

# ProMariner™

2 0 1 9

MARINE  
EMERGENCY VEHICLE  
INDUSTRIAL  
RV

Waterproof Battery Chargers  
Vented Battery Chargers  
Inverters  
Inverter / Chargers  
Isolators  
Accessories

For decades Ancor, BEP, Blue Sea Systems, CZone, Lenco, Marincos, Mastervolt and ProMariner have worked independently to provide innovative electrical products. Now the eight companies are working together to offer comprehensive electrical solutions for marine and mobile applications.

## Providing more than products. Providing Solutions.

### ANCOR

Wire & Cable  
Terminals & Lugs  
Wire Management  
Tools & Testers  
Lighting  
[ancorproducts.com](http://ancorproducts.com)

### BEP

Battery Management  
Connectors & Insulators  
Circuit Protection  
Power Distribution Panels  
Custom Panels & Design Services  
Meters  
[bepmarine.com](http://bepmarine.com)

### BLUE SEA SYSTEMS

Power Conversion & Connection  
Battery Management  
Circuit Protection & Switches  
Connectors & Insulators  
Power Distribution  
Custom Panels  
Meters  
[blueseasystems.com](http://blueseasystems.com)

### CZONE

Digital Control & Monitoring  
Accessories  
Integrated Solutions  
[czone.net](http://czone.net)

### LENCO

Electric Trim Tabs  
Auto Glide Automatic Boat Leveling  
Tactile Switch Kits  
Rocker Switch Kits  
Electric Hatch Lifts  
Actuators & Accessories  
Trim Tab Retrofit Kits  
[lencomarine.com](http://lencomarine.com)

### ProMariner™

Waterproof Battery Chargers  
Vented Battery Chargers  
Inverters  
Inverter / Chargers  
Isolators  
Accessories  
[promariner.com](http://promariner.com)

### MASTERVOLT

Battery Chargers  
Inverters  
Inverter / Chargers  
Batteries  
Digital Control & Monitoring  
Transformers  
Alternators & Regulators  
[mastervolt.us](http://mastervolt.us)

### MARINCO

Shore Power  
DC Power Connections  
Power Conversion  
Battery Management  
Wiper Systems  
Horns  
Lighting  
Ventilation  
[marinco.com](http://marinco.com)





# What makes ProMariner different:

## Founder's Vision

ProMariner™ was founded 40 years ago with one premise: to make boating more enjoyable. ProMariner pioneered a complete



line of fully automatic on-board marine battery chargers, and continues to bring innovation to marine battery chargers today. ProMariner offers performance based solutions for all boats whether it's open water cruising, sailing, or fishing, recreational boating. The passion and dedication to quality is what has made ProMariner the market leader in on board marine battery chargers.

## Innovation & Engineering

ProMariner designs and engineers a complete range of high performance, state-of-the-art marine battery chargers and accessories. Exclusive technologies, such as Distributed on Demand™ ensure that ProMariner chargers will deliver the fastest charge, and protect your batteries.

## Selection

With the broadest range of on board charging products in the industry, ProMariner offers performance based solutions for all boats. Whether it is a waterproof charger for your fishing boat, or a vented charger for your cruise, ProMariner has a charger to fit your needs.

## Worldwide Access to Product

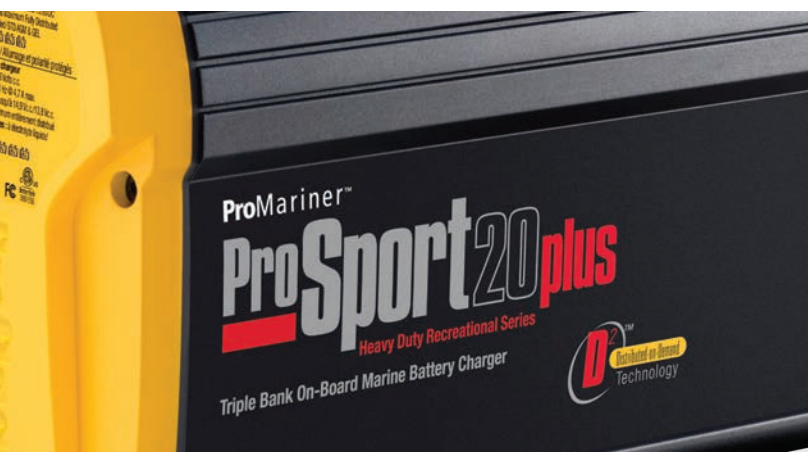
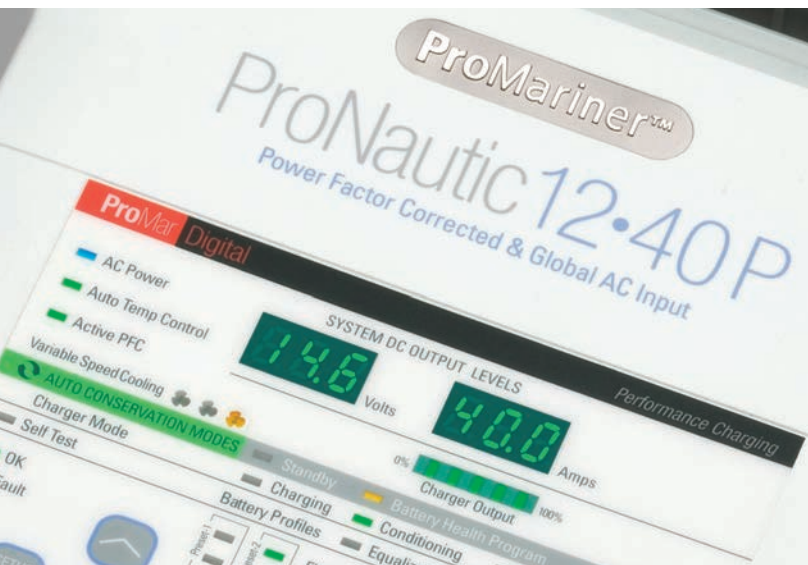
A global distribution network provides access to products when they are needed.

## Industry Standards

Industry involvement ensures products meet UL1236, ABYC, NMMA, and USCG standards.

## Quality

Product quality is extremely important at ProMariner. We manage product quality in a manner consistent with international standards to ensure all ProMariner products exceed expectations.



## NEW Products

### 24 TruePower Plus Series Inverters

**07100** - 1000W Pure Sine Wave Inverter

**07200** - 2000W Pure Sine Wave Inverter

**06120** - 1200W Modified Sine Wave Inverter

**06150** - 1500W Modified Sine Wave Inverter

**06200** - 2000W Modified Sine Wave Inverter

Our next generation of TruePower Plus Inverters are available in both Modified Sine Wave (MS) and Pure Sine Wave (PS) models. Designed to convert 12V DC battery power to 115V AC and will automatically pass through AC Inlet power when present. TruePower Plus is rich with features including; Innovative dual color digital LCD message center, dual color gauges for AC power output and battery DC input, USB power port, GFCI convenience outlets, DC cable covers, and separate on/off remote. Our integrated AC cable strain reliefs and front screw connection terminal blocks allow for quick and easy installation without the added need for ring terminals for AC power connections.



07100



06150

### 15 1.5 Amp ProSport Maintainer

Our newest generation ProSport 1.5 Amp fully automatic maintainer is an innovative multi-use charger designed for maximum utility. Concealed mounting holes allow the ProSport 1.5 to be installed on-board or to be used as a portable, with rear die cut foam resting pad. Ring terminal and DC clamp quick connect cable assemblies included.



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# WATERPROOF BATTERY CHARGERS

## ProTournament Elite Series

10



The fastest battery charger with the most features in its class. Specifically designed to deliver maximum charging performance and extend battery life. Get on the water first and stay there longer with tournament winning technology.

## ProSport Series

12



ProSport On-Board Marine Battery Chargers incorporate all-digital microprocessor control. Like no other, the ProSport Series provides automatic installation feedback with its exclusive "System Check OK" and individual "Battery Bank Trouble" LED indicators.





# WATERPROOF BATTERY CHARGERS

## ProMar1 Series

14



ProMar1 incorporates solid state and fully automatic technology that eliminates the need to use portable battery chargers for charging each battery on-board one at a time. Our compact design is lightweight and pre-wired for quick and easy installation.

## 1.5 Amp Battery Maintainer

15



Our newest generation ProSport 1.5 Amp fully automatic maintainer is an innovative multi-use charger designed for maximum utility. Concealed mounting holes allow the ProSport 1.5 to be installed on-board or to be used as a portable, with rear die cut foam resting pad. Ring terminal and DC clamp quick connect cable assemblies included.



## Waterproof Battery Chargers

### ProTournament Elite Series

#### *Fastest Charge Times*

##### **Fastest Charge Time**

- Distributed-On-Demand ensures the max amps being delivered
- Max amps per bank—4 to 8 hr charge time
- Charges flooded, AGM and HP AGM batteries

##### **Most Precise Charging**

- Selectable battery types for optimize charge profiles

##### **System Feedback**

- Integrated LEDs tell you charge status at all times

**FASTEST**  
**4 to 8 HR**  
**CHARGE TIME**



### ProSport Series

#### *Increased Power and Performance*

##### **Faster Charge Time**

- Distributed-On-Demand ensures the max amps being delivered
- Max amps per bank—8 to 10 hr charge time
- Charges flooded, Gel, AGM and HP AGM\* batteries

##### **Most Precise Charging**

- Selectable battery types for optimize charge profiles

##### **System Feedback**

- Integrated LEDs tell you charge status at all times

**FASTER**  
**8 to 10 HR**  
**CHARGE TIME**



### ProMar1 Series

#### *Industry Standard Power Ratings*

##### **Fast Charge Time**

- Distributed-On-Demand ensures the max amps being delivered
- Max amps per bank—10 to 12 hr charge time
- Charges flooded and Gel batteries

##### **System Feedback**

- Integrated LEDs tell you charge status at all times

**FAST**  
**10 to 12 HR**  
**CHARGE TIME**



\*HP AGM profile only available in the ProSport 20 Dual.



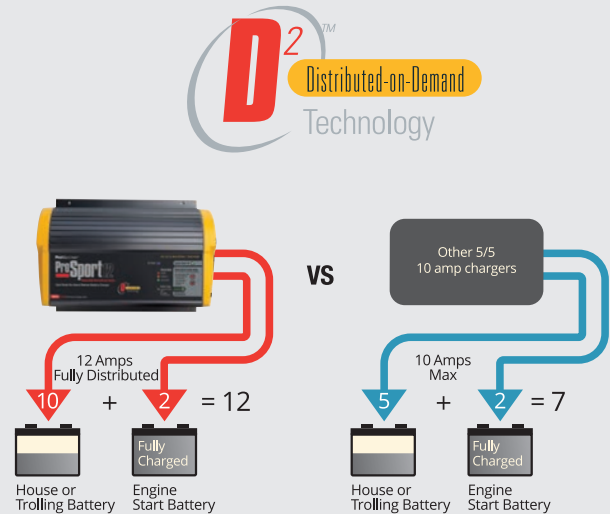
**Choosing a Waterproof  
Battery Charger  
on page 42**



## How Distributed-On-Demand™ Technology Works

Distributed-On-Demand™ Charging Technology ensures 100% of the available charging amps are fully utilized to meet the demand of each battery on-board. For example, if your engine start battery only needs 2 amps from your ProSport 12 (6/6 two bank charger) the unused 4 amps will be automatically Distributed-On-Demand™ to your house or trolling motor battery, providing a total of 10 amps for faster charging versus only 5 amps that the conventional 5/5 charger has a 5 amp limit per bank.

Illustration reflects typical battery usage after a day of fishing. Trolling motor batteries are 50% discharged and not usable. Engine start battery is 90% charged from the engine charging system.



## System Check Info

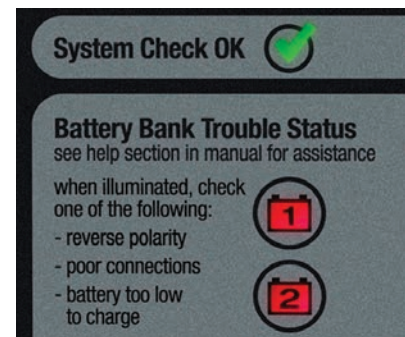
(ProTournament and ProSport Models)

### System OK Status Indicators

After applying AC power the charger will self test and analyze the battery connections and batteries.

### Battery Bank Trouble Status Indicators

Advanced technology eliminates time consuming troubleshooting by clearly indicating system and battery connections are OK or if a fault is present on a specific battery bank.



## Selectable Performance

(ProTournament and ProSport Models)

Programming caps provide different charge profiles to match multiple battery chemistries.



## ProTournament Elite Series On-Board Waterproof Battery Charger

The fastest battery charger with the most features in its class.

The fastest battery charger with the most features in its class. Specifically designed to deliver maximum charging performance and extend battery life. Get on the water first and stay there longer with tournament winning technology.

### • Tournament Winning Technology

100% charge upon completion of multi-stage charging process. 100% charging output with AC power as low as 90V AC. 50% lighter and 2 to 3 times faster than traditional chargers.

### • Distributed-On-Demand™ Technology

Automatically charges and maintains your engine crank battery while distributing all remaining charging amps to trolling motor or house battery(s). *ProMariner™ Exclusive.* See page 9 for details.

### • Digital LED Display with Dual Mode Battery Status Monitor **1**

Intuitive LED display with charge mode indicators and real time charge level status with an on-the-water push-to-test feature for percent of battery power remaining.

### • 3 Selectable Performance Matched Charge Profiles **2**

Profiles include: Standard Flooded/AGM batteries, HP AGM 1 for pure lead AGM batteries like OPTIMA Blue Top Marine Batteries, HP AGM 2 for pure lead AGM Batteries like Odyssey Marine Batteries.

### • Waterproof Connector Port for Optional Charge Status Remote **3**

Optional tri-color LED charge mode status remote can be placed up to 12' away from the charger.

### • Digital 5-Stage Charging **4**

Analyzes connections and the ability for a battery to accept a charge, advance high fill rate charging, conditioning, auto maintain (energy saving mode) and automatic once a month storage recondition mode automatically monitors ambient temperatures and adjusts its charging output.

### • Forced Induction Cooling

Concealed waterproof fan provides forced air cooling for cooler operation & fastest charge times. (360 Elite models only)

### • Built-in Safety & Pre-Wired for Easy Installation

Shock resistant, space saving extruded aluminum design, dual in-line DC safety fuses for trolling motor and house batteries, over-voltage, overload, over-temperature, reverse polarity and ignition protection.

### • Battery Type: Group 24-31 Flooded, AGM, HP AGM batteries

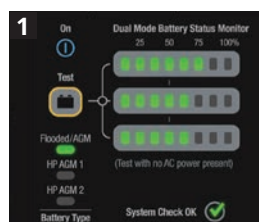
### • Three Year Warranty



240 Elite



360 Elite



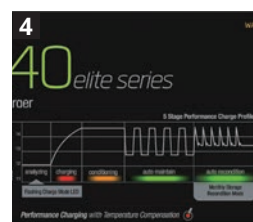
Digital LED Display with Dual Mode Battery Status Monitor



3 Selectable Performance Matched Charge Profiles



Waterproof Connector Port for Optional Charge Status Remote



Digital 5-Stage Charging



Choosing a Waterproof Battery Charger on page 42



Conforms to:  
Marine UL 1236 SB  
CSA C22.2 No. 107.2  
FCC Class A  
CEC Listed

Designed and Constructed to:  
ABYC A-31

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Setting Standards for Safer Boating






### Related Products



AC Plug Holders  
page 40



## ProTournament Elite Series Selection

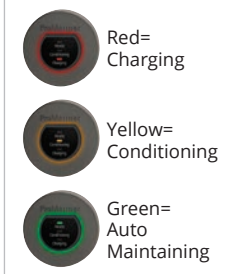
					
Model	ProTournament 240 Elite Dual	ProTournament 240 Elite Triple	ProTournament 360 Elite Dual	ProTournament 360 Elite Triple	ProTournament 360 Elite Quad
Part #	52024	52026	52032	52036	52038
Voltage	12/24	12/24/36	12/24	12/24/36	12/24/36/48
Amps	24	24	36	36	36
Banks	2	3	2	3	4
Cable Length	6'/6'	6'/6'/6'	6'/6'	6'/6'/6'	6'/6'/6'/6'
Size	13"x7.125"x2.75"	13"x7.125"x2.75"	13.5"x9.375"x4"	13.5"x9.375"x4"	13.5"x9.375"x4"
Weight	7 lbs	8 lbs	12.5 lbs	13.5 lbs	14.5 lbs
AC In	90-135V 50/60Hz	90-135V 50/60Hz	90-135V 50/60Hz	90-135V 50/60Hz	90-135V 50/60Hz

For Group 24 to 31 12V Flooded (Lead-Acid), STD AGM & high performance AGM batteries.  
For Group 4D or 8D batteries, please see ProMariner's ProNauticP Series on page 18.

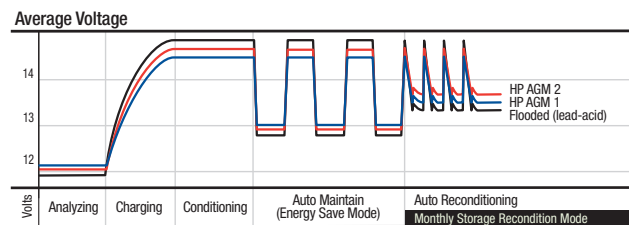
## Optional Tri-Color Charge Status Remote

- LED halo indicates charge status quickly and easily
- Red is charging, yellow is conditioning and green is auto maintaining
- 12 foot cable

Part # 52060

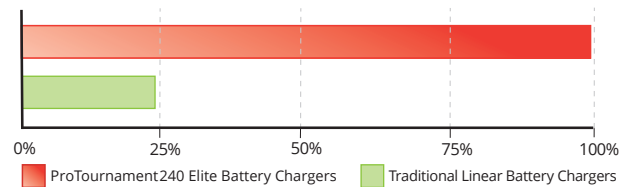


## 5 Stage Performance Charge Profile






## Charger Output Performance at Low AC Voltage\*

Percentage of charger output at 90V AC



\*When using a 25' to 100' extension cord at the dock, lodging site or at home with 90 VAC.

	Color	Battery Type	Charge Profile
PROGRAMMING CAP		Flooded (Lead-acid) / STD AGM	14.8V DC Absorption 12.8–13.4V DC Maintenance
		High Performance (HP) AGM 1	14.6V DC Absorption 13.0–13.6V DC Maintenance
		High Performance (HP) AGM 2	14.7V DC Absorption 12.9–13.5V DC Maintenance

## ProSport Series On-Board Marine Battery Charger


### Increased Power & Performance...

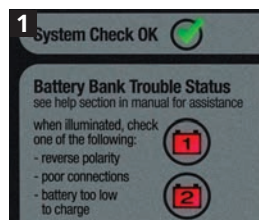
ProSport Generation 3 On-Board Marine Battery Chargers incorporate all-digital microprocessor control. Like no other, the ProSport Series provides automatic installation feedback with its exclusive "System Check OK" and individual "Battery Bank Trouble" LED indicators, and also has the most advanced energy saving mode. After fully charging and conditioning batteries, ProSport's Energy Saver Mode will monitor and Auto Maintain batteries only when needed to maintain a full state of charge, resulting in maximum reserve power performance and lower AC power consumption and operating costs.

Each ProSport model has 2 digitally selectable charge profiles to choose from with a 3rd high performance AGM HP profile on the ProSport20 Dual and includes a once-a-month storage reconditioning mode for extending battery life.

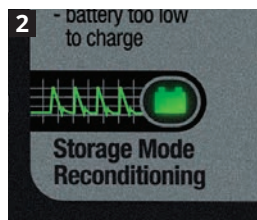
- **ProMar Digital Technology**  
Delivers fast efficient charging in a lightweight design.
- **Distributed-On-Demand™ Technology**  
Automatically charges and maintains your engine crank battery while distributing all remaining charging amps to trolling motor or house battery(s).
- **System OK and Battery Bank Trouble Status Indicators 1**  
Advanced technology eliminates time consuming troubleshooting by clearly indicating system and battery connections are OK or if a fault is present on a specific battery bank.
- **Storage Recondition Mode 2**  
During short or long-term storage, ProSport automatically reconditions all batteries on board once a month for maximum battery life and performance.
- **Digital LED Display and Battery Type Selector 3 4**  
LED indicators for Charging, Conditioning and Auto Maintain modes in addition to AC power and selected battery type (2 charge profiles to choose from with a 3rd high performance AGM HP profile on the ProSport20 Dual only).
- **Digital Multi-Stage Performance Charging**  
Fully charge and extend the life of your batteries. Automatically charges, conditions and safely maintains all batteries on board for maximum time on the water.
- **Energy Saver Mode**  
After fully charging and conditioning batteries, ProSport's Energy Saver Mode will monitor and Auto Maintain batteries only when needed, maintaining a full state of charge. This significantly reduces AC power consumption, lowers operating costs and maximizes reserve power performance.
- **Built-in Quality & Safety**  
Compact and rugged extruded aluminum design, dual in-line DC safety fuses for trolling motor and house battery banks. Built-in over-voltage, overload, over-temperature, reverse polarity and ignition protection.
- **Battery Type: Group 24-31 Flooded, Gel, AGM, HP AGM (Model 43020 only) batteries**
- **Pre-wired for Easy Installation**
- **Two Year Warranty**



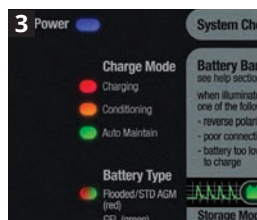
 **Choosing a Waterproof Battery Charger on page 42**



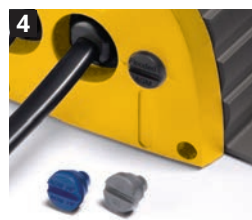
**System OK and Battery Bank Trouble Status**



**Storage Recondition Mode**



**Digital LED Display**



**Digital Battery Type Selector (HP AGM cap available on ProSport20 Dual only)**



**Conforms to:**  
Marine UL 1236 SB  
CSA C22.2 No. 107.2  
FCC Class A  
CEC Listed

**Designed and Constructed to:**  
ABYC A-31

**ABYC®**  
Setting Standards for Safer Boating

### Related Products



**AC Plug Holders**  
page 40

## ProSport Series Selection

Model	ProSport 6	ProSport 8	ProSport 12	ProSport 15*	ProSport 20	ProSport 20 Plus
Part #	43006	43008	43012	43015	43020	43021
DC Voltage Systems	12	12/24	12/24	12/24/36	12/24	12/24/36
Amps	6	8	12	15	20	20
No. of Batteries	1	2	2	3	2	3
AC & DC Cable Length	6'	6'/6'	6'/6'	6'/6'/6'	6'/6'	6'/6'/6'
Size	7.125"x7.25"x2.75"	8.375"x7.25"x 2.75"	9.875"x7.25"x2.75"	10.825"x7.25"x2.75"	12.125"x7.25"x2.75"	12.125"x7.25"x2.75"
Weight	2 lbs	3 lbs	4 lbs	6 lbs	5 lbs	6 lbs
AC In	120V AC 50/60Hz	120V AC 50/60Hz	120V AC 50/60Hz	120V AC 50/60Hz	120V AC 50/60Hz	120V AC 50/60Hz

\*OEM only

## International ProSport Series with PFC Selection

Model	ProSport 6 PFC	ProSport 12 PFC	ProSport 20 PFC	ProSport 20 Plus PFC
Part #	43023	43026	43028	43029
DC Voltage Systems	12	12/24	12/24	12/24/36
Amps	6	12	20	20
No. of Batteries	1	2	2	3
AC & DC Cable Length	6'	6'/6'	6'/6'	6'/6'/6'
Size	7.125"x7.25"x2.75"	9.875"x7.25"x2.75"	12.125"x7.25"x2.75"	12.125"x7.25"x2.75"
Weight	2 lbs	4 lbs	5 lbs	6 lbs
Global AC in (PFC)	100-260V AC 50/60 Hz	100-260V AC 50/60 Hz	100-260V AC 50/60 Hz	100-260V AC 50/60 Hz



Global AC input works with outlets worldwide

**ABYC**  
Setting Standards for Safer Boating



### c13 plug adapters

ProSport PFC IEC 6 foot power cord is compatible with available in country c13 plug adapters as shown (not included)



## ProSport Automatic Multi-Stage Charging Profile

ProSport's fully automatic multi-stage performance charging process delivers five sequenced modes of operation that are proven to extend the life of your batteries and will fully charge your batteries each time. Stages include:

### Stage 1 - System Check OK and Battery Analyzing

During this stage the ProSport red "Charge" LED will flash indicating ProSport is analyzing all battery connections in addition to checking each battery is capable of being charged. Upon completion the "System Check OK" indicator will illuminate green followed by Stage 2 Charging.

### Stage 2 - Charging

During this mode the "Charging" indicator will be red. The ProSport Series will use all of its available charging amps (as controlled by temperature) until the battery voltage is raised to 14.6V DC (Flooded lead-acid factory setting).

### Stage 3 - Conditioning

During this mode the "Conditioning" status indicator will be amber. Batteries will hold at 14.6V DC (factory set for Flooded lead-acid batteries) to complete charging while conditioning each battery connected. Upon completion the ProSport will go into its Energy Saver Mode.

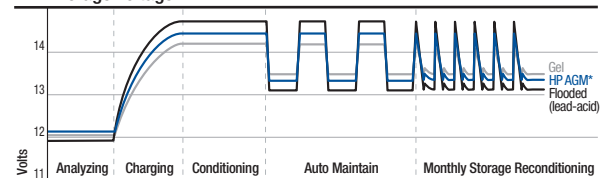
### Stage 4 - Auto Maintain (Energy Saver Mode)

During this mode the blue "Power" and green "Auto Maintain" LED's will be on indicating Stage 2 charging and Stage 3 conditioning are completed. At this time ProSport will initiate its Auto Maintain (Energy Saver Mode) which will monitor and Auto Maintain batteries only when needed to maintain a full state of charge.

### Stage 5 - Storage Recondition Mode

During this mode the ProSport "Storage Recondition Mode" green indicator will illuminate with a slow fade in and out pulse. This indicates that while your batteries/boat are in storage the ProSport will automatically recondition all batteries for up to 3 hours once a month extending battery life and maximizing on the water battery power performance.

### Average Voltage



	Color	Battery Type	Charge Profile
PROGRAMMING CAP	FLOODED AGM	Flooded (Lead-acid) / STD AGM	14.6V DC Absorption 13.4V DC Maintenance
	GEL	GEL	14.1V DC Absorption 13.8V DC Maintenance
	AGM HP	High Performance (HP) AGM*	14.7V DC Absorption 13.6V DC Maintenance

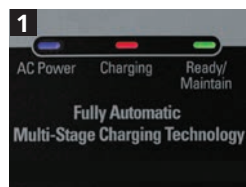
\*High Performance AGM profile ProSport20 Dual only



## ProMar1 Series Recreational On-Board Marine Battery Chargers

ProMar1 incorporates solid state and fully automatic technology that eliminates the need to use portable battery chargers for charging each battery on-board one at a time. Our compact design is lightweight and pre-wired for quick and easy installation. The ProMar1 assortment is ProMariner's Recreational Grade boating and fishing series, designed to deliver years of automatic charging and conditioning performance with moderate charge times featuring a built-in safe maintenance mode for long or short term storage. Safe for Lead Acid or GEL batteries with features that include; 100% waterproof design, expanded LED Power and Charge status indicators, shock resistant durable molded case, and dual inline battery bank safety fuses for all 2 and 3 bank models. Other built-in safety features include: over temperature, reverse polarity, and ignition protection.

- **Fully Automatic Multi-Stage Charging**  
Charge, condition and maintain batteries with a built-in safe maintenance mode.
- **Single Preset Charging Profile**  
Use with Flooded (Lead-Acid) or GEL batteries.
- **Expanded LED Status Center <sup>1</sup>**  
At-a-glance AC power, charging and ready / maintain LED indicators.
- **Distributed-On-Demand™ Technology**  
Automatically charges and maintains your engine crank battery while distributing all remaining charging amps to your trolling motor batterie(s).
- **Built-in Quality & Safety <sup>2</sup>**  
100% epoxy filled - Completely waterproof & shockproof. Dual in-line DC safety fuses (multi-bank models), reverse polarity, ignition and temperature protection.
- **Battery Type: Group 24-31 Flooded and Gel batteries**
- **Pre-Wired for Easy Installation**
- 2 Year Warranty



Power and Charge Mode Indicators



Dual In-line Safety Fuses (Multi-Bank Modes Only)

Model	ProMar1 5	ProMar1 5/3*	ProMar1 5/5	ProMar1 5/5/3
Part #	31405	31408	31410	31413
Volts DC	12	12+ENG	12/24	12/24+ENG
DC Amps	5	8	10	13
Max No. of Batteries	1	2	2	3
DC Cable Length	6'	6'/6'	6'/6'	6'/6'/6'
Size	6.25"x3.75"x2.75"	6.25"x3.75"x2.75"	9.75"x5.5"x2.75"	9.75"x5.5"x2.75"
Weight	5 lbs	6 lbs	8 lbs	9 lbs
AC In	120V AC 50/60Hz	120V AC 50/60Hz	120V AC 50/60Hz	120V AC 50/60Hz

\*OEM only

Note: Not for use with AGM (Absorbed Glass Matt) or 4D or 8D large capacity batteries



Conforms to:  
Marine UL 1236 SB  
CSA C22.2 No. 107.2  
FCC Class A

Designed and  
Constructed to: **ABYC**  
ABYC A-31  
Setting Standards for Safer Boating



Choosing a Waterproof  
Battery Charger  
on page 42

### Related Products



AC Plug Holders  
page 40

## ProSport 1.5 Amp **NEW** Fully Automatic Battery Maintainer & Charger

Ideal for personal watercraft, recreational ski and wake boats, ATV's, tractors and more.

Our newest generation ProSport 1.5 Amp fully automatic maintainer is an innovative multi-use charger designed for maximum utility. Concealed mounting holes allow the ProSport 1.5 to be installed on-board or to be used as a portable, with rear die cut foam resting pad. Ring terminal and DC clamp quick connect cable assemblies included.

Our marine grade design is weatherproof, water resistant to IP 65 and can be used in all fresh and salt water outdoor and indoor applications as needed.

Designed to keep 12 volt batteries fully charged during short or long term storage periods, ProSport's Energy Saver mode will monitor and auto maintain a battery when needed to maintain a full state of charge. ProSport 1.5 significantly reduces AC Power consumption, lowers operating costs and maximizes reserve power performance.

- Fully automatic energy saving design
- Multi-use design, easily configures for on-board or portable use
- Concealed mounting holes & die cut foam resting pad for portable use
- Expanded LED display for Power, Charging and Auto Maintain status
- Maintain 12 volt lead acid (sealed & vented) batteries up to 150 amp hours
- Quick connect DC clamp & ring terminal assemblies
- Weatherproof and water resistant to IP65
- Built-in safety with reverse polarity, short circuit, temperature and ignition protection
- Pre-wired for easy installation
- 3 year warranty



Concealed Mounting



Expanded LED Status Center



Portable Foam Resting Pad



Included DC Cable Assemblies

Model	ProSport 1.5 Maintainer
Part #	44001
Battery Type	12V lead acid (sealed & vented)
Volts	12V DC
Amps	1.5
Banks	1
Auto Maintain	Monitored float range 12.9V DC to 13.4V DC
AC In	120V AC 50/60Hz
Cable Length	6'
AC Plug	3-wire, NMEA 5-15P
Size	5.0"x5.75"x1.97"
Weight	2.3 lbs



**Conforms to:**  
Marine UL 1236 SB  
CSA C22.2 No. 107.2  
FCC Class A

**Designed and  
Constructed to:** **ABYC**  
ABYC A-31 Setting Standards for Safer Boating

### Related Products



AC Plug Holders  
page 40



# VENTED BATTERY CHARGERS





# VENTED BATTERY CHARGERS

## ProNauticP Series

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ProNauticP's Generation 3 ProMar Digital Performance Charging Platform combines digital control and software-based power conversion technology with global energy management features.

## Digital Mobile Charge

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Digital Mobile Charge40 is a breakthrough in battery to battery, on-the-water charging technology. Simply connect to the engine crank battery and your house electronic battery, allowing for up to 40 amps per hour to be transferred to your house battery bank.





## ProNauticP Series

### ProMar Digital Performance Charging

#### All Digital Electronic Charging...

Winner of the IBEX Innovation Award, ProNauticP's Generation 3 ProMar Digital Performance Charging Platform combines digital control and software-based power conversion technology with global energy management features.

ProNauticP is designed for the growing demand for more 12-volt electronics on board today's power, sail, cruising and sport fishing boats. Highlighting twelve digitally-controlled performance charging profiles and a full digital display, ProNauticP offers features not seen on competitive chargers including: Self Test Diagnostics, real time system voltage and amperage, discreet fault indication and once-a-month storage reconditioning modes to extend the life of your batteries.

ProNauticP is designed to provide more time on the water enjoying what you like most... boating, sailing and fishing.

- **Distributed-On-Demand™ Technology**

Automatically senses and distributes up to full capacity to any one bank or combination of all banks.

- **ProMar Digital Charging Performance - 12 Selectable Profiles**

Up to 12 performance & precision 4-stage charging profiles: Charge, Condition, Auto Maintain and Recondition. Automatic dockside power mode for 12 Volt DC lighting and appliances. Factory set for Flooded (Lead Acid) batteries. AGM, GEL selectable.

- **Power Factor Correction - Global AC Input**

Auto-ranging (100-250V AC/50-60Hz) global AC input with reduced harmonic distortion allowing all models to operate off a household power outlet connection. ProNauticP consumes less power so more AC power is available on board.

- **Conservation Energy Saver Mode**

After fully charging and conditioning batteries, ProNauticP's Energy Saver Mode will monitor and Auto Maintain batteries only when needed, maintaining a full state of charge. This significantly reduces AC power consumption while lowering operating costs and maximizing reserve power performance.

- **Digital Self-Calculating Absorption and Battery Health Reconditioning Mode**

Automatically programs conditioning time based on discharge state of batteries. Automatically reconditions batteries after 21 days in the Auto Maintain Mode, improving reserve power performance & extending battery life.

- **Service and Fault Mode LED Indicators 1 2 3**

Real time indication of wiring faults or adverse conditions that may impact the operation of a boat's charging system.

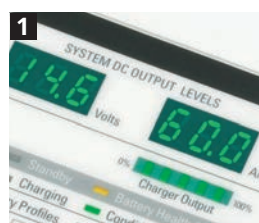
- **Automatic Fan Speed Control**

Quiet operation. Innovative front exhaust prevents restriction of air flow and cooling.

- **Automatic Temperature Compensation and Built-in Safety**

Remote temperature probe included - Ignition protected and current limiting. Designed and constructed to: Marine ULc 1236, CE, CTick, FCC Class B and CEC.

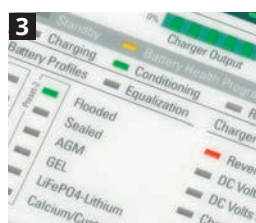
- 5 Year Warranty



**1**  
Dual Digital Displays and Power Output Bar



**2**  
Battery Type and EZ View Service Indicators



**3**  
Auto Conservation and Self Test Modes



**Choosing a ProNauticP Battery Charger on page 43**

Safety Certified by:












To Standards:  
UL 1236 SB  
CSA C22.2-107.2



Setting Standards for Safer Boating

## ProNauticP Series Selection

									
Model	ProNautic 1210P	ProNautic 1215P	ProNautic 1220P	ProNautic 1230P	ProNautic 1240P	ProNautic 1250P	ProNautic 1260P	ProNautic 2420P	ProNautic 2430P
Part #	63110	63115	63120	63130	63140	63150	63160	63170	63180
Volts	12	12	12	12	12	12	12	24	24
Amps	10 Amp	15 Amp	20 Amp	30 Amp	40 Amp	50 Amp	60 Amp	20 Amp	30 Amp
Banks	2 Bank	3 Bank	3 Bank	3 Bank	3 Bank	3 Bank	3 Bank	3 Bank	3 Bank
AC Input Voltage	100-260 Autoranging	100-260 Autoranging	100-260 Autoranging	100-260 Autoranging	100-260 Autoranging	100-260 Autoranging	100-260 Autoranging	100-260 Autoranging	100-260 Autoranging
Amperage at 100/240V AC	< 3.0 / < 1.5	< 4.0 / < 2.0	< 5.0 / < 2.5	< 6.0 / < 3.0	< 7.0 / < 3.5	< 10.0 / < 5.0	< 11.0 / < 5.5	< 7.0 / < 3.5	< 11.0 / < 5.5
Cycle	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Size (LxWxH)	10.25"x8.5"x 3.5"	10.25"x8.5"x x3.5"	10.25"x8.5"x x3.5"	10.25"x8.5"x x3.5"	10.25"x8.5"x x3.5"	12.25"x8.5"x x3.5"	12.25"x8.5"x x3.5"	10.25"x8.5"x x3.5"	12.25"x8.5"x x3.5"
Weight	5 lbs	5 lbs	5 lbs	5 lbs	5 lbs	7 lbs	7 lbs	5 lbs	7 lbs

## Digitally Controlled Charge Profiles

Battery Type	12 Volt Models				24 Volt Models			
	Preset 1		Preset 2		Preset 1		Preset 2	
	Conditioning V DC	Auto Maintain V DC Range	Conditioning V DC	Auto Maintain V DC Range	Conditioning V DC	Auto Maintain V DC Range	Conditioning V DC	Auto Maintain V DC Range
Flooded	14.8V DC	12.8-13.6V DC	14.7V DC	12.8-13.4V DC	29.6V DC	25.6-27.2V DC	29.4V DC	25.6-26.8V DC
Sealed	14.4V DC	12.8-13.6V DC	14.6V DC*	12.8-13.4V DC*	28.8V DC	25.6-27.2V DC	29.2V DC*	25.6-26.8V DC*
AGM	14.4V DC	13.0-13.4V DC	14.6V DC	13.0-13.6V DC	28.8V DC	26.0-26.8V DC	29.2V DC	26.0-27.2V DC
GEL	14.0V DC	13.2-13.7V DC	14.4V DC	13.2-13.8V DC	28.0V DC	26.4-27.4V DC	28.8V DC	26.4-27.6V DC
LiFePO4 - Lithium	13.8V DC	13.2-13.8V DC	14.6V DC	13.2-14.6V DC	27.6V DC	26.4-27.6V DC	29.2V DC	26.4-29.2V DC
Calcium/Prgm Custom	15.1V DC	13.2-13.6V DC	PrgmV DC**	PrgmV DC**	30.2V DC	26.4-27.2V DC	PrgmV DC***	PrgmV DC***
Equalization	15.5V DC	15.5V DC	15.5V DC	15.5V DC	31.0V DC	31.0V DC	31.0V DC	31.0V DC

\* Factory setting \*\*Default : Conditioning = 13.6V DC, Auto Maintain = 13.2-13.6V DC \*\*\*Default: Conditioning = 27.2V DC, Auto Maintain = 26.4-27.2V DC



### Remote Temperature Sensor Probe (included)

The ProNauticP comes standard with a temperature probe that is plug and play. Once the temperature sensor is connected the charger will adjust its charge based on the batteries temperature.

Part # 63106



### Digital Display and Control Remote (optional)

ProNauticP optional remote available for interactive remote port for digital display and control.

Part # 63100

## Related Products



ProSoCharge Series  
page 34



## Digital Mobile Charge Advanced Electronic Battery Charging

### DC to DC 4-Stage Charging...

**Digital Mobile Charge40** is a breakthrough in battery to battery, on-the-water charging technology. Simply connect to the engine crank battery and your house electronic battery, allowing for up to 40 amps per hour to be transferred to your house battery bank. Protects your engine battery while charging and conditioning your house battery bank, using its all-digital C3 boost-mode-charging technology.

**Digital Mobile Charge130** alternator to battery on-the-water charging system provides a significant increase in charging capacity of up to 130 amps. Simply connect your alternator to the Digital Mobile Charge130, then connect Digital Mobile Charge130 to your engine crank battery and house electronic battery bank. Digital Mobile Charge130 will provide up to 130 amps per hour to your house battery bank while protecting your engine battery and charging/conditioning your house battery bank with its all-digital C3 boost mode charging technology.

- **In-Transit C3 Software Controlled, Multi-Stage Charging**  
Optimal fast charge, conditioning & maintenance. 4th stage provides on-demand fast charge mode when needed.
- **C3 Software - Engine Battery Management**  
Intelligently monitors & manages the health of the engine battery while providing maximum charge capacity to the auxiliary battery or bank.
- **C3 Intelligent Self-Calculating Absorption/Conditioning Mode**  
Automatic programming of charge/ absorption time based on discharge state of auxiliary battery or bank resulting in a 100% charge while desulfating battery plates and extending battery life.
- **On-Board C3 Digital Dash Includes Hi-Vis LEDs**  
Battery type, charge modes, temperature and fault conditions.
- **User Programmable Battery Type Selector**  
Select Flooded (lead-acid), AGM and GEL batteries.
- **Remote Temperature Probe Included**
- **Built in Safety**  
Ignition protection, over temperature and over voltage protection. Intelligent alternator & battery over temperature protection. Meets a boat's demand for on-the-water power and charging for 12 or 24 Volt DC systems, allowing for radar, lighting, live wells and other DC systems to operate while managing and charging batteries when running your engine.
- Two Year Warranty



Model	12V to 12V Battery to Battery	12V to 24V Battery to Battery	24V to 12V Battery to Battery	24V to 24V Battery to Battery	12V Alternator to Battery	24V Alternator to Battery
Part #	05504	05505	05503	05502	05513	05514
DC Input (Volts/Amps)	12 Volts / 40 Amps	12 Volts / 40 Amps	24 Volts / 20 Amps	24 Volts / 20 Amps	12 Volts	24 Volts
Max DC Amps	12 Volts / 40 Amps	24 Volts / 20 Amps	12 Volts / 40 Amps	24 Volts / 20 Amps	12 Volts / Up to 130 Amps (varies w/ ALT size)	24 Volts / Up to 130 Amps (varies w/ ALT size)
Size (LxWxH)	11"x9.75"x2.5"	11"x9.75"x2.5"	11"x9.75"x2.5"	11"x9.75"x2.5"	11"x9.75"x2.5"	11"x9.75"x2.5"
Weight	8 lbs.	8 lbs.	8 lbs.	8 lbs.	8 lbs.	8 lbs.

## Use Digital Mobile Charge chargers for a variety of applications:

### Marine



### Semi's



### Box Trucks





# INVERTERS





# INVERTERS

## TruePower Plus Series

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NEW



Our next generation of TruePower Plus Inverters are available in both Modified Sine Wave (MS) and Pure Sine Wave (PS) models. Designed to convert 12V DC battery power to 115V AC and will automatically pass through AC Inlet power when present.

## ProSport Power Inverter

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Perfect for the on-board or on-the-road active user who needs to convert 12 Volt battery power to 110V AC. While on the water or in your car, provide instant AC power for laptops, cell phone chargers, radios, portable TV's, lighting, small power tools and more.





## TruePower Plus Series **NEW**

### Heavy Duty Marine, Mobile and Industrial Grade Inverters

Our next generation of TruePower Plus Inverters are available in both Modified Sine Wave (MS) and Pure Sine Wave (PS) models. Designed to convert 12V DC battery power to 115V AC and will automatically pass through AC Inlet power when present. TruePower Plus is rich with features including; Innovative dual color digital LCD message center, dual color gauges for AC power output and battery DC input, USB DC input, USB power port, GFCI convenience outlets, DC cable covers, and separate on/off remote. Our integrated AC cable strain reliefs and front screw connection terminal blocks allow for quick and easy installation without the added need for ring terminals for AC power connections.

Designed with soft start noise filtered technology and x2 surge capability for powering demanding loads. Shock resistant construction with internal conformal coated electronics for protection in harsh environments.

The TruePower Plus PS Series has all the features of our MS series but provides a Pure Sine 115V AC output ideal for high fidelity audio visual systems in addition to appliances with hysteresis and variable motor speed controls like washing machines and refrigeration etc.

- Intuitive dual color digital LCD message center
- Dual color gauges for AC power output and battery DC input
- Internal 30 amp AC transfer switch will automatically pass through AC inlet power when present
- USB power port and GFCI convenience outlets
- Compact and lightweight design
- Soft start noise filtered technology with x2 surge capability
- On/Off remote with 9 foot cable and DC cable covers Included
- Integrated AC power cable strain reliefs for ease of installation
- Built-in safety with overload, over temperature, short circuit and reverse polarity protection
- Audible alarm and shut down for low and high DC voltage, overload and over temperature conditions.
- Shock resistant construction with internal conformal coated electronics
- 2 year warranty



Pure Sine Wave  
TECHNOLOGY



Modified Sine Wave  
TECHNOLOGY



Intuitive Dual Color Display and LCD Message Center



USB 5V DC/2.1 Amp Port GFCI Protected Outlets



Integrated AC Power Strain Reliefs with Front Screws



DC Cable Covers Black (-) and Red (+)



### TruePower Plus Display Functions

**DC to AC Output Gauge**—Indicates percentage of AC power being used versus output rating. The scale turns red when output demand exceeds output rating.

**Input Power**—Indicates if power is coming from DC (batteries) or AC inlet power.

**DC Input Level Gauge**—Indicates the battery DC voltage level. The scale turns red when battery voltage drops below 11.0 volts.

**System Status**—Dual color LCD with full system normal and fault condition messaging (no codes).

**Check**—Illuminates when a fault condition is present with LCD message.



Conforms to:  
UL STD. 485  
CSA STD. C22.2 No. 107.2  
FCC Class B

Designed and  
Constructed to:  
ABYC-A-31  
**ABYC**  
Setting Standards for Safer Boating



Model	TruePower Plus 1000ps	TruePower Plus 2000ps	TruePower Plus 1200ms	TruePower Plus 1500ms	TruePower Plus 2000ms
Part #	07100	07200	06120	06150	06200
Wattage	1000 Watts	2000 Watts	1200 Watts	1500 Watts	2000 Watts
Surge Rating	2000 Watts	4000 Watts	2400 Watts	3000 Watts	4000 Watts
Sine Wave	Pure	Pure	Modified	Modified	Modified
Efficiency (optimum)	>90%	>90%	>90%	>90%	>90%
AC Output	115V AC 60Hz	115V AC 60Hz	115V AC 60Hz	115V AC 60Hz	115V AC 60Hz
Internal AC Transfer Switch	30 Amps	30 Amps	30 Amps	30 Amps	30 Amps
AC Crossover Time	<30 ms	<30 ms	<30 ms	<30 ms	<30 ms
DC Input	11–15V DC	11–15V DC	11–15V DC	11–15V DC	11–15V DC
Inverter Off DC Amp Draw	4 mA	4 mA	4 mA	4 mA	4 mA
Size	4" x 9.9" x 11.5"	4.5" x 10.6" x 11.5"	4" x 9.9" x 11.5"	4" x 9.9" x 11.5"	4.5" x 10.6" x 11.5"
Weight	7.3 lbs	9.0 lbs	7.3 lbs	7.3 lbs	9.0 lbs



### TruePower Plus Remote (included)

- On/Off control
- Input power source LED indicators
- Check fault LED indicator
- Remote mounting screws and 9 ft. cable included

Replacement Part # 07211

## Application Guide

35W	Smartphone / Tablet	TruePowerPlus1000ps
100W	Can Opener / Coffee Grinder	TruePowerPlus1200ms
150W	32"-55" Flat Screen TV	TruePowerPlus1500ms
175W	Laptop Computer	TruePowerPlus2000ps
300W	Portable Ice Maker	TruePowerPlus2000ms
500W	Vacuum	
550W	Washing Machine	
600W	Blender / Food Processor	
700W	Portable Dishwasher	
750W	Full Size Fridge & Freezer	
800W	Small Coffee Maker	
900W	Toaster	
1000W	Small Microwave	
1200W	Coffee Maker	
1500W	Electric Grill	
1800W	Toaster Oven	
2000W	Large Air Conditioner	

The items listed above are intended for reference only. Appliance specifications may vary. Certain appliances and tools require a higher surge power in order to start up. To compute the actual wattage of a device, determine the amperage rating, and multiply by the AC voltage ( $A \times V = W$ ). For example: 10 Amps x 115 Volts = 1150 Watts.

## ProSport Power Inverter

### Converts 12 Volt Power to 110V AC up to 150 Watts

Perfect for the on-board or on-the-road user to convert 12 volt battery power to 110V AC.

- Recharge and power portable electronics—Power devices from your car, RV, camper and more
- On the road power—Use with laptops, game consoles, portable DVD players, TVs and more
- Extruded aluminum case
- Universal cup holder design
- High surge capacity
- Power / status LED indicators
- Standard 110V AC receptacle
- Output short & input polarity protection
- Low Battery Shutdown
- Over temperature and overload protection

Model	Part #	Surge Capability	Input	Output	Frequency	Size (LxWxH)	Cable Length
ProSport Power Inverter	79018	250 W	12V DC	110V AC	60 Hz	2.625"x 2.625"x6"	3 ft





# INVERTER/CHARGERS





# INVERTER/CHARGERS

## TruePower CombiPS

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The TruePower PS Pure Sine Wave Combination Inverter/Charger, provides all the benefits and features of our QS series but yields a Pure Sine Wave AC output which is equal to the quality of AC power enjoyed at home.

## TruePower CombiQS

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TruePower QS Modified Sine Wave Combination Inverter/Charger handles most electrical/electronic devices well.



## TruePower CombiPS Combination Inverter/Charger

### Pure Sine Wave Output...

The TruePower CombiPS Pure Sine Wave Inverter/Charger, provides all the benefits and features of our QS series but yields a Pure Sine Wave AC output which is equal to the quality of AC power enjoyed at home. Pure Sine Wave Technology is perfect for mobile or on the water audio/visual systems with plasma or LCD flat screen technology in addition to large appliances with hysteresis motor control as used in household appliances like washing machines.

- **2.8x Surge Rating with 1.0 Power Factor**
- **7 Selectable 3-Stage Battery Charge Profiles**
- **Compact, Robust Design**  
Easy-to-install, space saving design.
- **Fully Automatic Inverter/Charger**  
Instant AC transfer switch passes AC shore/station power. Charges batteries when shore / station power is present or switches safely into DC to AC inverter mode, making AC household power available on the water or on the road.
- **Charger Mode: Integrated, Automatic True 3-Stage Marine Grade Battery Charger**  
Built-in digital control technology provides seven user-selectable charge profiles for today's various battery chemistries.
- **Inverter Mode: Efficient, Quiet Conversion from DC Power to AC Power**  
Pure Sine Wave Technology. Perfect for mobile or on the water audio/visual systems and large appliances with hysteresis motor control. Inverter delivers 2.8 times surge capacity for demanding applications air conditioners, microwaves, refrigerators and more. Pure Sine Wave passes through while connected to AC shore/station power.
- **Built-in Safety: Overload, Over Temperature, High and Low Battery Voltage Protection and Ignition Protection**  
Designed and constructed to FCC Class A, Marine UL 1236, UL 458, and CE ABYC-A 31 Marine compliant.
- Two Year Warranty



### Removable Deluxe Remote (included)

On/Off/Standby power modes and high visibility LED indicators for Charger, Inverter and Fault modes. Includes connector plate and interface cable.



## TruePower CombiPS Selection



Model	TruePower2000PS 110V AC / 12V DC	TruePower2000PS 230V AC / 12V DC	TruePower2000PS 110V AC / 24V DC	TruePower2000PS 230V AC / 24V DC
Part #	02012	02013	02024	02025
Size (LxWxH)	17"x9"x7"	17"x9"x7"	17"x9"x7"	17"x9"x7"
Weight	44 lbs	44 lbs	44 lbs	44 lbs
Auto AC Transfer Switch Rating	30A	30A	30A	30A
<b>Pure Sine Wave Inverter</b>				
DC Voltage (range)	10.5-15V DC	10.5-15V DC	21.5-29.5V DC	21.5-29.5V DC
DC Amps (max continuous)	Up to 200A	Up to 200A	Up to 100A	Up to 100A
AC Voltage (range/Hz)	110-120V AC / 60 Hz	220-240V AC / 50 Hz	110-120V AC / 60 Hz	220-240V AC / 50 Hz
AC Amps (max continuous)	Up to 18.2A	Up to 9.1A	Up to 18.2A	Up to 9.1A
Power Rating (continuous/peak watts)	2000 / 6000	2000 / 6000	2000 / 6000	2000 / 6000
Electric Motor Start Capability	1 HP @ 10.5V DC	1 HP @ 10.5V DC	1 HP @ 21.5V DC	1 HP @ 21.5V DC
<b>3 Stage Battery Charger</b>				
AC Voltage (range/Hz)	95-127V AC 50/60 Hz	196-245V AC 50/60 Hz	95-127V AC 50/60 Hz	196-245V AC 50/60 Hz
AC Input Breaker Rating	30A	30A	30A	30A
Charging Voltage (select profile)	14.0-15.1V DC	14.0-15.1V DC	28.0-30.2V DC	28.0-30.2V DC
Float Voltage (selectable profile)	13.3-13.8V DC	13.3-13.8V DC	26.6-27.4V DC	26.6-27.4V DC
Nominal Output Charger Amperage	Up to 70 Amps DC	Up to 70 Amps DC	Up to 35 Amps DC	Up to 35 Amps DC

## TruePower PS Series Application Guide

35W	Smartphone / Tablet
100W	Can Opener / Coffee Grinder
150W	32"-55" Flat Screen TV
175W	Laptop Computer
300W	Portable Ice Maker
500W	Vacuum
550W	Washing Machine
600W	Blender / Food Processor
700W	Portable Dishwasher
750W	Full Size Fridge & Freezer
800W	Small Coffee Maker
900W	Toaster
1000W	Small Microwave
1200W	Coffee Maker
1500W	Electric Grill
1800W	Toaster Oven
2000W	Large Air Conditioner

### TruePower2000PS

The items listed above are intended for reference only. Appliance specifications may vary. Certain appliances and tools require a higher surge power in order to start up. To compute the actual wattage of a device, determine the amperage rating, and multiply by the AC voltage (A x V = W). For example: 10 Amps x 110 Volts = 1100 Watts.

## TruePower CombiQS Combination Inverter/Charger

### Convert DC Battery Power to Filtered AC Household Power

Designed specifically for the most rugged marine applications. Seamless conversion of DC battery power to filtered low noise AC household power. AC Switch automatically selects AC or DC power inputs (depending on which source is available), ensuring AC household power is available at all times. Whether on the water or on the road, TruePower QS Series is ideal for large AC load applications such as air conditioners, refrigerators, microwaves, hair dryers, office equipment, power tools and more. Select the model that's right for you!

- **2.8x Surge Rating with 1.0 Power Factor**
- **7 Selectable 3-Stage Battery Charge Profiles**
- **Compact, Robust Design**  
Easy-to-install, space saving design.
- **Fully Automatic Inverter/Charger**  
Instant AC transfer switch passes AC shore/station power. Charges batteries when shore / station power is present, or switches safely into DC to AC inverter mode, making AC household power available on the water or on the road.
- **Charger Mode: Integrated, Automatic True 3-Stage Marine Grade Battery Charger**  
Built-in digital control technology provides seven user-selectable charge profiles for today's various battery chemistries.
- **Inverter Mode: Efficient, Quiet Conversion from DC Power to AC Power**  
Filtered Quasi (modified) Sine Wave AC output. Ideal for appliances, power tools and electronics. Inverter delivers 2.8 times surge capacity for demanding applications—air conditioners, microwaves, refrigerators and more. Pure sine wave passes through while connected to AC shore/station power.
- **Built-in Safety: Overload, Over Temperature, High and Low Battery Voltage Protection and Ignition Protection**  
Designed and constructed to FCC Class A, Marine UL 1236, UL 458, and CE ABYC-A 31 Marine compliant.
- Two Year Warranty



Quickly and easily connect the AC input and output leads



DC and remote connections easily connect to the combi

### TruePower QS Series Application Guide

35W	Smartphone / Tablet	TruePower1000 QS
100W	Can Opener / Coffee Grinder	
150W	32" -55" Flat Screen TV	
175W	Laptop Computer	
300W	Portable Ice Maker	
500W	Vacuum	
550W	Washing Machine	
600W	Blender / Food Processor	
700W	Portable Dishwasher	
750W	Full Size Fridge & Freezer	
800W	Small Coffee Maker	TruePower1500 QS
900W	Toaster	
1000W	Small Microwave	
1200W	Coffee Maker	TruePower2500 QS
1500W	Electric Grill	
1800W	Toaster Oven	
2000W	Large Air Conditioner	

The items listed above are intended for reference only. Appliance specifications may vary. Certain appliances and tools require a higher surge power in order to start up. To compute the actual wattage of a device, determine the amperage rating, and multiply by the AC voltage ( $A \times V = W$ ). For example: 10 Amps x 110 Volts = 1100 Watts.

## TruePower CombiQS Selection

### 120V Models



Model	TruePower1000QS 12V DC	TruePower1500QS 12V DC	TruePower1500QS 24V DC	TruePower2500QS 12V DC	TruePower2500QS 24V DC
Part #	01012	01512	01524	02412	02424
Size (LxWxH)	17"x9"x7"	17"x9"x7"	17"x9"x7"	17"x9"x7"	17"x9"x7"
Weight	40 lbs	40 lbs	40 lbs	44 lbs	44 lbs
Auto AC Transfer Switch Rating	30A	30A	30A	30A	30A
<b>Quasi (Modified) Sine Wave Inverter</b>					
DC Voltage (range)	10.5–15V DC	10.5–15V DC	21.5–29.5V DC	10.5–15V DC	21.5–29.5V DC
DC Amps (max continuous)	Up to 100A	Up to 150A	Up to 75A	Up to 250A	Up to 125A
AC Voltage (range/Hz)	110–120V AC / 60 Hz	110–120V AC / 60 Hz	110–120V AC / 60 Hz	110–120V AC / 60 Hz	110–120V AC / 60 Hz
AC Amps (max continuous)	Up to 9.1A	Up to 13.6A	Up to 13.6A	Up to 22.7A	Up to 22.7A
Power Rating (continuous/peak watts)	1000 / 3000	1500 / 4500	1500 / 4500	2500 / 7200	2500 / 7200
Electric Motor Start Capability	1/2 HP @10.5V DC	1 HP @10.5V DC	1/2 HP @ 21.5V DC	1 HP @10.5V DC	1 HP @ 21.5V DC
<b>3 Stage Battery Charger</b>					
AC Voltage (range/Hz)	95–127V AC 50/60 Hz	95–127V AC 50/60 Hz	95–127V AC 50/60 Hz	95–127V AC 50/60 Hz	95–127V AC 50/60 Hz
AC Input Breaker Rating	16A	20A	20A	30A	30A
Charging Voltage (select profile)	14.0–15.1V DC	14.0–15.1V DC	28.0–30.2V DC	14.0–15.1V DC	28.0–30.2V DC
Float Voltage (selectable profile)	13.3–13.8V DC	13.3–13.8V DC	26.6–27.4V DC	13.3–13.8V DC	26.6–27.4V DC
Nominal Output Charger Amperage	Up to 40 Amps DC	Up to 40 Amps DC	Up to 20 Amps DC	Up to 50 Amps DC	Up to 25 Amps DC

### 230V Models



Model	TruePower1500QS 24V DC	TruePower2500QS 12V DC	TruePower2500QS 24V DC
Part #	01525	02413	02425
Size (LxWxH)	17"x9"x7"	17"x9"x7"	17"x9"x7"
Weight	40 lbs	44 lbs	44 lbs
Auto AC Transfer Switch Rating	30A	30A	30A
<b>Quasi (Modified) Sine Wave Inverter</b>			
DC Voltage (range)	21.5–29.5V DC	10.5–15V DC	21.5–29.5V DC
DC Amps (max continuous)	Up to 75A	Up to 250A	Up to 125A
AC Voltage (range/Hz)	220–240V AC / 50 Hz	220–240V AC / 50 Hz	220–240V AC / 50 Hz
AC Amps (max continuous)	Up to 13.6A	Up to 11.4A	Up to 11.4A
Power Rating (continuous/peak watts)	1500 / 4500	2500 / 7200	2500 / 7200
Electric Motor Start Capability	1/2 HP @ 21.5V DC	1 HP @10.5V DC	1 HP @ 21.5V DC
<b>3 Stage Battery Charger</b>			
AC Voltage (range/Hz)	196–245V AC 50/60 Hz	196–245V AC 50/60 Hz	196–245V AC 50/60 Hz
AC Input Breaker Rating	20A	30A	30A
Charging Voltage (select profile)	28.0–30.2V DC	14.0–15.1V DC	28.0–30.2V DC
Float Voltage (selectable profile)	26.6–27.4V DC	13.3–13.8V DC	26.6–27.4V DC
Nominal Output Charger Amperage	Up to 20 Amps DC	Up to 50 Amps DC	Up to 25 Amps DC



### Removable Deluxe Remote (included)

On/Off/Standby power modes and high visibility LED indicators for Charger, Inverter and Fault modes. Includes connector plate and interface cable.



# ISOLATORS

## ProlsoCharge Series

34



ProlsoCharge delivers digitally controlled alternator output distribution while protecting the health of engine start batteries, isolating and charging up to 3 other independent battery banks off of a single alternator (model specific).

## Battery Isolators

35



ProMariner™ Battery Isolators with gold-plated terminals (select models) and improved efficiency, provide enhanced charging.



# ISOLATORS

## ProSafeFS Series

36



The ProSafe FS Series of FailSafe 30 and 60 Amp Galvanic Isolators will interrupt galvanic current flow with other boats at a marina when installed on a boat which is connected to AC Shore Power.

## Portable Analog Corrosion Test Meter

37



Measures voltage difference between metals in seawater to help diagnose corrosion problems ensure the most common metals used on boats - aluminum, bronze and steel are properly protected on your vessel.



## ProlsoCharge Series

### Intelligent Alternator Power Distribution System

#### Significantly Smarter...

ProlsoCharge delivers digitally controlled alternator output distribution while protecting the health of engine start batteries, isolating and charging up to 3 other independent battery banks off of a single alternator (model specific). For dual engine applications, ProlsoCharge offers an exclusive 2 alternator input model with up to 4 battery banks. Save space and time by eliminating traditional diode based isolators and ancillary voltage sensitive relays or solenoids, isolating and charging multiple battery banks simultaneously. Eliminate typical alternator voltage loss of up to .6V DC that is commonly associated with traditional diode based isolators. Intelligent zero volt loss isolation insures fully charged batteries and faster charge times. Installed with the ProNauticP Series, a boat owner can enjoy the full benefit of shore power and on the water charging. Designed to provide more time on the water enjoying what you like most...boating.

- **ProMar Digital Performance Zero Volt Loss Isolation and Charging**  
All digital design delivers active battery status and automatic engine battery health priority while digitally distributing the full output of your engine's alternators.
- **Intelligent Isolation and Charging Software Control**  
ProlsoCharge's intelligent software control provides priority charging to a battery bank that is under load (i.e house bank or power inverter bank) by taking fully charged batteries off line and priority charging discharged battery banks, while insuring the health of the engine batteries.
- **Real Time LED Status Indicators**  
Highly visible LEDs to indicate alternator power is present and battery bank charging status. Fault LEDs include: high and low alternator output, over-voltage protection and high voltage conditions that may be present on any one of the battery banks connected (that are also connected to other charging sources gen set combi etc).
- **Ignition Controlled**  
Distributed On Demand™ battery bank management will only activate with ignition power on.
- **Advance Regulator Ready**  
Advance regulator remote sense connection provided for precision alternator algorithm control for alternators equipped with an advanced regulator.
- **Easy Installation**  
Modular design for easy install. Includes all terminal stud insulator boots and protective snap on safety cover.
- **Built-in Safety**  
Ignition protected
- Five Year Warranty



Model	ProlsoCharge120 1•2	ProlsoCharge180 1•2	ProlsoCharge120 1•3	ProlsoCharge250 1•2	ProlsoCharge180 1•3	ProlsoCharge250 1•3	ProlsoCharge130 2•4
Part#	23121	23122	23124	23123	23125	23126	23127
Volts	12V	12V	12V	12V	12V	12V	12V
Max DC Amps	120 Amp	180 Amp	120 Amp	250 Amp	180 Amp	250 Amp	130 Amp
Alternator Input	1	1	1	1	1	1	2
Battery Outputs	2	2	3	2	3	3	4
Size (LxWxH)	5.35"x5.875"x3.125"	6.15"x5.875"x3.125"	6.15"x5.875"x3.125"	6.95"x5.875"x3.125"	7.55"x5.875"x3.125"	8.875"x5.875"x3.125"	12.05"x5.875"x3.125"
Weight	2 lbs	3 lbs	3 lbs	4 lbs	5 lbs	6 lbs	7 lbs



# Battery Isolators

ProMariner™ Battery Isolators with gold-plated terminals\* and improved efficiency, provide enhanced charging

- Rated for use with DC devices ranging from 10 amps to 130 amps
- One or two alternators can be connected multiple battery banks
- Allows electric current to flow in one direction only
- Batteries will not discharge into undercharged batteries



Model	1-70-2*	1-70-3*	2-70-2	2-70-3	1-130-2*	1-130-3*	2-130-2	2-130-3
Part#	01-70-2	01-70-3	02-70-2	02-70-3	1-130-2	1-130-3	2-130-2	2-130-3
Configuration	1 alternator, 2 battery	1 alternator, 3 battery	2 alternator, 2 battery	2 alternator, 3 battery	1 alternator, 2 battery	1 alternator, 3 battery	2 alternator, 2 battery	2 alternator, 3 battery
Max Current	70 amp	70 amp	70 amp	70 amp	130 amp	130 amp	130 amp	130 amp



## ProSafeFS Series Galvanic Isolator

Protecting your Boat's Outdrive, Props and Metal Fittings while Maximizing Zinc Life...

The ProSafe FS Series of FailSafe 30 and 60 Amp Galvanic Isolators will interrupt galvanic current flow with other boats at a marina when installed on a boat which is connected to AC Shore Power. This technology maintains AC safety ground and solves the most common forms of corrosion and premature zinc loss within a boats bonding system. The ProSafe FS Series is UL Certified to meet the parameters of the ABYC A-28 recommendation ProSafe FS installs easily and does not require a dedicated monitor to verify the operational status of the galvanic isolator as required by non FailSafe Certified galvanic isolators. Both the ProSafe 30 and 60 Amp models are built on robust Flat Pack Semiconductor platforms, ensuring that in the event of a failure, the failure is safe by not compromising the ground continuity on-board when connected to AC Shore Power.

- **ABYC A-28 July '08 Compliant and Fail Safe Certified**

Certified by Underwriters Laboratories (UL). Insures shore power safety ground wire is maintained through the isolator.

- **Flat Pack High Power Semiconductors**

Robust high power diodes allow the FS Series to meet the new FailSafe criteria for conducting inrush currents 3,000 and 5,000 amps (FS30 and FS60 respectively) for the required duration period.

- **Innovative Design**

The FS60 will cool itself in the event it must conduct current insuring cooler operation in this mode.

- **Ignition Protected**

Meets ISO 8846 and either model can be mounted within an engine compartment.

- **Gold Plated Terminations**

Simply install in your on board green safety ground wire (between your AC inlet and your AC Panel) to separate your D.C. Bonding System from your Shore A.C Green wire.

- ProSafe FS30 for 30 Amp Shore Cord Applications. ProSafe FS60 for (1) 50 Amp or (2) 30 Amp Shore Cord Applications

- 5 Year Warranty



Model	ProSafeFS30	ProSafeFS60
Part #	22034	22074
Shore Cord Inlet Compatibility	Single 15, 16, 20 or 30	120/240V AC / 82A / 50 or 60 Hz
Ratings V AC / AMPs / Hz	120/240V AC / 41A / 50 or 60 Hz	120/240V AC / 82A / 50 or 60 Hz
Max Temp.	50° C	50° C
Size	6.75"x7"x2.5"	7.25"x6.5"x3.75"
Weight	3 lbs	3.7 lbs



Unprotected Outdrives



Unprotected and premature transom & outdrive zinc loss



Unprotected sail drive

## Analog Corrosion Test Meters

Measures voltage difference between metals in seawater to help diagnose corrosion problems and ensure the most common metals used on boats – aluminum, bronze and steel are properly protected on your vessel. Scale is color coated to easily read whether your boat metal is freely eroding, protected, or over protected.



### Portable Analog Corrosion Test Meter

- Includes 10 foot cable with alligator clip (part # 20007) and 20 ft cable with silver/ silver chloride half cell (part # 20008)

Part #	20006-1	Portable Corrosion Test Meter
Part #	20007	10 foot cable with alligator clip for 20006-1
Part #	20008	20 foot cable with silver/silver chloride half cell for 20006-1



### Deluxe Analog Corrosion Controller Meter

- Includes mountable meter and Through Hull Kit (part # 20056-1)

#### Through Hull Kit (Part # 20056-1)

- For use with 20020 Deluxe corrosion meter
- Includes sensor and silver/silver chloride half cell
- For use on fiberglass and metal hulls only

Part #	20020	Deluxe Corrosion Controller
Part #	20056-1	Through Hull Kit



## Shaft Brushes

- Provides connections for prop shafts, ruder shafts and other rotating shafts with ships bonding system
- Can help eliminate radio frequency noise from rotating shafts and machinery
- Long wearing metallic graphite brush on phosphor bronze strap

Part #	20035-1	Standard Shaft Brush
Part #	20036-1	Heavy Duty Shaft Brush



## Corrosion Control Workbook

Take the mystery out of corrosion symptoms with a comprehensive step by step process written in the ProMariner™ Corrosion control workbook. Available at [promariner.com/library](http://promariner.com/library).



# ACCESSORIES

## AC Plug Holders

40



No cutting, stripping, or splicing wires. Secure your AC plug with an easy-to-mount receptacle.

## Remote Battery Bank Status Indicator

40



Remote Push-To-Test status indicator for up to 3 batteries. Universal flush or surface mount capable.



# ACCESSORIES

## Hand Held Digital Multimeter

40



Accurate and durable Hand-Held Digital Multi-Meter with a large digital LCD display to easily see the readout.

## Marine Binoculars

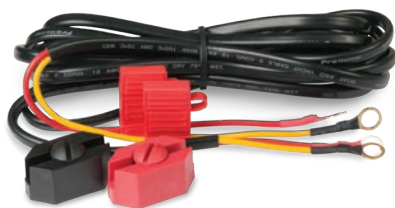
41



ProMariner™ binoculars have been designed with boaters in mind. They are water resistant, have a center focus, and have Bak 4 prisms. Recreational and Consumer grade options are available.



## Battery Charger Accessories



### Battery Bank Cable Extenders

- No cutting, stripping or splicing wires
- 12 AWG cable
- 2 convenient sizes to choose from 5 or 15 ft
- Gold-plated terminals, in-line fuses & hardware included

Part # 51070 15 ft

Part # 51071 5 ft



### Remote Battery Bank Status Indicator

- Remote "Push to Test" status indicators for up to 3 batteries with easy-to-read LED indicators
- Display is universal flush or surface mount capable

Part # 51060



### Universal AC Plug Holder

- No cutting, stripping or splicing wires!
- Mount any AC plug in easy-to-use receptacle
- Black or white

Part # 51202F Black

Part # 51203F White

OEM # 51202B Black

OEM # 51203B White



### Hand-Held DC System Tester

- At-a-glance testing of batteries, on-board charger, alternator/ regulator output
- 6 Easy-to-read LED indicators
- Compact, lightweight design

Part # 87710



### AC Plug Holder with Clamp

These plug holders are specifically designed to clamp on to our Plugs that are installed on ProSport and ProTournament Chargers.

- No cutting, stripping or splicing wires!
- Secure your AC plug with an easy-to-mount receptacle
- Black or white

Part # 51200F White

Part # 51201F Black

OEM # 51200B White

OEM # 51201B Black



### Hand Held Digital Multimeter

- Large digital LCD display
- Back light feature
- Test leads included
- Measurement hold feature
- Built in EZ stand
- Continuity tone alert

Part # 87730



## Marine Binoculars

### Recreational Grade

#### WaterSport Waterproof Marine Optics

##### WaterSport 7 x 50 Marine Binoculars

- Waterproof & Nitrogen Filled
- Float without Strap
- Center Focus
- Bak 4 Prisms
- Retained Lens Caps
- Enhanced Green Coated Lens

Part # 11755



### Consumer's Choice

#### Water Resistant Marine Optics High Seas Marine Binoculars

##### Weekender Marine Binoculars

- Water Resistant
- Center Focus
- 7 x 50, Bak 4 Prisms
- Retained Lens Caps

Part # 11752



## Choosing a Waterproof Charger

With our Power of 3 offering, selecting the right charger has never been easier.

### Choose your charger in 3 steps:

1. Select the grade of battery charger that best suits your usage...
2. Select the recovery time that best suits your needs...
3. Select the number of batteries you wish to charge & condition

Our advanced line of waterproof chargers is designed for any combination of group 24-31 batteries. Each charger bank cable is for a dedicated 12V battery, even if it is configured for a 12, 24 or 36 Volt trolling motor or system application.

If your application is for 4D, 8D or 6 volt batteries in series, please refer to ProMariner's ProNauticP Series (page 18) or call ProMariner™ for assistance at 1-800-824-0524.

### ProTournament Elite Series

**FASTEST**



Model	Part #	DC Voltage Systems	Amps	No. of Batteries	12V	12V 12V	12V 12V	12V 12V	12V 12V	Battery Type
ProTournament240 Elite Dual	52024	12/24	24 Amps	2 Bank		✓				Flooded, AGM, HP AGM
ProTournament240 Elite Triple	52026	12/24/36	24 Amps	3 Bank			✓			Flooded, AGM, HP AGM
ProTournament360 Elite Dual	52032	12/24	36 Amps	2 Bank		✓				Flooded, AGM, HP AGM
ProTournament360 Elite Triple	52036	12/24/36	36 Amps	3 Bank			✓			Flooded, AGM, HP AGM
ProTournament360 Elite Quad	52038	12/24/36/48	36 Amps	4 Bank				✓		Flooded, AGM, HP AGM

### ProSport Series

**FASTER**



Model	Part #	DC Voltage Systems	Amps	No. of Batteries	12V	12V 12V	12V 12V	12V 12V	12V 12V	Battery Type
ProSport 6	43006	12	6 Amps	1 Bank	✓					Flooded, Gel, AGM
ProSport 8	43008	12/24	8 Amps	2 Bank		✓				Flooded, Gel, AGM
ProSport 12	43012	12/24	12 Amps	2 Bank		✓				Flooded, Gel, AGM
ProSport 15 (OEM only)	43015	12/24/36	15 Amps	3 Bank			✓			Flooded, Gel, AGM
ProSport 20*	43020	12/24	20 Amps	2 Bank		✓				Flooded, Gel, AGM, HP AGM
ProSport 20 Plus	43021	12/24/36	20 Amps	3 Bank			✓			Flooded, Gel, AGM

\*3rd High Performance HP AGM profile

### ProMar1 Series

**FAST**



Model	Part #	DC Voltage Systems	Amps	No. of Batteries	12V	12V 12V	12V 12V	12V 12V	12V 12V	Battery Type
ProMar1 5	31405	12	5 Amps	1 Bank	✓					Flooded, Gel
ProMar1 5/3 (OEM only)	31408	12/24	8 Amps	2 Bank		✓				Flooded, Gel
ProMar1 5/5	31410	12/24	10 Amps	2 Bank		✓				Flooded, Gel
ProMar1 5/5/3**	31413	12/24+ENG	13 Amps	3 Bank			✓			Flooded, Gel

\*\*3 bank consists of one engine start and two trolling motor or system batteries.

## Choosing a ProNauticP Charger

ProNauticP Series chargers are designed for cuddies, cruisers, sailboats, yachts and commercial / larger fishing boats. Boats in this class typically have a common ground and are set up for shore power AC and sometimes include the use of a generator and/or an inverter on board. A 12V DC common ground system is typical for most boats, however larger boats and commercial boats may be utilizing a 24V, 32V or 36V common ground DC system.

### Method 1 (preferred):

When choosing a dry mount charger, the following information will aid in the proper selection:

1. How many low voltage lights are on-board and total estimated amperage required when they are all on?  
(Good rule of thumb is 1 amp per bulb)
2. How is the boat used? If there is a lot of use while at the dock, what is the total estimated DC amp draw if at the dock with all lights and DC appliances on?
3. What is the DC voltage system onboard?  
(12V DC or 24V DC or 32V DC or 36V DC)
4. Is there an inverter being used? If yes what is the wattage rating and DC input amps required?
5. What is the number of batteries and group size of each battery?

For example: After answering the above you find you have 12V DC system with 18 DC lights on board and a VHF radio you like to leave on with a satellite TV for entertaining, you would find your DC amp load would be approximately 20 amps. Add an additional 10 amps for charging capacity and select a 30 amp charger. This would be a Pronautic1230P as shown in the chart below.



## ProNauticP Series

Model	Part #	Volts	Charger Output	No. of Batteries	Cycles	Total number of All Battery Amp Hours On-board					Size (LxWxH)	Weight	AC In
						100-199	200-299	300-399	400-599	600-799			
ProNautic 1210P	63110	12	10 Amps	2 Bank	50/60	9 Hrs					10.25"x8.5"x3.5"	5 lbs	100-260
ProNautic 1215P	63115	12	15 Amps	3 Bank	50/60	6 Hrs	9 Hrs				10.25"x8.5"x3.5"	5 lbs	100-260
ProNautic 1220P	63120	12	20 Amps	3 Bank	50/60	5 Hrs	7 Hrs	10 Hrs			10.25"x8.5"x3.5"	5 lbs	100-260
ProNautic 1230P	63130	12	30 Amps	3 Bank	50/60		6 Hrs	8 Hrs	10 Hrs		10.25"x8.5"x3.5"	5 lbs	100-260
ProNautic 1240P	63140	12	40 Amps	3 Bank	50/60		5 Hrs	6 Hrs	8 Hrs	11 Hrs	10.25"x8.5"x3.5"	5 lbs	100-260
ProNautic 1250P	63150	12	50 Amps	3 Bank	50/60			6 Hrs	7 Hrs	9 Hrs	12.25"x8.5"x3.5"	7 lbs	100-260
ProNautic 1260P	63160	12	60 Amps	3 Bank	50/60			5 Hrs	6 Hrs	8 Hrs	12.25"x8.5"x3.5"	7 lbs	100-260
ProNautic 2420P	63170	24	20 Amps	3 Bank	50/60	5 Hrs	7 Hrs	10 Hrs			10.25"x8.5"x3.5"	5 lbs	100-260
ProNautic 2430P	63180	24	30 Amps	3 Bank	50/60		6 Hrs	8 Hrs	10 Hrs		12.25"x8.5"x3.5"	7 lbs	100-260

The Battery Charger Selector Guide is meant to be used as a guide to help determine the right charger for your needs. All charge times given are using the longest time it would take to charge a dead (50% discharged) set of batteries. In most cases, your set of batteries will recharge much faster. See battery group size table below.

### Method 2:

If you are not able to answer all the questions listed in method 1, you may make a selection by simply understanding the number and sizes of each battery on board and compare it to the battery group size list on the right. Select a recovery time that is suitable for your needs. Batteries are categorized into "Group" size designations and each group size has an average number of amp hours (AH) available in each battery classification. The combined total of all batteries to be charged provides your total amp hours.

Example: Two group 27 batteries (100 AH each) and One group 8D (225 AH) totals 3 batteries with a combined total of 425 AH (100 + 100 + 225 = 425).

### Battery Group Size

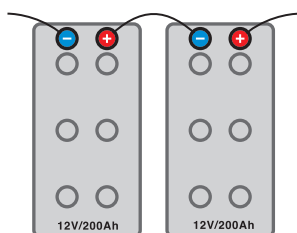
GROUP 24	Average of 85 Amp Hours
GROUP 27	Average of 100 Amp Hours
GROUP 31	Average of 115 Amp Hours
GROUP 4D	Average of 165 Amp Hours
GROUP 8D	Average of 225 Amp Hours



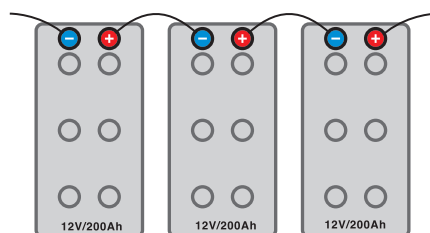
## What is Series Connection and Parallel Connection for batteries?

### Series Connection

A series connection is used to increase voltage, while keeping capacity at the same level. Two serially connected 12V/120 Ah batteries make a combined battery set of 24V/120 Ah. In a series connection, the positive pole of one battery is connected to the negative pole of the other, with the poles that remain at the ends being connected to the system. Batteries with different capacities should never be linked in series and chemistry.



Series connection 24V/200 Ah.

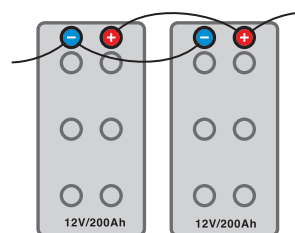


Series connection 36V/200 Ah.

### Parallel Connection

Parallel connection is used when you need to increase your capacity, but keep the voltage the same. The positive leads are connected together, as are the negative leads.

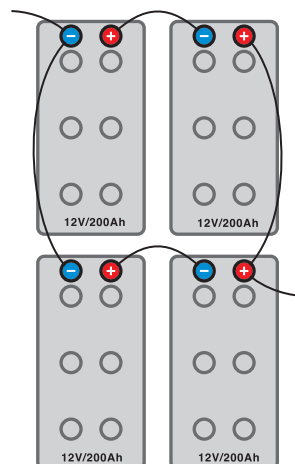
The cabling from the battery to the system should be: Positive from battery 1 and negative from battery 2 (or the last in the parallel connection).



Parallel connection  
12V/400 Ah.

### Series/parallel Connection

If you need a 24V battery set with a higher capacity, you can combine series and parallel connections. The cables from the battery to the system must be crossed: Positive from battery 1 and negative from battery 2 (or the last in the parallel connection).



Series/parallel connection  
24V/400 Ah.



#### Space when Installing Multiple Batteries

Make sure there is sufficient space between the batteries when installing multiple batteries: There should be a 'finger' of space between them to allow the heat to be diverted.

## Notes

PN	Page	PN	Page	PN	Page
01-70-2	35	20056-1	37	52038	11
01-70-3	35	22034	36	52060	11
01012	31	22074	36	63100	19
01512	31	23121	34	63106	19
01524	31	23122	34	63110	19
01525	31	23123	34	63110	43
02-70-2	35	23124	34	63115	19
02-70-3	35	23125	34	63115	43
02012	29	23126	34	63120	19
02013	29	23127	34	63120	43
02024	29	31405	14	63130	19
02025	29	31408	14	63130	43
02412	31	31410	14	63140	19
02413	31	31413	14	63140	43
02424	31	43006	13	63150	19
02425	31	43008	13	63150	43
05502	20	43012	13	63160	19
05503	20	43015	13	63160	43
05504	20	43020	13	63170	19
05505	20	43021	13	63170	43
05513	20	43023	13	63180	19
05514	20	43026	13	63180	43
06120	25	43028	13	79018	25
06150	25	43029	13	87710	40
06200	25	44001	15	87730	40
07100	25	51060	40	90100	13
07200	25	51070	40	90110	13
07211	25	51071	40	90130	13
1-130-2	35	51200B	40	90140	13
1-130-3	35	51200F	40	90170	13
11752	41	51201B	40		
11755	41	51201F	40		
2-130-2	35	51202B	40		
2-130-3	35	51202F	40		
20006-1	37	51203B	40		
20007	37	51203F	40		
20008	37	52024	11		
20020	37	52026	11		
20035-1	37	52032	11		
20036-1	37	52036	11		



## Ingress Protection (IP) Ratings Guide



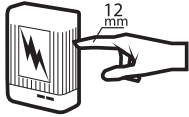
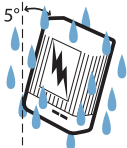
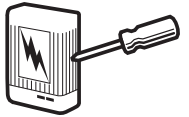

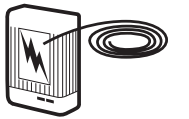







Example:

An IP65 rating can be determined using the adjacent table and example:

- The first number of the rating example, 6, in the gray column means the enclosure is dust tight
- The second number of the rating example, 5, in the blue column means the enclosure is protected against jets of water

The IP rating system was established by the International Electrotechnical Commission (IEC), an organization for international standards and conformity assessment. The IEC collaborates closely with the International Organization for Standardization (ISO). A complete description of the IP ratings and associated tests is found in IEC Publication 529. Although these ratings were initially developed as a way to classify enclosures, they now provide a convenient, practical way to compare levels of sealing. Many electrical products have an Ingress Protection (IP) rating which identifies the environmental factors needing consideration prior to the product's installation.

This is important when deciding when to mount products in a dry and clean environment versus a wet and/or dusty environment. The IP rating indicates the degree of protection provided. The numbers following IP represent levels of sealing and can range from no protection to full protection against dust and water. The table provides a description of the protection at each level.

SOLIDS		WATER	
1	 <p>Protected against a solid object greater than 50 mm such as a hand.</p>	1	 <p>Protected against vertically falling drops of water. Limited ingress permitted.</p>
2	 <p>Protected against a solid object greater than 12 mm such as a finger.</p>	2	 <p>Protected against vertically falling drops of water with enclosure tilted up to 15 degrees from the vertical. Limited ingress permitted.</p>
3	 <p>Protected against a solid object greater than 2.5 mm such as a screwdriver.</p>	3	 <p>Protected against sprays of water up to 60 degrees from the vertical. Limited ingress permitted for three minutes.</p>
4	 <p>Protected against a solid object greater than 1 mm such as a wire.</p>	4	 <p>Protected against water splashed from all directions. Limited ingress permitted.</p>
5	 <p>Dust Protected. Limited ingress of dust permitted. Will not interfere with operation of the equipment. Two to eight hours.</p>	5	 <p>Protected against jets of water. Limited ingress permitted.</p>
6	 <p>Dust tight. No Ingress of dust. Two to eight hours.</p>	6	 <p>Water from heavy seas or water projected in powerful jets shall not enter the enclosure in harmful quantities.</p>
		7	 <p>Protection against the effects of immersion in water between 15 cm and 1 m for 30 minutes.</p>
		8	 <p>Protection against the effects of immersion in water under pressure for long periods.</p>

Rating Example:

**IP65**

INGRESS PROTECTION

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