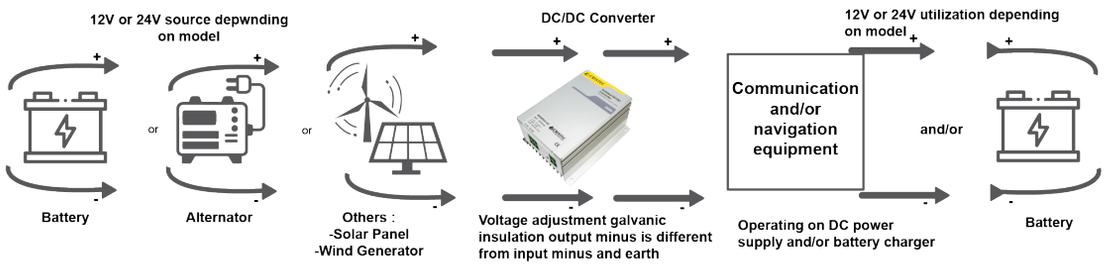
Voltage

- Nominal Input Voltage :
  - 12Vdc : from 10 to 18Vdc
  - 24Vdc : from 18 to 36Vdc
  - 48Vdc : from 36 to 72Vdc
- Output Voltage :
  - 12, 24 or 48Vdc nominal
  - Voltage adjustment by external potentiometer

Protection

- Input Protection :
  - Against polarity reversal
  - EMI filter
  - By fuses
- Output Protection :
  - Against short-circuit
  - Against overload by a current limitation
  - Against overvoltage (Vnom + 25 %)

ITEM CODE	DESCRIPTION	INPUT VOLTAGE (Vdc)	OUTPUT VOLTAGE (Vdc)	OUTPUT CURRENT (A)	MAX. OUTPUT CURRENT (A)	DIMENSIONS h x w x d (mm)
25000160DD	SD 203-I1-DD-AL	12	12	16	18	166 x 108 x 80mm
25000163DD	SD 206-I1-DD-AL	12	24	8	10	166 x 108 x 80mm
25000166DD	SD 208-I1-DD-AL	12	48	4	5	166 x 108 x 80mm
25000161DD	SD 203-I2-DD-AL	24	12	16	18	166 x 108 x 80mm
25000164DD	SD 206-I2-DD-AL	24	24	8	10	166 x 108 x 80mm
25000167DD	SD 208-I2-DD-AL	24	48	4	5	166 x 108 x 80mm
25000162DD	SD 203-I3-DD-AL	48	12	16	18	166 x 108 x 80mm
25000165DD	SD 206-I3-DD-AL	48	24	8	10	166 x 108 x 80mm
25000168DD	SD 208-I3-DD-AL	48	48	4	5	166 x 108 x 80mm



Solo Inverters

Sinewave

The inverters aim to convert batteries' direct voltage into 230VAC/50Hz alternating current. The SOLO digital sinewave has reduced the number of components and increased the equipment's reliability.

The SOLO inverters deliver a sinusoidal wave identical to the main supply. Their physical characteristics enable a wide scope of applications such as marine, mobile, renewable energy, industry, etc.

- Data processing: vehicle equipped with computing equipment, on-board computer, automatic systems, etc.

- Telecommunications: radio communication relay, onboard telephony, radio stations and beacons, radio navigation, etc.

- Lighting: security lighting, incandescent and fluorescent lighting, etc.

- Domestic and industrial equipment: domestic appliances, television, portable tools, refrigerators, microwaves, etc.



Characteristics

- Significant overload capacity for starting surges
- High efficiency, low stand-by consumption
- High reliability, limited size and weight

Protection

- Fuse integrated protection
- Battery protection with stop on low voltage

Silent

- Silent and comfort

Voltage

- Incoming power : voltage 12, 24 or 48VDC
- Output : voltage 230VAC
  - Single phase
  - 50Hz, power from 200VA to 3500VA
  - On request : 115VAC - 50Hz/60Hz or 230VAC - 60Hz

PART NUMBER	INPUT VOLTAGE	CONSTANT POWER	MAXIMUM POWER	INSTANTANEOUS POWER (5s)	EFFICIENCY	DIMENSIONS	WEIGHT
SEEL006054B	12V	200VA	275VA (30mn)	450VA	93%	163x142x84 mm	2,4 Kg
SEEL006056B	12V	400VA	500VA (30mn)	1000VA	93%	240x142x84 mm	4,5 Kg
SEEL006072*	12V	800VA	1000VA (30mn)	2200VA	93%	428x142x84 mm	8,5 Kg
SEEL006088*	12V	2000VA	2100VA (30mn)	5000VA	92%	399x273x117 mm	19 Kg
SEEL006050B	24V	300VA	350VA (30mn)	650VA	94%	163x142x84 mm	2,6 Kg
SEEL006052B	24V	500VA	600VA (30mn)	1200VA	94%	240x142x84 mm	4,5 Kg
SEEL006074*	24V	1000VA	1300VA (30mn)	2800VA	94%	428x142x84 mm	8,5 Kg
SEEL006090*	24V	2000VA	2400VA (30mn)	5200VA	94%	399x273x117 mm	18 Kg
SEEL006092	24V	2300VA	3000VA (15mn)	8000VA	95%	591x215x124 mm	27 Kg
SEEL006822	24V	3300VA	4300VA (15mn)	11000VA	95%	636x215x124 mm	30 Kg
SEEL006954	48V	300VA	400VA (30mn)	1000VA	94%	163x142x84 mm	2,6 Kg
SEEL008368	48V	500VA	700VA (30mn)	1400VA	94%	240x142x84 mm	4,5 Kg
SEEL006082	48V	1200VA	1800VA (15mn)	4200VA	95%	391x215x124 mm	13,2 Kg
SEEL006094	48V	2300VA	3400VA (15mn)	8000VA	95%	636x215x124 mm	27 Kg
SEEL006096	48V	3500VA	4300VA (15mn)	12000VA	95%	791x215x124 mm	38 Kg

Electric Battery Isolators
RCE Range

The RCE MOSFET electronic battery isolators are electronic devices designed to direct the charging current to several batteries while preventing current from flowing from one battery to another.

The DC input power source may be an alternator, a charger, a wind turbine, a solar panel, a hydrogenator, etc.

The RCE battery isolators have a negligible voltage drop compared to conventional diode models which generate a drop of the order of 0.7VDC.

They can be used with any type of generator including electronic models, thanks to its special IG (Ignition = priming) terminal.

The DC input power source will determine the rating of the battery isolator:

For a 120A alternator, choose a 150A isolator (if a battery is either deeply discharged or short-circuited, the available input current may flow through the isolator).



Characteristics

- Type : MOSFET

- Complete and fast charge of 2 or 3 battery sets

- Operating in 12V or 24V from any energy source :
alternator, wind generator, solar-panel, battery charger, etc.

Integrated ignition alternator terminal (except model RCE/100-2E-3)

- Connection : + battery on threaded rods, – battery on Faston terminal at minus common (reference)

- Operating indicator (alternator output voltage presence)

- Operating temperature (*) : -40°C /+85°C

- Cooling : natural

ITEM CODE	RATED CURRENT (*)	NUMBER OF INPUTS	NUMBER OF OUTPUTS	IG CONNECTION (STIMULATION OF ALTERNATOR)	OVERALL DIMENSIONS in mm (w x h x d)	WEIGHT
RCE/100-1E-2IG	100A	1 (Ø M6)	2 (Ø M6)	Yes	146 x 97 x 85	0,8kg
RCE/100-1E-3IG	100A	1 (Ø M6)	3 (Ø M6)	Yes	158 x 146 x 85	0,8kg
RCE/100-2E-3	100A	2 (Ø M6)	3 (Ø M6)	No	158 x 146 x 85	0,8kg
RCE/150-1E-2IG	150A	1 (Ø M8)	2 (Ø M6)	Yes	146 x 97 x 85	0,8kg
RCE/150-1E-3IG	150A	1 (Ø M8)	3 (Ø M6)	Yes	158 x 146 x 85	0,8kg
RCE/180-1E-2IG	180A	1 (Ø M8)	2 (Ø M8)	Yes	146 x 97 x 85	0,8kg
RCE/180-1E-3IG	180A	1 (Ø M8)	3 (Ø M8)	Yes	158 x 146 x 85	0,8kg
RCE/200-1E-3IG	200A	1 (Ø M10)	3 (Ø M8)	Yes	158 x 146 x 85	0,8kg

Isolation Transformer

With Softstart

CRISTEC isolation transformers avoid electrolysis in salted water.
Slow galvanic corrosion not only occurs in metal and aluminium hulls. It can occur in any metallic part being in contact with water : anodes, shafts, etc.
This is why the isolation transformer housing has been marinized to protect all internal components. This feature allows isolation transformers to extend their life.

CRISTEC isolation transformer eliminates any electrical continuity between the boat AC on-board network and the shore-side supply.



Characteristics

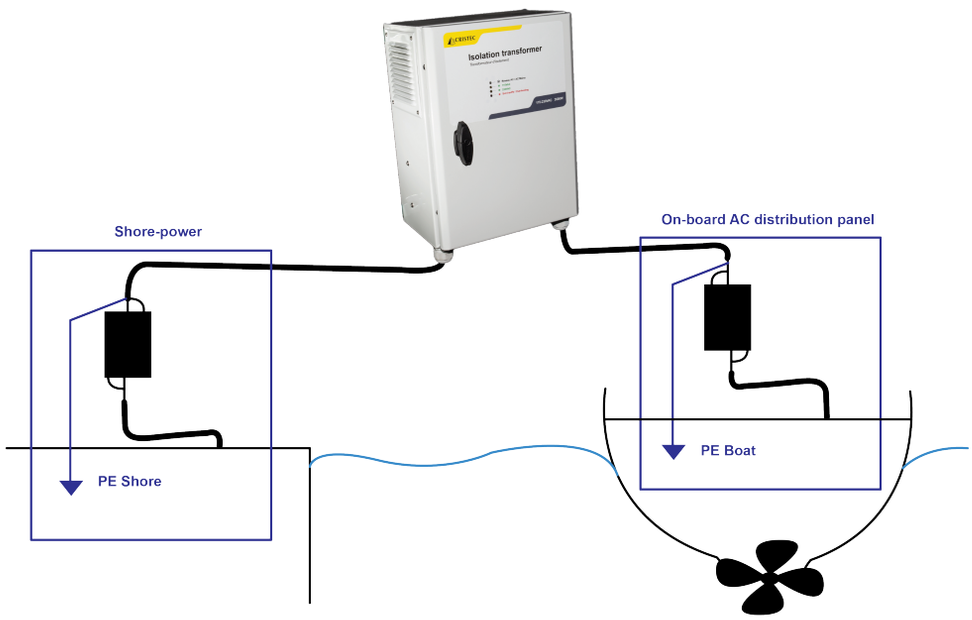
- Power : 3600 W
- Input voltage : 115 or 230V
- Automatic and manual versions available
- Frequency : 50/60Hz
- Rated current : 32A (115VAC) – 16A (230VAC)
- Softstart : automatic
- Efficiency : > 93%
- Operating temperature : from -20 to + 40°C
- Thermal protection integrated
- Cooling : temperature controlled forced ventilation (2 speeds)
- Transformer type : toroidal
- Internal fuse : no
- Dimensions : 400 x 300 x 200 mm
- Enclosure material : aluminium
- Protection category : IP21
- Weight : 24 kg
- Standards : IEC 60076

Applications

CRISTEC isolation transformers adapt to different markets and applications:

- Professional marine: naval, service boat, fishing boat, passenger boat, tug, barge, lighthouse and beacon.

- Recreational marine: yachting, sailing boat, motor boat, electric boat, catamaran, speedboat, etc.



Voltage Guard

VLTG-70

The best solution to protect your battery against :

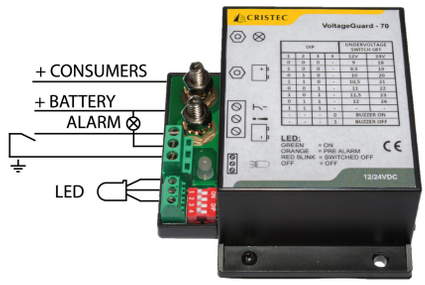
- Deep discharge
- Overvoltage
- Overload

The voltage guard protects your battery to increase its duration life. It provides constant low voltage, overvoltage, and overload protection. It is compliant with all battery types: wet, sealed, gel, AGM, Calcium, etc.

A low voltage threshold can be selected from 4 external DIP switches. When your battery reaches the pre-set low voltage the voltage guard will disconnect automatically the DC consumers. The voltage guard has an integrated buzzer and LED to monitor its operating state.



Installation :



Battery Monitor

BAT-MON Touch Screen 3.5”

CRISTEC’s advanced battery monitor BAT-MON for the most demanding users. For up to 3 battery banks or power generation (DC source) with 3 additional battery voltage readings (1).

It operates at 12, 24, 36, and 48V and is suitable for all types of batteries, including Lithium.

The battery monitor BAT-MON shows all relevant standard data such as voltage, current, remaining capacity, and time of the service battery plus one additional voltage for the starter or bow battery at the same time.

Moreover, the battery monitor BAT-MON records history data of your battery such as average discharge depth, unavailable capacity, and number of charge/ discharge cycles.

An active high-precision 300A shunt unit is provided as a standard for battery control. Two extra ones can be used as an option.

For each used shunt an additional voltage measurement is also available (i.e. bow-thruster battery).

A CAN-BUS interface shunt is also available (Reference FLEXCAN).

(1) No additional battery voltage reading in 48V.



Description	Item Code
Battery monitor (screen + 1 shunt 300A)	BAT-MON-3.5-3
Additional shunt 300A (option)	SHUNT-300-3.5-3
Wiring kit (option)	SEEL017153
Temperature probe 2.8m (option)	STP-UNI-2.8
Temperature probe 5m (option)	STP-UNI-5.0

Presentation

- High resolution, energy-saving back light LCD display
  - Dimensions : L 105 x H 105 x D 40 mm
  - Cut-out : 88 x 88 mm

- Adjustable nominal battery voltage

Technical Characteristics

- 1 active shunt 300 A as standard.
  - Dimensions : L 119 x H 44 x D 43 mm
  - Connection : M 8 bolts

- 1 internal potential free contact : to activate a mono- or bistable relay

Touch-Screen Control Panel

YPO-Display-R
HPO-Display-R

This brand-new innovating remote display is offered as an option for HPower, YPower battery chargers, and shore-power units: 12V and 24V.

- It displays information about the charging process while the charger is running as well as battery supervision when the AC network is off.

- User-friendly thanks to its 2.5" color touch-screen.





Characteristics

- Battery voltage (up to 3)
- AC network status : voltage and frequency
- Total charger's output current
- Charge status (boost, absorption, floating)
- Battery pack temperature (if optional probe connected)
- Brightness night and day mode to be activated by pressing the center part of the screen

Settings

- Battery channel and name : up to 3 - house, starter, bow, etc.
- Charger output : ON/OFF
- Alarm : battery low voltage, high voltage, etc.
- Output battery charger current : 100% to 30%
- Day mode : brightness
- Night mode : ensures quiet operation by stopping charger's fan if any
- Charger parameters : battery type, boost ON/OFF, etc.
- Languages : English, French, German, Italian, Spanish & Turkish

DISPLAY	
External Dimensions	105 x 75 x 25 mm
Screen Dimensions	51 x 39 mm
Cut-Out	87 x 65 mm
Weight	300 gr
Ingress Protection of Front Side	IP65, Not for outdoor use
DC Supply Range	DC 8-30V through +BAT E terminal
Operating Temperature	From -10°C to +50°C
Storage Temperature	From -20°C to +70°C
Convection	Natural

SYSTEM DC CONSUMPTION THROUGH +BAT E TERMINAL		
Display and Interface at Full Brightness	81mA @12VDC	51mA @24VDC
Display and Interface in Sleep Mode	3.3mA @12VDC	4.8mA @24VDC
Interface Only (Display Not Connected)	1.7mA @12VDC	3.1mA @24VDC

Manual Battery Switches - HD-Series

Up to 600 Amps continuous rating for large diesel engines.

Features :
- Tin-plated copper studs for maximum conductivity and corrosion resistance
- Accepts up to 4/0 AWG battery cables
- Studs accepts 1/2” (M12) ring terminals
- 7/8” (22mm) stud length accepts multiple cable terminals
- Blue Sea Systems one-piece terminal stud design never loosens over time
- Fits most Perko and Guest low amperage battery switch hole patterns
- Case design allows surface, rear, or front panel mounting options
- Tactile indicator conveys knob position by feel
- Waterproof – rated IP66 from water projected in powerful jets

3000



3002



Part Number	Switch Type	Battery Combine	Continuous Rating	Alternator Field Disconnect
3000	Single Circuit ON-OFF	No	600A	No
3002	Selector 4 Position	Yes	500A	No

Manual Battery Switches - e-Series

350 Amps continuous rating for inboard gasoline or diesel engines.

Features :
- Tin-plated copper studs for maximum conductivity and corrosion resistance
- Accepts up to 4/0 AWG battery cables
- Studs accepts 3/8” (M10) ring terminals
- 7/8” (22mm) stud length accepts multiple cable terminals
- Blue Sea Systems one-piece terminal stud design never loosens over time
- Fits most Perko and Guest low amperage battery switch hole patterns
- Case design allows surface, rear, or front panel mounting options
- Tactile indicator conveys knob position by feel
- Waterproof – rated IP66 from water projected in powerful jets

9003e



9001e



5510e



Part Number	Switch Type	Battery Combine	Alternator Field Disconnect
5510e	Dual Circuit	No	No
9001e	Selector 4 Position	Yes	No
9003e	Single Circuit ON-OFF	No	No

Manual Battery Switches - m-Series

300 Amps continuous rating for outboards and small gasoline or diesel engines.

Features :
- Tin-plated copper studs for maximum conductivity and corrosion resistance
- Studs accept 3/8” (M10) ring terminals
- 7/8” (22mm) stud length accepts multiple cable terminals
- Blue Sea Systems one-piece terminal stud design never loosens over time
- Isolating cover with three snap-in side pieces protects rear contacts and allows wire access in any direction
- Case design allows surface, rear, or front panel mounting options
- Waterproof – rated IP66 from water projected in powerful jets

6006



Part Number	Switch Type	Color	Battery Combine
6006	Single Circuit ON-OFF	Red	No
6007	Selector 4 Position	Red	Yes
6008	Selector 3 Position	Red	No
6011	Dual Circuit Plus	Red	Yes

m-Series Automatic Charging Relay - 12/24V DC 65A

7601



The Mini Automatic Charging Relay (M-ACR) is designed to manage the charging current from alternators up to 65 Amps found on most outboards and many inboard engines.

Start Isolation (SI) protects sensitive electronics by temporarily isolating house loads from the engine circuit during engine cranking, protecting the house circuit from voltage sags and spikes.

The compact design allows for three mounting styles: surface, rear, or panel mount. The M-ACR is also available as a module in a Custom 360 Panel.

Features :
- Senses charging on two battery banks
- Pull off and snap on insulating cover
- LED indicates ACR status
- 1⁄4" x .032" male quick connect terminal for ground
- 7⁄16" (11 mm) stud length to accept multiple cable terminals
- Waterproof – rated IP67 for temporary immersion

Specifications	
Nominal Voltage	**12V DC / 24V DC**
Start Isolation	**Yes**
Amperage Operating Current	**90mA (Combine) / 15mA (Open)**
Terminal Stud Torque	**60 in-lb (6.78 Nm)**
Continuous Rating	**65A**
Intermittent Rating	**115A (5 min)**
Cable Size to Meet Ratings	**6 AWG**
Maximum Cable Size	**1/0 AWG**
Stud Material	**Tinned Brass**
Terminal Stud Size	**1/4" - 20 (M6)**

Relay Contact Position	
Combine 30 sec	**13.6V DC**
Open 10 sec	**12.35V DC**
Open 30 sec	**12.75V DC**
Open High	**16.0V**
Undervoltage Lockout	**9.5V**
Weight	**0.80lb (0.36 kg)**

187-Series Circuit Breaker - Panel Mount 40A

Features :
- Combines switching and circuit protection into a single device*
- Clear, single lever operation
- "Trip Free" design cannot be held "ON" during fault current condition
- Waterproof
- Recessed mounting holes for clean appearance
- Large Clearance around terminal studs accept heavy gauge wire lugs
- Robust 5/16 M8 terminals provide high torque connections
- Large lever with vertical/horizontal orientation provides indication of trip status
- Ignition protected - Safe for installation aboard gasoline powered boats

* Do not use as a switch where high inrush currents are expected.



7038

Specifications	
Amperage	**40A**
Maximum Voltage	**48V DC**
Mounting	**Panel Mount**
Circuit Breaker Type	**Thermally responsive Bi-metal blade**
Terminal Stud Torque	**Panel Mount**
Interrupt Capacity	**5000A @ 14VDC / 3000A @ 28VDC / 1500A @ 48VDC**
Minimum Operating Temperature	**-40° C**
Maximum Operating Temperature	**85° C**
Case Material	**Thermoset Polyester**
Circuit Breaker Class	**Type III - switchable / manual reset - trip free**
Mounting Hole	**Accept #10 (M5) Screw**
Terminal Stud Size	**5/16" - 18**
Weight	**0.5lb (0.23 kg)**
Weight	**0.50lb (0.23 kg)**

SI-ACR Automatic Charging Relay - 12/24V DC 120A

Automatically combines batteries during charging, and isolates batteries when discharging and when starting engines.

7610



Features :
- Protects sensitive electronics by temporary isolation of house loads from engine circuit during engine cranking
- Designed for 12 or 24-volt systems
- 12/24 volt auto ranging voltage input
- Hermetically sealed contacts/vapor proof
- Ignition protected—safe for installation aboard gasoline-powered boats
- Supports high-output alternators up to 120 Amperes
- Dual sensing

Optional Features :
- Start Isolation allows temporary isolation of House loads from the Engine circuit during engine cranking to protect sensitive electronics from sags and spikes
- Remote LED remotely indicates ACR states - requires optional LED

Specifications	
Nominal Voltage	12V DC / 24V DC
Start Isolation	Yes
Amperage Operating Current	175mA (combined) / 15mA (open)
Terminal Stud Torque	140 in-lb (15.82 Nm)
Continuous Rating	120A
Intermittent Rating	210A (5 min)
Cable Size to Meet Ratings	1/0 AWG
Stud Material	Tinned Copper
Terminal Ring Diameter Clearance	1.12in (28.45 mm)
Terminal Stud Length	0.875in (22.23 mm)
Terminal Stud Size	3/8" - 16 (M10)

Relay Contact Position	
Combine 30 sec	13.6V @ 12 V / 27.2V @ 24 V
Combine 90 sec	13.0V @ 12 V / 26.0V @ 24 V
Open 10 sec	12.35V @ 12 V / 24.7V @ 24 V
Open 30 sec	12.75V @ 12 V / 25.5V @ 24 V
Open High	16.0V @ 12 V / 30.0V @ 24 V
Overvoltage Lockout	16.0V @ 12V / 32.0V @ 24V
Undervoltage Lockout	9.5V @ 12 V / 19V @ 24 V
Weight	1.25lb (0.57 kg)

Water Resistant Circuit Breaker Panel 6 Position-Black

8373



Features :
- Designed for flybridge and open cockpit applications
- Panel front is rated IP66—Protected against powerful water jets
- Ignition protected—safe for installation aboard gasoline-powered boats
- ON-OFF Contura Switches
- ON indicating LEDs embedded in the switch
- Watertight mounting gasket
- Push Button Reset-Only circuit breakers with waterproof boots

Specifications	
Weatherproof	Water Resistant
Positions	6
Nominal Voltage	12V DC / 24V DC
Panel Cumulative Rating	45A
Switch Rating	20A @ 12V DC / 15A @ 24V DC
Height	7.50in (190.5 mm)
Width	4.50in (114.3 mm)
Depth	3.25in (82.55 mm)
Weight	1.35lb (0.61 kg)
Weight	1.35lb (0.61 kg)

Water-Resistant Circuit Breaker Switch Panel - Gray, 4 pos. + 12 Volt Socket and Dual USB Charger



4321

Designed for exposed mounting applications.

Features :
- Illuminated 15A circuit breakers provide switching, “ON” indication and overcurrent protection
- Industry-standard sizes and mounting allow these panels to be easily retrofitted in an existing application
- Polycarbonate/ABS panel surface is UV-stabilized, flame retardant, and will not corrode
- Silicon breaker boots and gasket protect against water ingress
- Low profile makes it easy to install in tight spaces
- Fast-on circuit breaker connectors make it quick to wire
- A two-wire connection for powering all panels is simple and requires #10 ring terminals. Terminals screw to bus bars for secure connections
- A set of 15 square format circuit labels are included and are easy to replace.

Specifications	
Color	**Gray**
Positions	**4**
Nominal Voltage	**12V DC**
Maximum Amperage	**45A**
Terminal Type	**1/4" Male quick connect**
Hardware	**Stainless Steel #6 x 5/8" mounting screws**
Ring Terminal Size	**M5 (#10)**
Height	**6.625in (168.28 mm)**
Width / Depth	**4.625in (117.48 mm) / 1.75in (44.45 mm)**

Water-Resistant Circuit Breaker Switch Panel - Gray, 6 Positions



4322

Designed for exposed mounting applications.

Features :
- Illuminated 15A circuit breakers provide switching, “ON” indication and overcurrent protection
- Industry-standard sizes and mounting allow these panels to be easily retrofitted in an existing application
- Polycarbonate/ABS panel surface is UV-stabilized, flame retardant, and will not corrode
- Silicon breaker boots and gasket protect against water ingress
- Low profile makes it easy to install in tight spaces
- Fast-on circuit breaker connectors make it quick to wire
- A two-wire connection for powering all panels is simple and requires #10 ring terminals. Terminals screw to bus bars for secure connections
- A set of 15 square format circuit labels are included and are easy to replace.

Specifications	
Color	**Gray**
Positions	**6**
Nominal Voltage	**12V DC**
Maximum Amperage	**45A**
Terminal Type	**1/4" Male quick connect**
Hardware	**Stainless Steel #6 x 5/8" mounting screws**
Ring Terminal Size	**M5 (#10)**
Height	**6.625in (168.28 mm)**
Width / Depth	**4.625in (117.48 mm) / 1.75in (44.45 mm)**

Water Resistant Circuit Breaker Panel 8 Position - Black

8371



Features :
- Designed for flybridge and open cockpit applications
- Panel front is rated IP66—Protected against powerful water jets
- Ignition protected—safe for installation aboard gasoline-powered boats
- ON-OFF Contura Switches
- ON indicating LEDs embedded in the switch
- Watertight mounting gasket
- Push Button Reset-Only circuit breakers with waterproof boots

Specifications	
Weatherproof	**Water Resistant**
Positions	**8**
Nominal Voltage	**12V DC / 24V DC**
Panel Cumulative Rating	**90A**
Switch Rating	**20A @ 12V DC / 15A @ 24V DC**
Height	**4.25in (107.95 mm)**
Width / Depth	**9.37in (238 mm) / 3.25in (82.55 mm)**
Weight	**1.75lb (0.79 kg)**
Weight	**1.70lb (0.77 kg)**