

BALMAR

WWW.BALMAR.NET



**VOLTAGE
REGULATORS**



**HIGH-OUTPUT
ALTERNATORS**



**BATTERY
MONITORS**

MARINE DC CHARGING PRODUCTS
Catalog Effective January 1, 2013

We keep moving forward, opening new doors, and doing new things, because we're curious and curiosity keeps leading us down new paths.

– Walt Disney

It would be easy to take a safe, conservative approach to business in the wake of the recent economic turmoil – but safe and easy are not the ways to innovation.

The Balmar team embraces Mr. Disney's words with the commitment to changing the face of battery charging. We are excited to introduce an innovative charging technology that promises to profoundly improve both marine and terrestrial DC electrical applications.

The introduction of our new AT-Series alternators, along with our intelligent Max Charge voltage regulation, new Smartgauge™ battery monitoring system and the addition of AltMount® serpentine pulley conversion and second alternator kits, make it more possible than ever to allow us to take advantage of emerging energy storage systems like lithium, TPPL and other new battery types.

We recognize that we're seeing a new generation of power systems. Meeting charging demands in the future will require cleaner technologies as well as more intelligent ways to address the loads of marine, automotive, industrial and agricultural systems.

Charging systems are no longer just required to deal with starting batteries. The loads are bigger. Batteries are demanding faster and more precise charging. We have to be ready to meet those needs in an intelligent manner. By developing higher output alternators and smarter, more responsive voltage regulation, we can quickly charge a wide range of battery types while using less fuel and ensuring that batteries will last longer and remain more dependable.

As we continue to search for smarter power delivery, we will design and build new products and new technologies – and we will continue to forge new relationships that will allow us to lead the way in mobile electrical generation. Above all, we will continue to approach both business and technology with a sense of curiosity, and an eye toward innovation.

Thank you for your continued business.



STEVE GORMAN
PRESIDENT

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18930 59th Ave. NE, Arlington, WA 98223
 Phone: 360-435-6100, Fax: 360-435-3210,
 Email: balmar@balmar.net

WARRANTY & ORDERING INFORMATION

BALMAR warrants its products against defects in material or workmanship for a period of one year from the date of purchase. If any such defect is discovered by the original purchaser within the warranty period, BALMAR will repair or replace the product free of charge, subject to verification of defect or malfunction by BALMAR Customer Service. BALMAR is not responsible for costs incurred for shipping to or from its headquarters. This warranty DOES NOT apply to defects or physical damage resulting from abuse, neglect, accident, misapplication, unauthorized or improper installation or repair, alteration, modification, or unreasonable use of the products. Cracked or broken cases, or parts damaged by fire, water, freezing, collision, theft, explosion, rust, corrosion or items damaged in shipment while enroute to BALMAR for repair are not warrantable conditions. BALMAR assumes no responsibility for consequential damage, injury, loss or expense arising from use of these products or any labor required for repair or replacement. BALMAR holds no responsibility for costs incurred as a result of repairs initiated by facilities other than BALMAR's warranty repair department. The customer must ensure that any product returned to BALMAR is properly packed to provide protection against damage in shipment. Claims against shippers for damage in transit to or from BALMAR are the responsibility of the customer. BALMAR cannot be held liable for damage due to improper packaging and/or shipping processes.

BALMAR WILL NOT repair or be held responsible for any product returned to BALMAR without proper identification, return address and a BALMAR-issued Return Authorization (RA) number clearly marked on the package. Proof of date and place of purchase (photocopy of purchase invoice) must be included with products returned for warranty evaluation. Authorization for warranty evaluation and repair must be received from BALMAR Customer Service and issuance of an authorization number must occur prior to product return.

Material required for the repair or replacement for the defective part or product is to be supplied free of charge upon delivery of the defective item to BALMAR, 18930 59th Ave. NE, Arlington, WA 98223. Customer is responsible for all return transportation charges and any air or rush delivery expense. BALMAR reserves the right to determine whether product repair or replacement is required. Returned warranty or non-warranty items deemed non-repairable will be disposed of after 30 days, unless claimed by owner. Balmar is not liable for damage to or loss of returned items. Warranty limitations may vary by state. Contact your state's consumer affairs agency for special warranty protections and policies.

NO PERSON, AGENT, DEALER IS AUTHORIZED TO GIVE ANY WARRANTY.

ORDERING REQUIREMENTS AND RETURN INFORMATION

Warranty and post warranty service for Balmar alternators, regulators and other Balmar products must be arranged through Balmar Customer Service and/or Technical Support. A Return Authorization must be obtained prior to shipping. Contact Balmar at 1-360-435-6100 or email balmar@balmar.net for assistance. Balmar is not liable for items returned without prior written authorization, or items returned without a valid Return Authorization number on the outside of the package. ENSURE THAT RETURNED ITEMS ARE PROPERLY PACKED AND PADDED FOR SHIPMENT.

TERMS: Cash, COD, Visa, MasterCard, Wire Transfer, L.C. (Letter of Credit). COD payment options; cash, certified bank funds or cashier's check. Customer pays all bank fees, brokerage, or special packaging costs. A \$50 charge will apply on returned checks. A late charge of 3% will be levied on past due open accounts. MSRP quoted is in U.S. Dollars. Custom orders greater than \$2,000 require a 50% deposit. No returns or refunds on custom equipment orders. A handling fee of 1.5% on orders under \$3,000 USD and 1% on orders exceeding \$3,000 USD will be charged on all orders.

Returns of unused product must occur within 30 days of purchase delivery and must include a Return Authorization issued by Balmar Customer Service. Minimum restocking fee is 15%.

Balmar products are sold through distributors, dealers, and builders only. Discounts are based on minimum order amounts and annual sales performance. Contact Balmar to establish a dealer account. Prices and specifications subject to change without notice. Hours: Monday through Friday: 6am – 5pm PST.

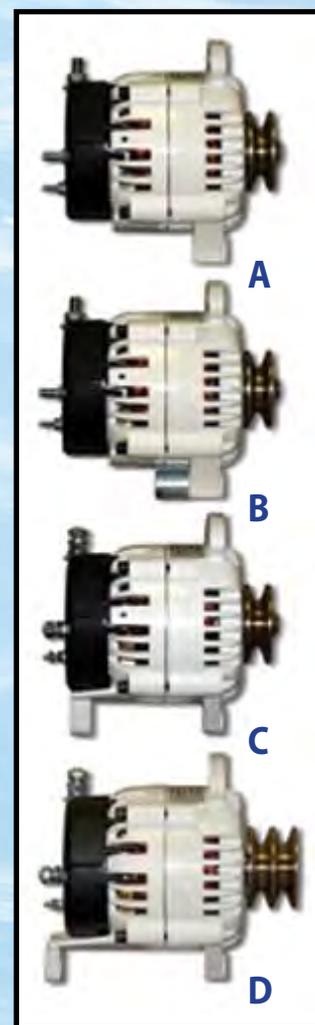
Ballard Commercial Industries, Inc. (Balmar) 18930 59th Ave. NE, Arlington, WA 98223

Phone: 360-435-6100, Fax: 360-435-3210, Email: balmar@balmar.net

ALTERNATOR MOUNTING STYLES

A primary issue to consider when determining the proper charging system – alternator mounting style – usually falls into one of four possibilities: **(A)** single 1"-foot (Motorola-Style) spindle mount, **(B)** single 2"-foot (Delco-Style) spindle mount, **(C)** 3.15" ID saddle (Hitachi-style) mount, and **(D)** 4"ID saddle (J-180 style) mount. The vast majority of marine gasoline and diesel engines will use one of these four mounting styles. The list below provides a guide for many engine applications, yet we strongly recommend you compare your existing alternator to the alternators at right to ensure a proper match. In some cases, additional spacing or modification to mounting components may be necessary to ensure proper fit or alignment. A full list of alternator dimensions is provided on page 19 of the Product Guide. While Balmar makes every effort to provide an OEM-compatible product, "drop in" alternator replacement is not guaranteed.

Mounting Style	Typical Compatible Engine Types (By Manufacturer)
1" Spindle (Motorola)	Hino, Lehman, Caterpillar, Atomic 4, Universal, Ford, Crusader, Pathfinder, Westerbeke, Motorola-equipped
2" Spindle (Delco)	Volvo, Cummins, Westerbeke, Perkins, Mercruiser, Yanmar (6LP), Volvo-Penta, GM, Delco-equipped
3.15"ID Saddle Mt.	Mercruiser, Lehman, Yanmar, Westerbeke, Perkins-Sabre, Hitachi-equipped
4"ID Saddle Mt.	Detroit Diesel, Cummins, Caterpillar, John Deere, J-180 Off-Engine Mounts



As indicated in the chart, alternator mounting styles may vary among engine manufacturer's models and by model year. The best way to ensure that you are ordering the proper replacement for your alternator is to verify your engine's mounting configuration and alternator dimensions prior to purchasing your Balmar replacement alternator.

BELT TYPES & SIZES

Engine drive belt width is also a critical factor when selecting a Balmar replacement alternator. Vee belts and multi-groove serpentine belts have specific limitations in regard to amperage and horsepower loads they can support. As a rule of thumb, a 12-volt alternator's ratio of output to horsepower load is 25:1. In other words, an alternator that's producing 25 amps will apply approximately one horsepower of load to its drive belt. When installing an alternator upgrade, it is essential that the alternator selected is limited to the capacity of its drive belt. Failure to do so will result in premature belt wear, belt slippage, and potential damage to the alternator and engine. The following chart provides a general guideline for alternator selection, based on belt type and width. Note that dual vee belts and serpentine belts support substantially larger loads:

Belt Type	Belt Width	Max HP Load	Highest Recommended Alternator Output
Sgl. Vee	3/8"	3.5	80-Amps @ 12-Volt, 30-Amps @ 24-Volt
Sgl. Vee	1/2"	4.5	110-Amps @ 12-Volt, 45-Amps @ 24-Volt
Dual Vee	1/2"	12	310-Amps @ 12-Volt, 220-Amps @ 24-Volt
Serpentine	6-Groove	N/A	210-Amps @ 12-Volt, 100-Amps @ 24-Volt
Serpentine	8-Groove	N/A	310-Amps @ 12-Volt, 220-Amps @ 24-Volt

BATTERY TECHNOLOGY

Each marine battery type, whether it's a gel, Absorbed Glass Mat (AGM), deep-cycle flooded or standard flooded starting battery, has its own unique charging characteristic, which impacts the type and size of alternator needed to ensure optimal charging efficiency. Where a deep-cycle flooded battery is able to accept approximately 25 percent of its available capacity, an AGM battery may accept as much as 50 percent of available capacity. As such, an AGM bank of equal capacity to a deep-cycle flooded bank may demand twice the amount of alternator output. Newer technologies, such as Lithium Ion and TPPL batteries feature even greater demands due to their nearly unlimited acceptance rates.

BATTERY TECHNOLOGY (CONTINUED)

As a result, these newer battery types MUST be charged with a large case or extra-large case alternator due to their nearly limitless demands. Balmar has responded to the unique needs of these new battery technologies with a Lithium-ready alternator/regulator combination (see rear cover) that's designed to meet the needs of these new batteries.

BATTERY CAPACITY

In addition to battery technology, battery bank capacity has a dramatic impact on the size and type of alternator required to keep the batteries healthy. House battery capacity is usually calculated based on the ability to meet approximately three day's worth of typical demand -- or more, if the vessel is unlikely to be plugged into shorepower charging for extended periods.

The chart at right provides typical DC marine loads. Accurate load calculations require precise measurement of your vessel's equipment. Refer to equipment manuals for actual load ratings, or consult with a qualified marine electrician to determine your actual needs. Keep in mind that every 100 amps of discharge will require 115 amps of charging current to replenish.

In most cases, your alternator's output should be equal to the maximum available capacity of your battery bank. In other words, if your house battery bank is made up of deep-cycle flooded batteries with a capacity rating of 400 amp/hours, the maximum acceptance rate of those batteries would be approximately 25 percent, or 100 amps. The ideal alternator would also be rated at 100 amps. On the other hand, if your house bank consists of 400 amp/hour capacity AGM batteries, the maximum available capacity would be approximately 45 percent of 400, or roughly 180 amp hours. To maximize charging efficiency, a 180-amp rated alternator would be required. Unfortunately, in many vessels, mounting a large-case alternator is not feasible.

LIMITATIONS ON ALTERNATOR OUTPUT

The size and type of alternator drive belt may limit the rated output of the alternator you choose. If your battery capacity is substantially larger than the output allowed based on belt size, it may be necessary to reduce loads in order to lessen the required battery capacity, or it may be necessary to modify the engine pulley system to allow the use of a larger belt, or multiple belts to drive the alternator.

Many boaters have found that adding a second alternator to their engine provides an excellent solution for charging large battery banks, and several companies offer bracket and pulley sets to support second alternator installations. Balmar's Max Charge voltage regulators offer sufficient field output capability to control two alternators at once. Balmar's new MC-612-DUAL multi-stage regulator has two field output terminals and temperature sensing for two alternators, making it the perfect charge control solution for a single-engine, dual-alternator application. See our website (www.balmar.net) for more information.

In twin engine applications, Balmar's Centerfielder II offers an excellent solution



for balanced charge control over dual alternators. By monitoring port and starboard alternators and regulators, and controlling field output to both alternators, the Centerfielder II makes it possible to direct the combined output from both alternators to charge a central house battery bank.

Please note: when using the Centerfielder II in any twin engine application, it is essential that it is used in conjunction with Max Charge MC-614 or MC-624 regulators only. DO NOT use MC-614 regulators with older Centerfielder units.

Typical DC Electrical Loads	
(Shown In Amps Per Hour)	
VHF Receive	1.5
VHF Transmit	5.0
CB Receive	1.0
CB Transmit	5.0
SSB Receive	1.5
SSB Transmit	25.0
Depth Finder	1.0
GPS	.50
Radar	4.0
Video Sounder	4.0
Weather Fax	2.5
Laptop Computer	6.0
Auto Pilot	4.0
Knot Meter	.10
Wind Speed	.10
Anchor Light	1.0
Steaming Light	1.0
Running Light	3.0
Strobe	.75
Tricolor	2.0
Bilge Pump	5.0
Head	50.0
Wash Down Pump	10.0
Refrigerator	5-10
Hand Spotlight	10.0
Spreader Light	8.0
Small TV	8.0
Large TV	25.0
DVD Player	8.0
Satellite Receiver	12.0

NEW!

**AT-SERIES
ADVANCED TECHNOLOGY ALTERNATORS**

Welcome to the newest generation of high output alternator technology!

Balmar AT-Series alternators bring together the latest innovations in alternator design to deliver incredible charging power in a compact, marine-friendly package.

AT-Series alternators start out with a unique hairpin stator design which uses densely-wound square copper wire to generate exceptional amperage output in the smallest area possible. Hairpin stators feature 96 slots, compared to a 36-slot stators, allowing the hairpin wound stator to develop superior electromagnetic energy and produce electrical current more efficiently than other traditional alternator designs.

New AT-Series alternators feature custom-designed, advanced powdercoat aluminum frames which are engineered to provide optimal airflow and unsurpassed cooling capacity. In addition, AT-Series alternators are equipped with a dozen 40-amp-capacity, externally mounted non-avalanche diodes, cool-running dual internal fans, and massive heat sinking designed to ensure ample cooling under high load demands.



S-STATOR (REAR), HAIRPIN STATOR (FRONT)

Scaled to fit in most original-position installations, 128mm 165 amp AT-Series alternators are available in 1" and 2" single foot mounting styles. Larger output, 200-amp alternators are housed in a 139mm diameter frame and feature a single 2" mounting foot. Mounting brackets are available to convert both 165 and 200 amp models for use with 3.15"ID (Hitachi) or 4" (J180) style mounts.

AT-Series alternators are designed to be used with Max Charge MC-614 voltage regulators, and should only be used in dual vee belt or multi-groove serpentine belt applications. New Balmar serpentine pulley kits provide the ability to upgrade many engine models to support AT-Series alternators. See Page 13 for more information.

Model #	Mounting Style	Output Amps/Volts	Frame Dia.	ShWt
AT-SF-165-12-IG	Sgl. Ft. 1" or 2"	165A, 12V	129mm	18.5 lb.
AT-SF-200-12-IG	Sgl. Ft. 2"	230A, 12V	139mm	22.5 lb.
Saddle Mount Brackets				
AT-165-3-MT	Converts 1" AT foot to 3.15"ID Saddle Mount			1.5 lb
AT-165-4-MT	Converts 1" AT foot to 4"ID Saddle Mount			1.5 lb
AT-200-3-MT	Converts 2" AT foot to 3.15"ID Saddle Mount			1.5 lb
AT-200-4-MT	Converts 2" AT foot to 4"ID Saddle Mount			1.5 lb

SMART READY® 6-SERIES RECREATIONAL DUTY SMALL FRAME ALTERNATORS

We may get in hot water with a certain fast food king – but there’s no question that Balmar’s 6-Series alternator is engineered to let you “have it your way”.

Available in outputs ranging from 70 amps to 150 amps, in 12-volt and 24-volt configurations, 6-Series alternators feature patented Smart Ready® internal voltage regulation that allows you to choose between stand alone internally regulated operation, or use with Balmar’s multi-stage Max Charge or ARS-5 voltage regulators to get the most out of your charging system.

Balmar’s 6-Series alternators come in three mounting styles to fit just about any marine gas or diesel engine application; a 3.15” I.D. saddle style mount that’s perfect for most Yanmar engines and other applications using an Hitachi-type dual foot mount, a spindle style single foot mount that easily converts to replace 1” Motorola or 2” Delco-style mounts, and a 4” I.D. saddle mount for J-180-style engine configurations.

All Smart Ready 6-Series alternators come standard with dual internal cooling fans, fixed voltage internal regulation, dedicated isolated ground, lamp circuit, and multi-position tensioning crown. Durable white powdercoat finish keeps your alternator looking ship-shape. Meets USCG Title 33, J1171, 8838, CE ignition protection standards. One-year limited warranty.

- Patented Smart Ready® regulator
- Isolated ground termination
- For gas or diesel engines
- Safe to 15,000 RPM
- Meets multiple ignition standards
- Constructed in Arlington, WA
- Four popular mounts
- 12V or 24V models

6-SERIES ALTERNATORS ARE AVAILABLE AS PART OF A CHARGING SYSTEM PACKAGE. SEE PAGE 12 FOR DETAILS.

Model #	Mounting Style	Output Amps/Volts	Includes Regulator	Min. Pulley	ShWt
621-70-SR-IG	Sgl. Ft. 1" or 2"	70A, 12V	Yes	3/8"	14 lb.
621-100-SR-IG	Sgl. Ft. 1" or 2"	100A, 12V	Yes	1/2"	14 lb.
621-120-SR-IG	Sgl. Ft. 1" or 2"	120A, 12V	Yes	1/2" (2)	14 lb.
621-150-SR-IG	Sgl. Ft. 1" or 2"	150A, 12V	Yes	1/2" (2)	14 lb.
621-24-70-SR-IG	Sgl. Ft. 1" or 2"	70A, 24V	Yes	1/2" (2)	14 lb.
60-70-SR-IG	3.15" Saddle	70A, 12V	Yes	3/8"	14 lb.
60-100-SR-IG	3.15" Saddle	100A, 12V	Yes	1/2"	14 lb.
60-120-SR-IG	3.15" Saddle	120A, 12V	Yes	1/2" (2)	14 lb.
60-150-SR-IG	3.15" Saddle	150A, 12V	Yes	1/2" (2)	14 lb.
60-24-70-SR-IG	3.15" Saddle	70A, 24V	Yes	1/2" (2)	14 lb.
604-120-SR-IG	3.15" Saddle	120A, 12V	Yes	1/2" (2)	14 lb.
604-150-SR-IG	3.15" Saddle	150A, 12V	Yes	1/2" (2)	14 lb.
604-24-70-SR-IG	3.15" Saddle	70A, 24V	Yes	1/2" (2)	14 lb.

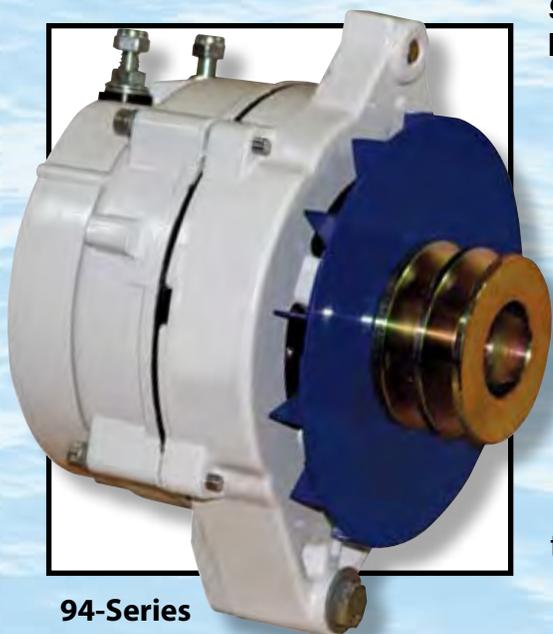


60-Series

**621-Series
(No Spacer)**

**621-Series
(With Spacer)**

604-Series



94-Series

94-SERIES MID-DUTY, LARGE FRAME ALTERNATORS

From world-class ocean racers to commercial fishers and military patrol vessels, there aren't many applications where the 94-Series alternator hasn't been. This large-frame alternator has a proven record for supporting large house battery banks and challenging electrical loads under some of the toughest marine conditions imaginable.

These Delco-style, 2-inch single foot alternators feature extra-large gauge custom wound stators and high amperage diode packs to ensure optimal charging performance. Built to meet USCG Title 33 ignition protection standards, 94-Series alternators deliver excellent low rpm output and terrific response throughout the powerband. Twelve-volt units are available in 165 and 210 amp rated outputs. A 12-volt, 140-amp unit is also available. One-year limited warranty.

Model #	Mounting Style	Output Amps/Volts	Min. Pulley	ShWt
94-12-165-IG	Sgl. Ft. 2"	165A, 12V	1/2" Dual	19 lb.
94-12-210-IG	Sgl. Ft. 2"	210A, 12V	1/2" Dual	19 lb.
94-24-140-IG	Sgl. Ft. 2"	140A, 24V	1/2" Dual	19 lb.

- Isolated ground termination
- Extra heavy-duty windings, diodes & brushes
- Corrosion-resistant powdercoat finish
- Bi-directional cooling fan
- Assembled at Balmar in Arlington, WA

94LY-SERIES HITACHI®-MOUNT, LARGE FRAME ALTERNATORS

Designed to provide a sizeable charging upgrade on Yanmar's 440-horsepower 6LY-3 engines, the 94-LY series alternator combines the rugged dependability of the 94-Series alternator with the popular Hitachi style 3.15" saddle mount – delivering as much as 210 amps of potential charging amperage for lobster boats, sportfishers and other vessels using the 6LY-3 and other similar diesels.

Built to meet USCG Title 33 ignition protection standards, 94LY-Series alternators are well equipped to meet large battery loads and onboard electrical demands. Twelve-volt units are available in 165 and 210 amp rated outputs. A 12-volt, 140-amp unit is also available. Uni-directional fan. Isolated ground. Dual vee pulley standard. Includes one-year limited manufacturer's warranty.



94LY-Series

Model #	Mounting Style	Output Amps/Volts	Min. Pulley	ShWt
94LY-12-165-IG	Sgl. Ft. 2"	165A, 12V	1/2" Dual	19 lb.
94LY-12-210-IG	Sgl. Ft. 2"	210A, 12V	1/2" Dual	19 lb.
94LY-24-140-IG	Sgl. Ft. 2"	140A, 24V	1/2" Dual	19 lb.

- Isolated ground termination
- Extra heavy-duty windings, diodes & brushes
- Corrosion-resistant powdercoat finish
- Bi-directional cooling fan
- Constructed at Balmar in Arlington, WA

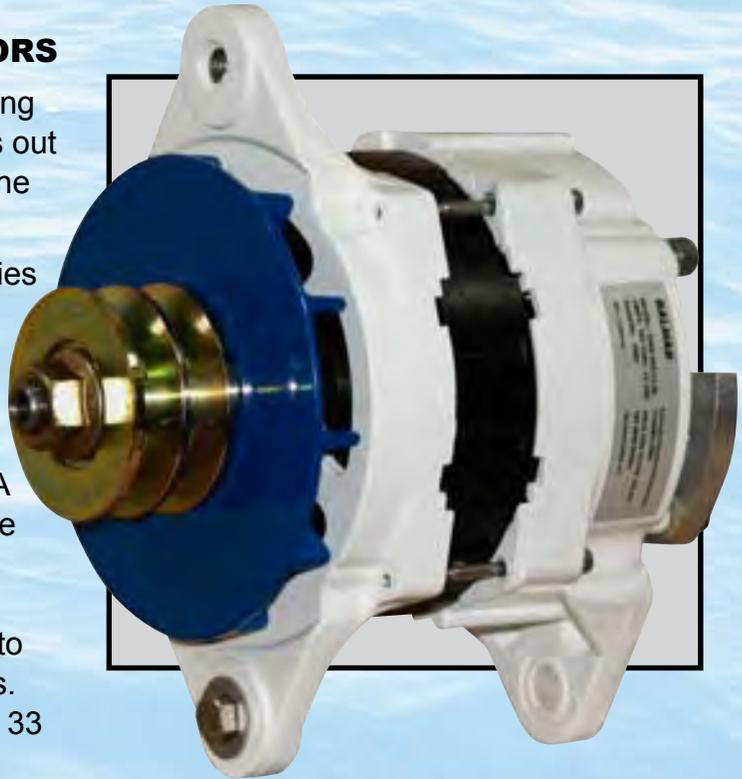
OFFSHORE REPAIR KITS ARE AVAILABLE FOR MOST BALMAR ALTERNATORS. SEE WWW.BALMAR.NET OR CALL FOR DETAILS.

95-SERIES MID-DUTY, LARGE FRAME ALTERNATORS

With a pedigree that's based in highly demanding military service, the 95-Series alternator stands out as a powerfully capable source of charging in the marine environment.

Despite its generous output curves, the 95-Series alternator is surprisingly compact – allowing it to be used in applications where similarly rated alternators would be impossible to install.

The 95-Series alternator features an isolated ground for sure continuity to system negative. A four-inch J-180 saddle is compatible with a wide number of original position engine mounts, and can be easily designed to work as a second-position mount. Outputs range from 165 amps to 210 amps at 12 volts, and 140 amps at 24 volts. Isolated ground termination. Meets USCG Title 33 standards. One-year limited warranty.



Model #	Mounting Style	Output Amps/Volts	Min. Pulley	Ship Weight
9504-12-165-IG	Sgl. Ft. 2"	165A, 12V	1/2" Dual	20 lb.
9504-12-210-IG	Sgl. Ft. 2"	210A, 12V	1/2" Dual	20 lb.
9504-24-140-IG	Sgl. Ft. 2"	140A, 24V	1/2" Dual	20 lb.

- Constructed at Balmar in Arlington, WA
- Extra heavy-duty windings, diodes & brushes
- Corrosion-resistant powdercoat finish
- Bi-directional cooling fan
- Precision cast aluminum frame



INSTALLATION HARDWARE KITS

Pre-matched hardware kits for various Yanmar engines can save a ton of time and frustration. 6CX and 6LP kits include required pulleys.

Model #	For Engine Model	Sh/Wt
6-0020	GM, JH	1.5 lb.
6-0030	6CX	4 lb.
6-0040	6LP	4 lb.

MOUNTING SPACERS

Aftermarket installations may require spacing to correct alignment issues. Steel 1/4", 1/2" and 1" spacers are available.

Model #	Width/Bore	Sh/Wt
10-4047	1" / 3/8"	1 lb.
10-4000	1/2" / 3/8"	.5 lb.
10-4048	1/4" / 3/8"	.5 lb.

CIRCUIT BREAKERS

Meeting SAE J1171 safety standards, 125A and 150A breakers are designed for surface mount, and are resettable. 3000A interrupt. Phenolic.

Model #	Amps	Sh/Wt
1512	125	1 lb.
1515	150	1 lb.

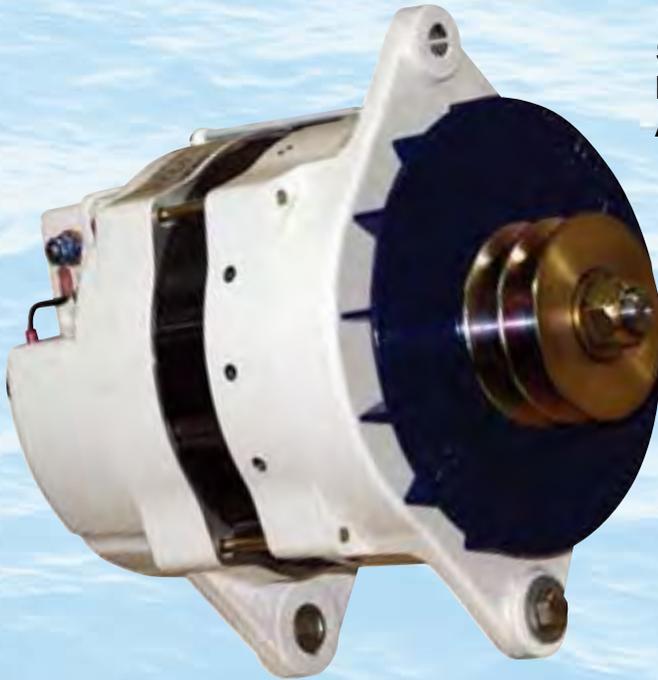


ULR™ UNIVERSAL LAMP RELAY

Uses stator output to provide a signal to support your panel's lamp drive. Use to complete other circuits to 30A whenever the alternator is in operation. Includes relay and wiring harness. ShWt. 1lb.

VISIT US ON THE INTERNET AT WWW.BALMAR.NET

Visit us online at WWW.BALMAR.NET



97-SERIES HEAVY DUTY, EXTRA-LARGE FRAME ALTERNATORS

Built expressly for the added demands of large, multi-battery banks, inverter loads and other substantial electrical demands, extra-large case 97-Series brushless alternators provide the size, cooling and impressive output across the range of engine RPM required to perform in league with a small genset. Brushless 97-Series alternators deliver unexcelled electrical efficiency and a level of safety that meets U.S. Coast Guard Title 33, CE, ISO J1171 and SAE 8846 standards for ignition protection. Isolated ground termination. Corrosion-resistant powdercoat. Bi-directional cooling fan. Maximum alternator RPM: 7,000.

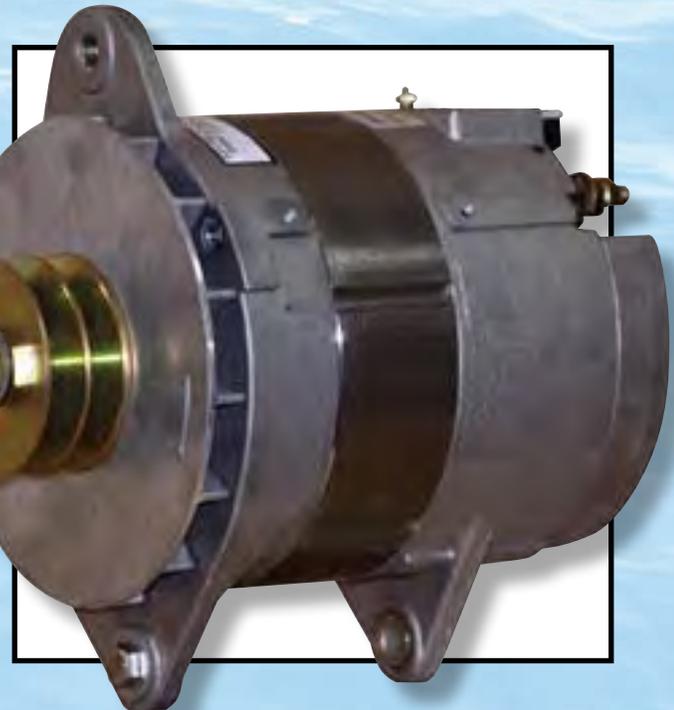
Model #	Mounting Style	Output Amps/Volts	Min. Pulley	ShWt
97-12-165-IG	J-180 Saddle	160A, 12V	1/2" Dual	36 lb
97-24-140-IG	J-180 Saddle	140A, 24V	1/2" Dual	36 lb

- *Highly-efficient brushless design*
- *Designed for extended-duty operation*
- *Corrosion-resistant powdercoat finish*
- *Bi-directional cooling fan*
- *Made in the USA*

97EHD-SERIES HEAVY DUTY, EXTRA-LARGE FRAME ALTERNATORS

Perfect as a dedicated alternator for extensive house battery loads, or as a primary alternator on large J-180 mount applications like Caterpillar, Cummins, MTU and John Deere diesel engines, extra heavy duty 97EHD alternators provide exceptional output across the board with ratings in excess of 250 amps at 12 volts and nearly 200 amps at 24 volts.

Housed in non-powdercoated 6.5" diameter frames, 97EHD alternators are an excellent solution for sustained high output charging conditions. Alternators are case ground, and feature bi-directional cooling fans. Positive and negative rectifier assemblies feature high amperage diodes. Dual vee belt is standard. All models require external regulation.



Model #	Mounting Style	Output Amps/Volts	Min. Pulley	ShWt
97EHD-185-12	J-180 Saddle	185A, 12V	1/2" Dual	42 lb
97EHD-265-12	J-180 Saddle	264A, 12V	1/2" Dual	42 lb
97EHD-190-24	J-180 Saddle	190A, 24V	1/2" Dual	42 lb

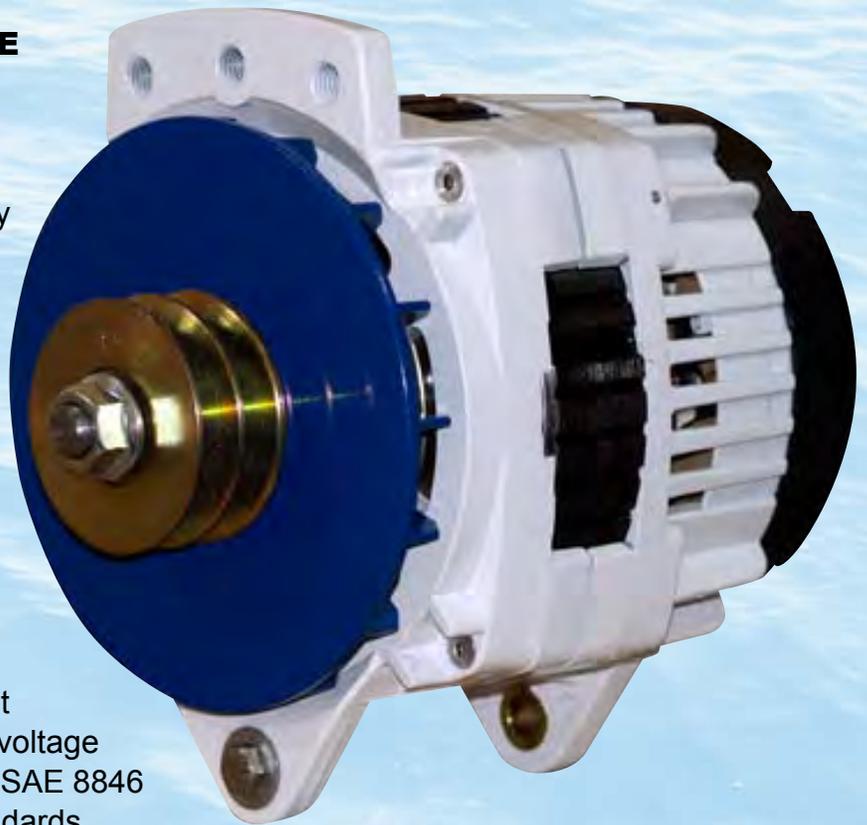
- *For extra heavy duty electrical demands*
- *Designed for extended-duty operation*
- *Natural cast aluminum case*
- *Bi-directional cooling fan*
- *Made in the USA*

98-SERIES

MAXIMUM DUTY, EXTRA-LARGE FRAME ALTERNATORS

With the ability to deliver performance in a league with auxiliary gensets, the 98-Series alternator offers the capacity to produce nearly 5kW of DC output to make short work of big battery charging.

Available in 310A/12V and 220A/24V models, the 98-Series alternator combines a robust brushless design with dual inside/outside cooling fans to produce awesome power with maximum efficiency. High amperage diodes, over-sized bearings, and a dedicated isolated ground add to this powerful alternator's impressive output and dependability. Requires external voltage regulation. Meets USCG Title 33, CE, SAE 8846 and ISO J1171 ignition protection standards.



Model #	Mounting Style	Output Amps/Volts	Min. Pulley	ShWt
98-12-310-IG-BL	J-180 Saddle	310A, 12V	1/2" Dual	42 lb
98-24-220-IG-BL	J-180 Saddle	220A, 24V	1/2" Dual	42 lb

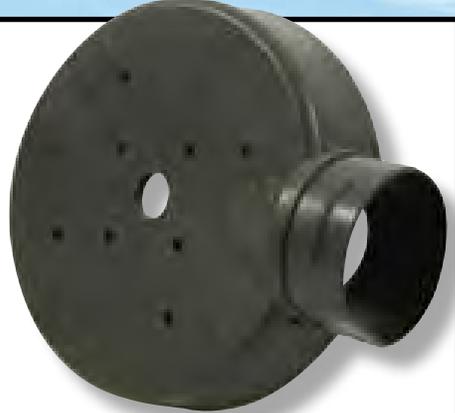
- For Extra Heavy Duty Electrical Demands
- Designed For Extended-Duty Operation
- Powdercoated Cast Aluminum Case
- Bi-Directional Cooling Fans
- Built in North America

ALTERNATOR MOUNTING BRACKET

Many installers rely on the Model 5276 Alternator Bracket and the UAA Universal Adjustment Arm as convenient, readily available solutions for second alternator installations. Formed from powdercoated cast aluminum, the Model 5276 includes a UAA and supports J-180 saddle or 2" single-foot mounts. Bracket requires flat, engine-mounted platform for installation. UAA available separately.



Model #	ShWt
5276	8 lb
UAA	1 lb
12-98-AIR	2.5 lb



FOR 98-SERIES AIR INDUCTION BACK

Mounted on the back of the 98-Series alternator, the air induction back allows enhanced cooling when fresh air is provided via a remote blower. Includes mounting hardware.

Model # 12-98-AIR

Charging system packages make it easier than ever to ensure that your alternator and regulator will match your engine with the least amount of installation headaches.

Note that any alternator/regulator packages featuring alternator output ratings in excess of 100 amps will require either dual vee drive pulleys or multi-groove pulleys to ensure optimal output and limited belt wear. See Page 13 for information about new AltMount® Serpentine Pulley Kits.



AT-SERIES ALTERNATOR/REGULATOR PACKAGES

New AT-Series alternators, combined with the proven charge control of the MC-614 voltage regulator, provide the ideal charging solution for bigger house batteries and newer high-acceptance battery technologies. Packages include 165-amp or 200-amp AT-Series alternator, Max Charge MC-614 voltage regulator, alternator temperature sensor, battery temperature sensor. VUP package can be used in 2" single foot applications. YP package includes a conversion bracket for use in 3.15" ID saddle-style mounts. AT Packages must be installed in dual belt, or serpentine belt systems.

6-SERIES ALTERNATOR/REGULATOR PACKAGES

Balmar's 6-Series alternators and multi-stage voltage regulators deliver faster, safer charging for batteries ranging from standard flooded to AGM technologies. Choose ARS-5 or Max Charge regulators to meet your preferred level of performance.

YP models fit engines using a 3.15" I.D. saddle mount. VUP models fit most engines using 1" or 2" single foot mounts. Kits include alternator, voltage regulator, battery and alternator temperature sensors and wiring harness. YP kits include mounting hardware.

Includes ARS-5 Regulator	Includes MC-614 Regulator	Includes MC-624 Regulator	Mounting Style	Output Amps/Volts	Min. Belt Width	Ship Weight
60-YP-70-SR-KIT	60-YP-MC-70-SR-KIT	N/A	3.15" Saddle	70A, 12V	Single 3/8"	19 lb.
60-YP-100-SR-KIT	60-YP-MC-100-SR-KIT	N/A	3.15" Saddle	100A, 12V	Single 1/2"	19 lb.
60-YP-120-SR-KIT	60-YP-MC-120-SR-KIT	N/A	3.15" Saddle	120A, 12V	Dual 1/2"	19 lb.
60-YP-150-SR-KIT	60-YP-MC-150-SR-KIT	N/A	3.15" Saddle	150A, 12V	Dual 1/2"	19 lb.
N/A	N/A	60-YP-24-70-SR-KIT	3.15" Saddle	70A, 24V	Dual 1/2"	19 lb.
621-VUP-70-SR-KIT	621-VUP-MC-70-SR-KIT	N/A	1" OR 2" Spindle	70A, 12V	Single 3/8"	19 lb.
621-VUP-100-SR-KIT	621-VUP-MC-100-SR-KIT	N/A	1" OR 2" Spindle	100A, 12V	Single 1/2"	19 lb.
621-VUP-120-SR-KIT	621-VUP-MC-120-SR-KIT	N/A	1" OR 2" Spindle	120A, 12V	Dual 1/2"	19 lb.
621-VUP-150-SR-KIT	621-VUP-MC-150-SR-KIT	N/A	1" OR 2" Spindle	150A, 12V	Dual 1/2"	19 lb.
N/A	N/A	621-VUP-24-70-SR-KIT	1" OR 2" Spindle	70A, 24V	Dual 1/2"	19 lb.
N/A	AT-YP-MC-165-KIT	N/A	3.15" Saddle	165A, 12V	Dual 1/2"	25 lb
N/A	AT-YP-MC-200-KIT	N/A	3.15" Saddle	200A, 12V	Dual 1/2"	29 lb
N/A	AT-VUP-MC-165-KIT	N/A	2" Spindle	165A, 12V	Dual 1/2"	25 lb
N/A	AT-VUP-MC-200-KIT	N/A	2" Spindle	200A, 12V	Dual 1/2"	29 lb

NEW!

AltMount™



Balmar is proud to announce the addition of AltMount™ to the Ballard Commercial Industries family of companies.

Since its introduction in 2008, AltMount has been a leading designer and manufacturer of aftermarket serpentine pulley kits for marine diesel engines. Our acquisition of AltMount allows us to expand the range of available pulleys based on AltMount's proven, patented designs.

In addition to pulley kits, which allow the user to increase the output capacity of the original position alternator, the AltMount second alternator kits provide the ability to add a high-output second alternator for increased charging output. These kits are an ideal upgrade for serious cruisers and others that depend on the propulsion engine for substantial battery charging needs.

YANMAR SERPENTINE PULLEY KITS

Model	Engine Model(s)	Ship Weight
48-YSP-6LY-A	6LY, 6LYA-STP, 6LY2-STP	
48-YSP-6LP-A	6LPA-STP2, STZP2, STZP3	
48-YSP-4JH-A	4JH5	
48-YSP-4JH-B	4JH4HTE, TE, DTE	
48-YSP-4JH-C	4JH4-E	
48-YSP-4JH-D	4JH3, TE, HTE	
48-YSP-4JH-E	4JH2, TE, HTE, DTE, UTE	
48-YSP-4JH-F	4JHE, TE, HTE, DTE	
48-YSP-4LH-A	4LH-A	
48-YSP-3JH-A	3JH5	
48-YSP-3JH-B	3JH4-E	
48-YSP-3JH-C	3JH2-TE	
48-YSP-3JH-D	3JH2-E	
48-YSP-3GM-A	3GM30	
48-YSP-3GM-B	3GM30-F	
48-YSP-3HM-A	3HM35	
48-YSP-3HM-B	3HM35-F	
48-YSP-3YM-A	3YM20	
48-YSP-3YM-B	3YM30	
48-YSP-2YM-A	2YM15	
UNIVERSAL SERPENTINE PULLEY KITS		
48-USP-M-A	M-25XP	
48-USP-M-B	M-35	

PERKINS SERPENTINE PULLEY KITS

Model	Engine Model(s)	Ship Weight
48-PSP-410-A	4107	
48-PSP-410-B	4108	
48-PSP-PR-A	PRIMA	

VOLVO SERPENTINE PULLEY KITS

Model	Engine Model(s)	Ship Weight
48-VSP-TD-A	TDM-22	
48-VSP-D2-A	D2-55A,B,C,D,E,F	
48-VSP-PR-A	PRIMA	
48-VSP-MD-A	MD2030	
48-VSP-MD-B	MD2040	

WESTERBEKE SERPENTINE PULLEY KITS

Model	Engine Model(s)	Ship Weight
48-WSP-30-B	30-B	
48-WSP-W40	W40	
48-WSP-42B	42B	
48-WSP-W46	W46	
48-WSP-W44-A	W44A	
48-WSP-W44-B	W44B	
48-WSP-W71	W71	
48-WSP-W82	W82	

SECOND ALTERNATOR BRACKET KITS

Model	Engine Model(s)	Ship Weight
48-YDA-4JH-A	YANMAR 4JH3	
48-YDA-4JH-B	YANMAR 4JH4-HTE, TE	
48-YDA-4JH-C	YANMAR 4JH4-E	
48-YDA-6LY-A	YANMAR 6LY, 6LY-2	

New pulley, tensioner and bracket kits are currently under development. Visit us at www.balmar.net, or contact us for updated information if your engine is not currently supported in these listings.

**“Imagine your charging system as part of a body...
... If your alternator was the heart, the voltage
regulator would certainly be the brain.”**

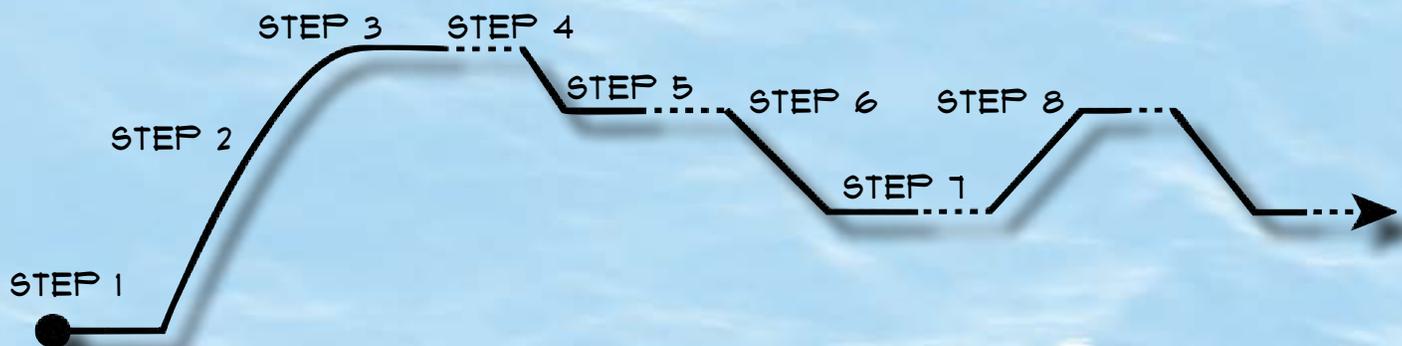
High-output alternators are an important part of your system for battery care – but they’re definitely not the only part. Without proper voltage regulation, battery charging could be a slow, ineffectual process, or even worse, an ideal recipe for early battery failure.

Smart, multi-stage Balmar voltage regulation provides a dynamic method for monitoring battery condition, and applying the correct level of alternator control to ensure that your batteries are charged quickly and safely.

Using advanced, microprocessor-controlled technology, Balmar multi-stage voltage regulators are engineered to precisely control alternator output to provide the optimal charging voltage based on battery type to bring batteries to a full charge. The process is simple, yet exceedingly effective.

During engine operation, the Balmar voltage regulator goes through the following stages to ensure proper battery charging:

- Step 1: Start Delay** - After engine start up, the regulator waits for several seconds before applying field current to the alternator. This allows the engine and belts an opportunity to warm up before alternator load is applied.
- Step 2: Soft Ramp** - The regulator slowly increases field excitation of the alternator to reduce belt stress.
- Step 3: Bulk Charging** - The regulator increases field output to the maximum safe level, allowing alternator to reach maximum amperage output based on the target limits of the battery type being charged. Target voltage ranges from 14.1 to 14.6 depending on battery program selected (24-volt bulk charging voltages range from 28.2 to 29.2 volts). Bulk time is factory set at 18 minutes, and is fully adjustable in advanced programming mode.
- Step 4: Calculated Bulk** - At the end of the set bulk time period, the regulator calculates the state of charging based on the alternator’s ability to reach and maintain target voltage, and the percentage of field output required to maintain that voltage. This stage will maintain bulk charging until all criteria are met, at which point, the regulator will ramp down to absorption voltage.
- Step 5: Absorption Voltage** - Typically two tenths of a volt below bulk target voltage, absorption voltage allows the alternator to drive current into the almost fully charged batteries without overcharging. Absorption time is preset at 18 minutes, and is adjustable in the regulator’s advanced programming mode.



- Step 6: Calculated Absorption** - At the end of the set absorption time period, the regulator calculates the state of charging based on the alternator's ability to reach and maintain target voltage, and the percentage of field output required to maintain that voltage. This stage will maintain absorption charging voltage until all criteria are met, at which point, the regulator will ramp down to float voltage.
- Step 7: Float Voltage** - Typically a volt below bulk target voltage, float voltage allows the alternator to drive current into fully charged batteries sufficient to replace any battery capacity used while under way. Float time is preset at 18 minutes, and is adjustable in the regulator's advanced programming mode.
- Step 8: Calculated Float** - At the end of the set float time period, the regulator calculates the state of charging based on the alternator's ability maintain target float voltage and the percentage of field output required to maintain that voltage. If all of the calculation criteria are met, the regulator will continue to maintain float voltage. If the calculation indicates that the alternator is failing to maintain battery voltage, the regulator will return to absorption voltage as indicated by steps 9, 10 and 11.

MULTI-STAGE REGULATOR FEATURES

USER-SELECTABLE PRESET BATTERY PROGRAMS

Every battery is different, so Balmar provides multiple charge profiles to ensure optimal charging. Simply select the battery program that matches your battery technology. Preset programs include profiles for standard and deep cycle flooded, gel, AGM, and spiral wound AGM (Optima) batteries. Max Charge regulators also provide a program for voltage sensitive halogen lighting systems.

ADVANCED PROGRAMMING MODES

Battery needs can change, as can their manufacturer's charging recommendations. That's why Balmar multi-stage voltage regulators feature a broad range of advanced regulator adjustments. By accessing the advanced programming function, the user can increase or decrease charging times and voltages in all stages of charge, increase or decrease start delay and temperature compensation limits, adjust temperature compensation slopes, and modify setpoints for alternator over-temperature response. It all adds up to the most user control possible.

BELT LOAD MANAGEMENT

Accidents do happen – and occasionally, a boater will install an alternator on an engine that's just too high an output for the system's drive belt. Balmar multi-stage regulators can protect the engine and belt by enabling the user to de-rate the alternator's output in small increments by adjusting the Belt Load Manager. Adjustable in roughly four percent steps, the Belt Load Manager widens the regulator's field pulse bandwidth, reducing load on the drive belt. The Belt Load Manager can also be used to protect the alternator in applications where battery capacity exceeds ideal charging ratios.

ALTERNATOR AND BATTERY TEMPERATURE SENSING

As battery technologies change, and battery capacities grow, the ability to monitor and respond to changes in alternator and battery temperature becomes more essential. With optional alternator and battery temperature sensors installed, Balmar multi-stage voltage regulators have the ability to automatically correct charging output to ensure that batteries are properly charged regardless of ambient temperature. If battery temperatures exceed safe operating levels, ARS-5 and Max Charge regulators will automatically discontinue charging to avoid dangerous thermal runaway conditions.

Like batteries, alternators have optimal operating temperatures, and by sensing temperature at the alternator, Balmar regulators can make automatic adjustments to field output to ensure that the alternator maintains a safe working temperature. And all of this happens without any need for operator intervention.



Optional Temperature Sensors

MAX CHARGE MC-614 VOLTAGE REGULATOR

Balmar's premium MC-614 multi-stage voltage regulator delivers an impressive list of features, and dependable, robust performance that's unrivaled in the industry.

The MC-614 regulator is engineered to provide up to 15 amps of continuous field current, making it the perfect choice for twin engine applications where large battery banks highlight the need for both alternators to work together to maximize charging output. When used in conjunction with Balmar's Centerfielder II charge balancer, the MC-614 can easily control two alternators on two engines at one time.



MAX CHARGE MC-624 REGULATOR

The 24-volt MC-624 provides all of the functionality of the MC-614 in a regulator that's engineered for 24-volt charging systems. Like the MC-614, the MC-624 regulator features a new, faster processor and updated circuitry to ensure optimal performance and dependability.

The MC-624 regulator is recommended in twin-engine, 24-volt systems using the Centerfielder II. As with all Balmar multi-stage voltage regulators, the MC-624 is designed for use with P-type alternators.



- Selectable preset programs for Gel, AGM, Deep-Cycle Flooded, Standard Flooded, Spiral Wound (Optima) Batteries
- Special program for systems with voltage sensitive halogen lighting
- Universal default program that's safe for most marine battery technologies
- 15A maximum field current output able to drive two alternators at once (recommended for twin engine applications with Centerfielder II – See Page 18)
- Alternator and battery temperature sensing with optional sensor cables (see Page XX) provides added charging efficiency and system safety.
- A bright LED alphanumeric display and easy to navigate programming mode make the Max Charge regulator as simple as it is intelligent.
- Scrolling program modes are controlled by an easy-to-use reed switch and magnetic programming tool.
- Exclusive Belt Load Manager function allows user to adjust maximum regulator field output

MULTI-STAGE REGULATOR SPECIFICATIONS

Model	Volts	Bat. Temp. Sense	Alt. Temp. Sense	Wiring Harness	Bat. EQ.	Preset Bat. Progs.	Dual Alts.	Belt Wear Control	Adv. Prog. Mode	Dimensions	Ship Weight
MC-614	12	YES (2)	YES	NO	YES	7	YES	YES	YES	4.8"x3.2"x1.5"	1lb
MC-614-H	12	YES (2)	YES	YES	YES	7	YES	YES	YES	4.8"x3.2"x1.5"	1.5 lb
MC-624	24	YES (2)	YES	NO	YES	7	YES	YES	YES	4.8"x3.2"x1.5"	1lb
MC-624-H	24	YES (2)	YES	YES	YES	7	YES	YES	YES	4.8"x3.2"x1.5"	1.5 lb

LIKE US ON FOR THE LATEST PRODUCT AND COMPANY INFO!

MAX CHARGE MC-612-DUAL REGULATOR

As more boaters opt to install a second alternator on their propulsion engine, Balmar introduces the MC-612-DUAL, the first regulator that's made specifically to control two alternators on a single engine.

The MC-612-DUAL-H features twin 54" wiring harnesses and the ability to sense temperature at two alternators (regulator is programmable to toggle between dual battery or dual alternator temperature sensing). Like other Max Charge models, the MC-612-DUAL features seven selectable battery programs, along with a wealth of advanced programmability, so it's tailor-made for just about any boating application.



ARS-5 ADVANCED REGULATOR

The ideal choice for the budget-minded boater, the ARS-5 regulator is designed for use with a single 12-volt alternator, yet it provides five selectable battery programs, a belt load manager, and a range of advanced programming functions.

Like all the Max Charge regulators, the ARS-5 regulator features an easy-to-read, 3-digit display, and convenient magnetic reed switch for programming adjustments. Temperature sensing circuits for two batteries and alternator. For use with a single P-type 12-volt alternator. 1 year limited warranty.

- Selectable preset programs for Gel, AGM, Deep-Cycle Flooded, Spiral Wound (Optima) Batteries
- Universal default program that's safe for most marine battery technologies
- 9A maximum field current output. For use in single alternator applications only.
- Alternator and battery temperature sensing with optional sensor cables (see Page 18) provides added charging efficiency and greater system safety.
- A bright LED alphanumeric display and easy to navigate programming mode increase user friendliness
- Scrolling program modes are controlled by an easy-to-use reed switch and magnetic programming tool, included with the regulator.
- Belt Load Manager allows user to reduce maximum regulator field output in five percent increments to ensure that belts are protected from undue wear.
- ARS-5-H includes a 54" long wiring harness for greater ease of installation.
- Short or long display modes allow the user the ability to see the minimum or maximum operational data while the regulator is active.

MULTI-STAGE REGULATOR FEATURES & SPECIFICATIONS

Model	Volts	Bat. Temp. Sense	Alt. Temp. Sense	Wiring Harness	Bat. EQ.	Preset Bat. Progs.	Dual Alts.	Belt Wear Control	Adv. Prog. Mode	Dimensions	Sh Wt
MC-612-DUAL	12	YES (2)	YES (2)	NO	YES	7	YES	YES	YES	4.8"x3.2"x1.5"	1 lb
MC-612-DUAL-H	12	YES (2)	YES (2)	YES (2)	YES	7	YES	YES	YES	4.8"x3.2"x1.5"	2 lb
ARS-5	12	YES (1)	YES	NO	NO	5	NO	YES	YES	4.1"x3.2"x1.5"	1 lb
ARS-5-H	12	YES (1)	YES	YES	NO	5	NO	YES	YES	4.1"x3.2"x1.5"	1.5 lb

NOTES: Optional MC-TS-A and MC-TS-B temperature sensors are required to enable advanced regulator temperature sensing functions. DO NOT attempt to use the ARS-5 to control dual alternators. Balmar voltage regulators are designed for use with P-type alternators only. Install regulators in well ventilated location with ambient temperature <110°F. See www.balmar.net for additional information on voltage regulators.

CENTERFIELDER II

The Centerfielder balances twin engine charging systems by monitoring port and starboard voltage regulators.

When both alternators and voltage regulators are working, the Centerfielder II automatically splits field output from the dominant regulator to both alternators, making it possible to charge a single house battery bank with the combined output of both alternators. The Centerfielder II works in both 12-volt and 24-volt applications,

and includes detailed wiring instructions along with larger gauge wire replacements for port and starboard regulator power wires. Use only with Max Charge MC-612, MC-614, or MC-624 voltage regulators. Do not install in systems utilizing internally regulated alternators. 1 year limited warranty.



- Balances charging in twin engine applications
- Isolates alternators and regulators when only one engine is running
- Provides field current from a single regulator to both port and starboard alternators when both engines are in operation
- Eliminates alternator "chatter" by unifying power output to a single battery bank
- For use with Max Charge regulators only
- Includes upgraded regulator power wires and fusing for port and starboard voltage regulator wiring harnesses

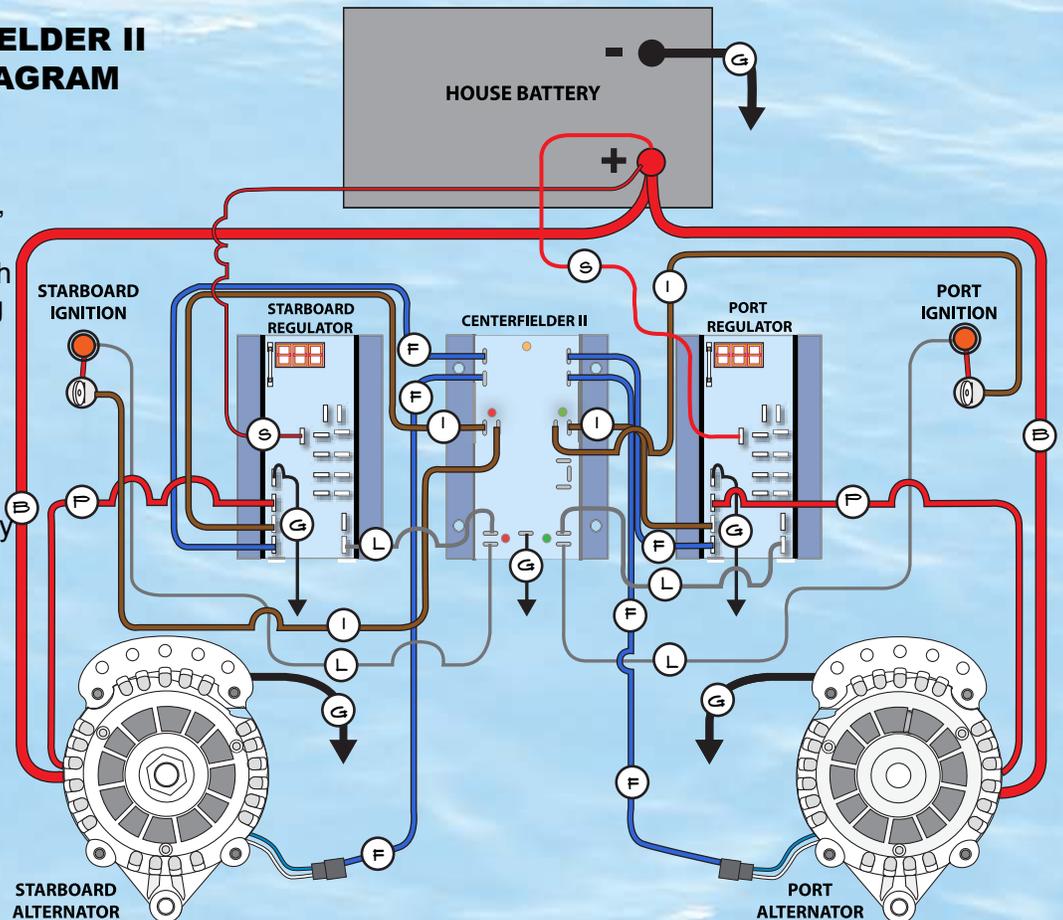
Model	Volts	Use With	Fusing	Wiring Included	ShWt
CFII-12/24	12/24	MC-612, MC-614, MC-624	15A ATC	Fused 12 Ga. Power Wires (2)	1.5 lb

TYPICAL CENTERFIELDER II SYSTEM WIRING DIAGRAM

Useful in applications like multihulls and powerboats with twin propulsion motors, the Centerfielder II acts like a referee, ensuring that both port and starboard charging systems work together, rather than compete, to keep a large house battery efficiently charged.

The Centerfielder II is designed to work specifically with MC-614 and MC-624 voltage regulators.

1. GROUND (G)
2. POWER (P)
3. FIELD (F)
4. IGNITION (I)
5. SENSE (S)
6. LAMP (L)
7. BATTERY+ (B)



DIGITAL DUO CHARGE - DDC-12/24

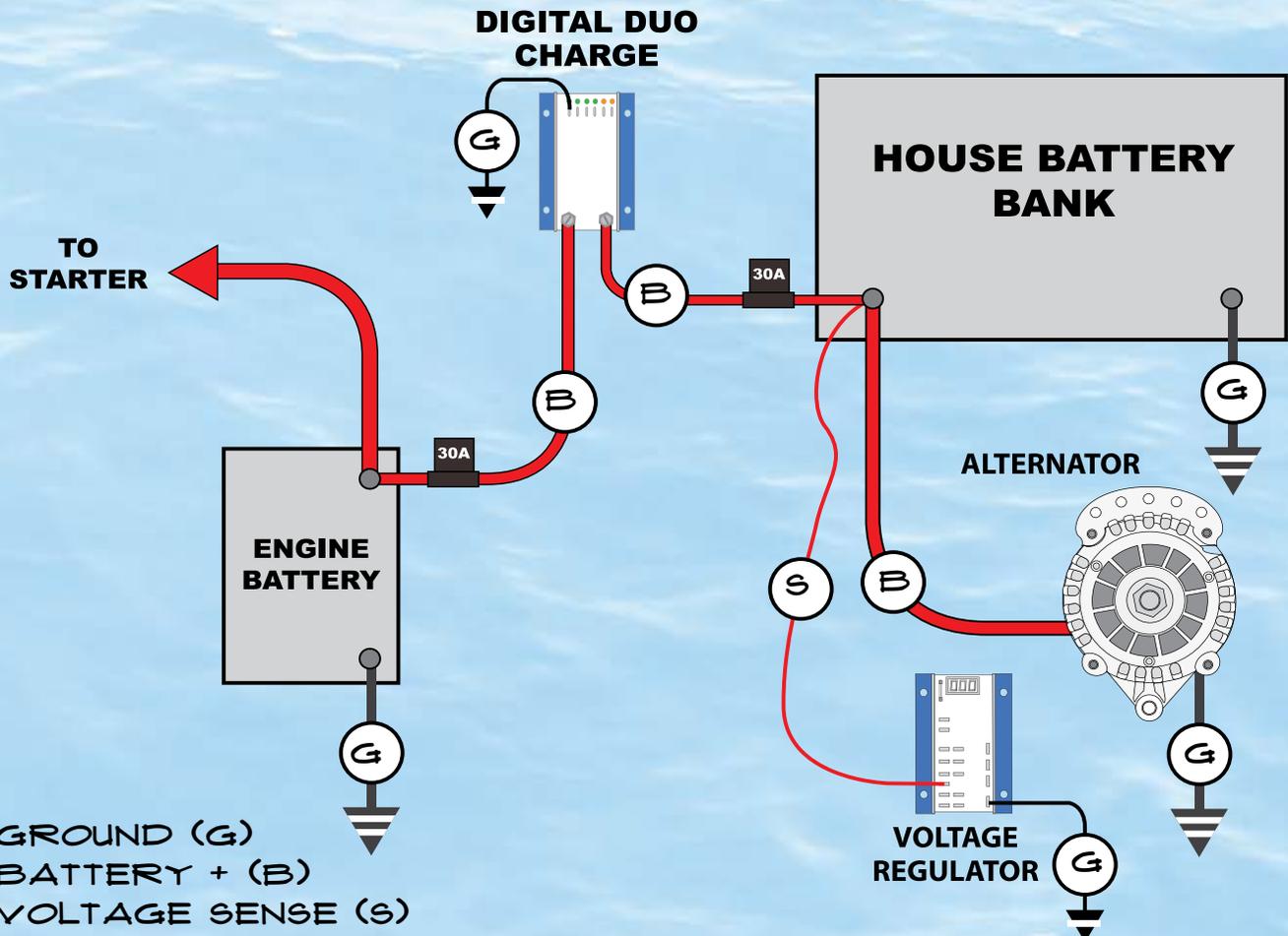
The DDC-12/24 offers the smartest system yet for current and voltage controlled charging between the house and starting batteries -- eliminating the need for an isolator or battery switches.

During charging, the Duo Charge monitors voltage at the house battery. When voltage exceeds the set minimum (typically 13V in a 12-volt system and 26V in a 24-volt system), the Duo Charge automatically engages, providing up to 30 amps to the starting battery. When no charge source is present, the Duo Charge separates the batteries, so the starting battery won't be accidentally discharged.

Optional solenoid control enables higher charging output when required (solenoid is not included). Includes input/output wiring. **Preset programs for gel, AGM, standard flooded and deep cycle flooded batteries allow mixing of house and start battery technologies.** *Battery temperature sensing requires optional MC-TS-B sensor cable. 1 year limited warranty.



Model	Amps	Volts	Program Presets	Bat. Temp.	Dimensions	ShWt lb/kg
DDC-12/24	30	12/24	Four (Gel, AGM, Std. Fld., FDC)	YES*	4.8"x3.2"x1.5"	1.5/.69



SINGLE STAGE VOLTAGE REGULATORS

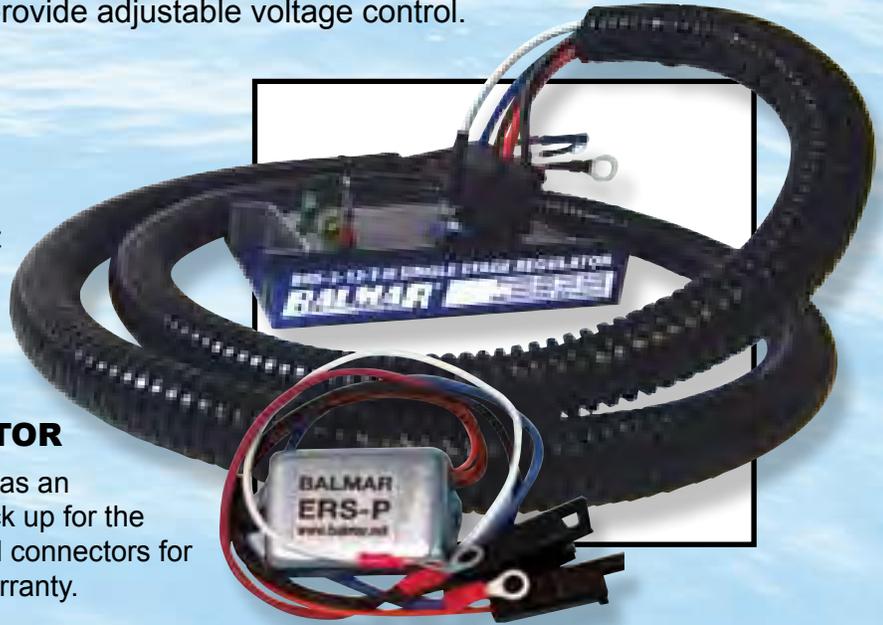
For vessels with nominal battery loads and in applications where charging times are too short to benefit from the intelligence of smart, multi-stage voltage regulation — a single stage regulator may be satisfactory. BRS-2T regulators provide adjustable voltage control. ERS regulators are fixed at 14.1 volts.

BRS-2T SINGLE STAGE REGULATORS

Available in 12-volt and 24-volt models, BRS-2T voltage regulators offer the ability to adjust target voltage to meet the needs of various battery types. Models with 54" wiring harness are indicated with "H" suffix. 1 year limited warranty.

ERS-KIT SINGLE STAGE REGULATOR

Non-adjustable, 14.1-volt regulators are ideal as an inexpensive stand alone, or as a compact back up for the toolbox or spares locker. Kit includes assorted connectors for most alternator installations. 1 year limited warranty.



Model	Volts	Display	Wiring Harness	Voltage Adjustment	Dimensions	ShWt
BRS-2T-12	12	YES (color LED)	NO	YES (13.5-14.5V)	4.8"x3.2"x1.5"	1
BRS-2T-12-H	12	YES (color LED)	YES (54" long)	YES (13.5-14.5V)	4.8"x3.2"x1.5"	1.5
BRS-2T-24	24	YES (color LED)	NO	YES (27.5-28.5V)	4.6"x3.0"x.75"	1
BRS-2T-24-H	24	YES (color LED)	YES (54" long)	YES (27.5-28.5V)	4.6"x3.0"x.75"	1.5
ERS-KIT	12	NO	PIGTAIL (w/connector kit)	NO (Fixed 14.1V)	2.3"x1.3"x.70"	1



TEMPERATURE SENSORS

Alternator and battery temperature sensors are for use with 12V and 24V Max Charge and ARS-5 voltage regulators. MC-TS-B can also be used with Digital Duo Charge.

Temperature Sensor Cables			
Model	For	Length	ShWt lb/kg
MC-TS-A	Alternator	54"	1/.45
MC-TS-B	Battery	240"	1/.45

SPIKE PROTECTORS

TSP-12 and TSP-24 transient spike protectors add system safety by ensuring an exit to ground should an AC or DC spike invade the vessel's charging system. Fused diodes are designed to fail before alternator diodes can be damaged.

Transient Spike Protectors			
Model	For	Fuse	ShWt lb/kg
TSP-12	12-Volt	10A	1/.45
TSP-24	24-Volt	10A	1/.45

REPLACEMENT 54" REGULATOR WIRING HARNESSES

Model	Fits	Volts	ShWt lb/kg
1010	6-Series, 9-Series	12	1/.45
1011	94-Series	12	1/.45
1012	6-Series, 9-Series	24	1/.45
1013	94-Series	24	1/.45
1014	7-Series, 97-Series, 98-Series	12	1/.45
1016	97-Series, 98-Series	24	1/.45

MULTI-LITE™ UTILITY LIGHT FIXTURE

Perfect for the lazarette, the engine room, or the dock, Balmar's Multi-Lite can be used in 12, 24, 110, or 220-volt applications without the need for difficult rewiring. Housed in a protective UV-resistant cage, the Multi-Lite uses a glass fresnel lens for optimal light dispersion. Multiple conduit connectors enable the installer to link multiple lights. A rotary ON/OFF control is included with switched models (458S). Uses standard medium socket bulbs (not included).



Multi-Lite™ Utility Lighting Fixture						
Model	Switched	Length	Width	Height	Max. Watts	ShWt
458	No	6.5"	4.0"	4.5"	45	1
458S	Yes (Rotary)	6.5"	4.0"	4.5"	45	1

ALTERNATOR PULLEYS

Balmar offers an extensive selection of replacement pulleys for its small, large, and extra-large frame alternators. Pulley models vary by bore (17mm and .875"), outside diameter, belt width and type, and rear shoulder width. Pulleys are anodized steel unless otherwise noted.

Part #	Type	Dia.	Belt Size	Notes
<i>For 7 & 8-Series Alternators – 17mm bore / No rear shoulder</i>				
12-63008	Single V	2.3	1/2	For Crusader
81-0001	Single V	2.5	3/8 to 1/2	Deep Vee
81-0002B	Single V	2.3	1/2	
81-0010	Single V	2.7	3/8 to 1/2	Deep Vee
81-0020	Dual V	2.7	3/8 to 1/2	Deep Vee
81-0040	Serp V	2.5	K6	
81-0050	Serp V	1.9	K6	
<i>For AT, 6 & 94-Series Alternators – 17mm bore / Rear shoulder</i>				
61-0010	Single V	2.7	3/8 TO 1/2	Deep Vee
61-0020	Dual V	2.7	3/8 TO 1/2	Deep Vee
61-0050	Serp	2.6	K6	
61-0060	Dual V	2.7	1/2	For Yanmar 6CX
1300	Single V	2.2	7/16	
1303	Single V	2.2	1/2	
2766	Single V	2.7	1/2	
1328	Single V	2.5	3/8 to 1/2	Deep Vee
1326	Single V	2.7	3/8 to 1/2	Deep Vee
2762	Single V	2.7	7/16	
1315	Single V	2.7	5/8	
1315	Single V	3.0	5/8	
12-4031	Single V	4	3/8 to 1/2	For Volvo Deep Vee
1302	Dual V	2.2	1/2 x 1/2	
2758	Dual V	2.7	1/2 x 1/2	
12-4038-CAM	Dual V	2.7	1/2 x 1/2	3/8" spaced (Lehman)
1327	Dual V	2.7	3/8 to 1/2	Deep Vee
2763	Dual V	2.7	3/8 to 1/2	Deep Vee

Part #	Type	Dia.	Belt Size	Notes
1305	Dual V	2.2	5/8 x 5/8	
2759	Dual V	2.7	7/16 x 7/16	
1318	Serp	1.9	K-6	
1316	Serp	2.4	K-6	
2749B	Serp	2.7	K-6	For Innovation Marine
1273	Serp	2.3	K-6	
1309 ⁶	Serp	2.4	K-8	Tall
1310 ⁷	Serp	2.4	K-8	Short (Standard)
1311 ⁸	Serp	2.4	K-8	Cummins
5908MPV	Dual V	2.9	1/2	
1281	Serp	2.6	K-6	
1279	Serp	2.6	K-6	
12-1104	Single V	3.2	3/8 to 1/2	Deep Vee
<i>For 95, 97, 97EHD & 98-Series Alternators – .875" bore / No rear shoulder</i>				
5560	Single V	4.15	5/8	
5530	Dual V	2.4	1/2 x 1/2	
5535-B	Dual V	2.7	1/2 x 1/2	
59473	Dual V	3.0	1/2	For Prestolite
5540	Dual V	2.7	5/8	
5580	Dual V	2.9	5/8	
5570	Dual V	3.6	5/8	
5550	Triple V	2.9	1/2	
5552	Serp	2.7	K-6	
5539	Serp	2.5	K-8	
5537-B	Serp	2.7	K-8	

OFFSHORE REPAIR KITS ARE AVAILABLE FOR MOST BALMAR ALTERNATORS. SEE WWW.BALMAR.NET OR CALL FOR DETAILS.

Alternator output is dependent on a number of factors; battery condition and capacity, wire size, engine horsepower and engine rpm, battery temperature, and alternator temperature. Of those factors, alternator rotation speed and alternator temperature are the most important. The following chart breaks down alternator output based on two temperature levels; cold (with an ambient temperature of 125°F at the rectifier assembly, and hot (with an ambient temperature of 200°F at the rectifier assembly). Note that output values are based on alternator RPM, not engine RPM.

ALTERNATOR POWER CURVES BY MODEL												
ALTERNATOR RPM		1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000
ALTERNATOR MODEL	TEMP.											
6-SERIES 12-VOLT 70-AMP MODELS	COLD	0	20	68	70	69	71	72	73	73	72	72
	HOT	0	20	66	65	63	64	63	62	63	63	63
6-SERIES 12-VOLT 100-AMP MODELS	COLD	0	16	80	87	92	98	104	106	108	109	108
	HOT	0	13	68	74	75	79	82	86	85	85	85
6-SERIES 12-VOLT 120-AMP MODELS	COLD	0	21	80	101	115	117	120	121	122	122	122
	HOT	0	20	76	88	92	92	93	93	92	94	93
6-SERIES 12-VOLT 150-AMP MODELS	COLD	0	0	55	102	122	126	138	145	151	155	155
	HOT	0	0	50	91	106	108	114	121	122	120	120
6-SERIES 24-VOLT 70-AMP MODELS	COLD	0	0	30	52	67	72	78	81	83	82	83
	HOT	0	0	30	48	51	55	60	62	65	67	68
AT-SERIES 165-AMP MODEL	COLD	0	60	119	140	145	156	164	167	169	170	172
	HOT	0	59	103	120	130	140	142	149	150	151	153
AT-SERIES 200-AMP MODEL	COLD	0	132	158	198	190	222	228	230	232	235	238
	HOT	0	73	147	168	173	174	179	182	188	193	194
94/94LY-SERIES 12-VOLT, 165-AMP MODEL	COLD	0	18	74	101	119	124	141	146	153	166	169
	HOT	0	8	69	88	103	115	133	142	140	143	144
94/94LY-SERIES 12-VOLT, 210-AMP MODEL	COLD	0	19	45	91	125	144	163	169	184	202	214
	HOT	0	20	45	86	120	133	138	142	159	177	179
94/94LY-SERIES 24-VOLT, 140-AMP MODEL	COLD	0	3	22	68	80	91	100	108	127	135	142
	HOT	0	0	5	15	36	55	79	90	112	117	119
95-SERIES 12-VOLT, 165-AMP MODEL	COLD	0	18	76	103	122	130	145	149	153	166	169
	HOT	0	9	67	87	103	118	135	139	139	141	140
95-SERIES 12-VOLT, 210-AMP MODEL	COLD	0	15	43	101	128	147	169	178	183	205	211
	HOT	0	13	40	79	121	134	135	142	155	173	180
95-SERIES 24-VOLT, 140-AMP MODEL	COLD	0	11	16	45	79	88	100	102	129	140	145
	HOT	0	5	12	30	33	41	45	49	52	54	55
97-SERIES 12-VOLT, 160-AMP MODEL	COLD	0	38	119	140	155	157	163	165	166	167	167
	HOT	0	36	115	133	143	144	145	144	143	145	148
97-SERIES 24-VOLT, 140-AMP MODEL	COLD	0	31	60	89	98	104	122	128	135	139	144
	HOT	0	25	45	76	84	96	110	117	123	124	130
97EHD-SERIES 12-VOLT, 185-AMP MODEL	COLD	0	100	141	159	165	174	179	183	186	186	184
	HOT	0	83	132	144	150	163	166	170	172	170	171
97EHD-SERIES 12-VOLT, 265-AMP MODEL	COLD	0	50	148	211	226	245	252	255	260	268	270
	HOT	0	52	128	179	201	211	214	217	220	217	216
97EHD-SERIES 24-VOLT, 190-AMP MODEL	COLD	0	51	144	165	178	189	193	198	196	195	193
	HOT	0	50	140	145	151	155	160	160	162	165	164
98-SERIES 12-VOLT, 310-AMP MODEL	COLD	0	36	148	230	259	278	288	295	315	322	320
	HOT	0	30	126	200	221	228	240	254	250	251	252
98-SERIES 24-VOLT, 220-AMP MODEL	COLD	0	34	100	145	167	180	196	208	218	221	225
	HOT	0	35	92	130	148	166	172	178	189	190	192

Alternator Dimensions By Series

		REAR TO CENTER OF INSIDE SHEAVE	OVERALL LENGTH OF ALTERNATOR <120A	OVERALL LENGTH OF ALTERNATOR >110A	OVERALL ALTERNATOR HEIGHT	BOLT-TO-BOLT, TENSIONER/MOUNTING FOOT	CASE DIAMETER	FRONT FOOT WIDTH (Front-To-Back)	SADDLE WIDTH (Inside Dimension)	REAR FOOT WIDTH (Front-To-Back - With Bushing)	FRONT FOOT TO CENTER OF INSIDE SHEAVE	STANDARD PULLEY DIAMETER	MOUNTING FOOT BORE	TENSIONING ARM BOLT DIAMETER/THREAD COUNT	STATOR POLES
	60 SERIES	6.25" 158.8mm	6.6" 167.6mm	7.0" 177.8mm	7.3" 185.4mm	6.5" 165.1mm	5.7" 144.8mm	.55" 13.97mm	3.15" 80mm	.75" 19.1mm	1.0" 25.4mm	2.7" 68.6mm	10mm*	M8 x 1.25	12
	621 SERIES	6.25" 158.8mm	6.6" 167.6mm	7.0" 177.8mm	7.3" 185.4mm	6.5" 165.1mm	5.7" 144.8mm	1 1/2" 25.4mm 50.8mm	N/A	N/A	1.0" 25.4mm	2.7" 68.6mm	.38"/.5" 9.65mm 12.7mm	M8 x 1.25	12
	604 SERIES	6.25" 158.8mm	6.6" 167.6mm	7.0" 177.8mm	7.3" 185.4mm	6.5" 165.1mm	5.7" 144.8mm	.55" 13.97mm	4.0" 101.6mm	.75" 19.1mm	1.0" 25.4mm	2.7" 68.6mm	10mm*	M8 x 1.25	12
	AT-165 SERIES	6.25" 158.8mm	7.6" 193.0mm	N/A	7.4" 188mm	6.7" 170.2mm	5.25" 133.4mm	.55" 13.97mm	3.15" 80mm	.75" 19.1mm	1.0" 25.4mm	2.7" 68.6mm	10mm*	5/16"	16
	AT-200 SERIES	6.25" 158.8mm	7.6" 193.0mm	N/A	7.4" 188mm	6.7" 170.2mm	5.25" 133.4mm	1 1/2" 25.4mm 50.8mm	N/A	N/A	1.0" 25.4mm	2.7" 68.6mm	.38"/.5" 9.65mm 12.7mm	5/16"	16
	94 SERIES	6.0" 152.4mm	N/A	7.0" 177.8mm	9.0" 228.6mm	8.0" 203.2mm	6.0" 152.4mm	2" 50.8mm	N/A	N/A	1.0" 25.4mm	2.9" 73.7mm	.50" 12.7mm	M10 x 1.25	12
	95 SERIES	7.0" 177.8mm	N/A	9.0" 158.8mm	9.0" 228.6mm	7.7" 195.6mm	6.25" 158.8mm	.52" 13.2mm	4.0" 101.6mm	.75" 19.1mm	1.0" 25.4mm	2.9" 73.7mm	.50" 12.7mm	6.25" 158.8mm	12
	97 SERIES	9.0" 228.6mm	N/A	10.6" 269.2mm	9.45" 240mm	8.4" 213.4mm	6.5" 165.1mm	.55" 13.97mm	4.0" 101.6mm	.75" 19.1mm	1.0" 25.4mm	2.9" 73.7mm	.50" 12.7mm	1/2" x 13	16
	97 EHD-SERIES	9.25" 233.7mm	N/A	11" 279.4mm	9.45" 240mm	8.4" 213.4mm	6.5" 165.1mm	51" 13mm	4.0" 101.6mm	.75" 19.1mm	1.0" 25.4mm	2.9" 73.7mm	.50" 12.7mm	1/2" x 13	12
	98 SERIES	9.2" 233.7mm	N/A	11" 279.4mm	9.6" 243.8mm	8.25" 209.6mm	8.25" 209.6mm	.58" 14.7mm	4.0" 101.6mm	.75" 19.1mm	1.25" 31.8mm	2.9" 73.7mm	.50" 12.7mm	1/2" x 13	14

NOTES:

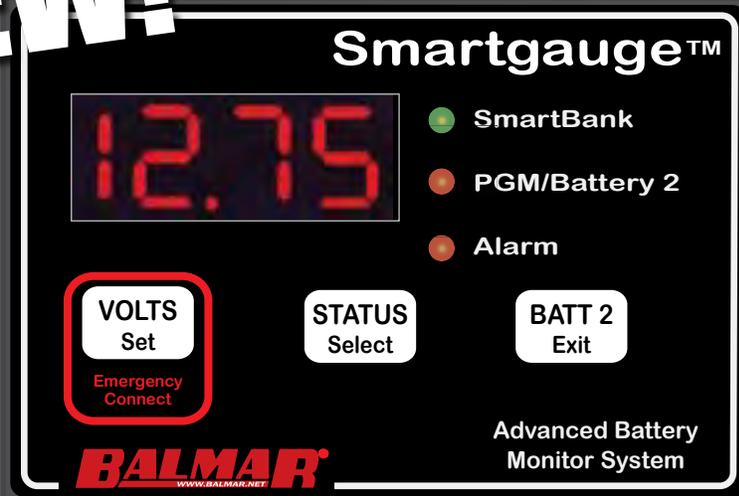
Alternator dimensions are correct as of publication date. In order to ensure quality, Balmar reserves the right to make changes which may affect alternator dimensions or specification. Visit www.balmar.net for any product updates. Balmar is not liable for any damages or injuries resulting from product installation. See Balmar warranty and ordering instructions on Page 3 of this catalog for more information .

Small case 60-SERIES are equipped standard with 10mm bore spacers and bushings. 8mm bore spacers and bushings are available for those units. Call Balmar Customer Service at 360-435-6100.

621-Series alternators are equipped with a removable bushed 1" spacer for use in 2" installations. 1" mounts feature a .50" bore. 2" mounts feature a .38" bore. Please specify mounting style for 7-Series alternators (71-Series is 1" foot. 712-Series is 2" foot.)

Always compare existing alternator & replacement alternator dimensions. Balmar cannot guarantee direct OEM replacement.

NEW!



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Advanced Battery Monitoring System

PROVEN ACCURATE IN INDEPENDENT TESTING TO WITHIN 5% OVER SIX MONTH'S USE!

DISPLAYS BATTERY VOLTAGE AND STATE OF CHARGE FOR YOUR HOUSE BATTERY BANK – AND VOLTAGE FOR YOUR ENGINE STARTING BATTERY

EXTREMELY EASY TO INSTALL AND USE.

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ALARMS FOR HIGH AND LOW BATTERY VOLTAGE AND LOW CHARGE STATE

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REQUIRES NO SHUNT OR COMPLEX CABLING – JUST TWO OR THREE WIRES REQUIRED FOR INSTALLATION

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Balmar's new Smartgauge™ Battery Management System provides at-a-glance information, so you can enjoy accurate and reliable updates on the condition of your batteries. Based on years of experienced engineering and rigorous, independent testing, the Smartgauge delivers dependable data even as your batteries experience extended use and cycling.

Easy to install, and just as easy to program, the Smartgauge™ takes much of the mystery out of battery monitoring; just select the program that matches your battery type, and the Smartgauge™ automatically configures monitoring to your electrical system.

Because of its proprietary computer modeling and battery testing techniques, the Smartgauge™ remains accurate without need for re-synchronization. The bright LED display and simple controls provide a user interface that's intuitive and understandable, even for the most inexperienced crew member.

Smartgauge™ is equipped with low and high voltage and low charge state alarm outputs which can be used to activate audible or visual alerts (buzzers or lamps). The Smartgauge™ can be used in 12-volt or 24-volt charging systems.

Smartgauge™ Advanced Battery Monitoring System

Model	Voltage Range	Temperature Range	Current Draw (Sleep/On)	Battery Programs For	Dimensions	ShWt
24-SG-12/24	8-40VDC	-25° to 85°C (-13° to 185°F)	5mA/<15mA	Gel, AGM, Std. Flooded, Deep Cycle Flooded, Sealed Maintenance Free, Lead Acid Hybrid	4.3"W x 3.0"H x 1.1"D	1.5 lb