Building a safe and reliable high-energy electrical system for recreational and commercial vessels requires smarter and more sophisticated energy delivery than ever before. The growing demand for high energy battery systems, and effective solutions for keeping them charged, has fundamentally changed the way we look at battery management.

Wakespeed's WS500 Alternator Regulator offers the best combination of installation simplicity, advanced communication, rugged construction, and intelligent charge control to meet these changing demands - making it the preferred choice for boatbuilders and marine service facilities

What makes the WS500 Alternator Regulator a better choice for intelligent alternator charge control?

Wide ranging support for both traditional lead acid and new lithium battery technologies:
- Factory engineered configuration profiles for the largest number of battery brands and chemistries available
- Multiple configuration tools, ranging from simple DIP switches to smart apps for Android and iPhone devices
- One product supports systems ranging from 12V to 48/51V, with the most experience available at 48V on the market

Advanced, multi-PID engine control provides the most accurate charging available:
- Only regulation available to charge based on battery C-rates, tail current, and system loads
- Actively regulates to desired alternator temperature, rather than reacting after over-temperature condition occurs
- Regulation based on battery temperature, delivered via a sensor or CANbus ensures safe charging within controlled parameters

Easiest to install, configure and operate:
- Optimized, application-based wiring harnesses with simple plug-and-play connectors
- Pre-engineered profiles for a large number of popular battery brands - including Battle Born, Lithionics, and Victron Energy
- CANbus communication with a growing number of batteries for easier installation and superior charging performance
- RV-C compliant CANbus enables WS500 regulator to communicate directly with other RV-C enabled devices

Best charge control for lithium battery chemistries
- Meets battery manufacturer recommendations for charging voltage, C-rate limits, temperature, and monitoring for tail current
- Fully closed loop control with compatible CAN-enabled battery BMS systems, delivering the smartest, safest charging available
- Zero Output Technology actively regulates battery current to zero amps when batteries are at full SOC
- Allows use of higher output alternators with minimal risk to batteries due to active control of charging current

Superior protection for your investment
- Upgradeable firmware ensures that your WS500 will always be up-to-date and ready for new technologies
- Low cost repair or replacement for failures caused by non-warranty damage
- Two-year limited warranty provides long lasting protection against failure due to manufacturer's defect

The WS500 Regulator's innovative design makes it the most powerful and flexible resource available for delivering the best alternator charge control. Selected for use by many of the most respected marine OEMs, custom yards and service shops, Wakespeed's WS500 delivers exceptional value, superior quality, and unparalleled charging performance.

ALTERNATOR REGULATOR COMPARISON CHART				
	WS500 Alternator Regulator	**Company B Regulator**	**Company M Regulator**	**Company S Regulator**
Regulation Criteria	• Charging voltage • Measured current • Alternator temperature • CANbus BMS / regulator slave mode • Battery C-rate • Battery temperature • Engine load	• System voltage • Battery temperature	• System voltage • Battery temperature	• System voltage • Battery temperature
Alternator Compatibility	• P-type alternator* • N-type alternator*	• P-type alternator only*	• N-type alternator only*	• P-type alternator only* • N-type alternator only*

System Voltages	• 12-Volt (Auto-Detect)
	• 24-Volt (Auto-Detect)
	• 48/51-Volt (Auto-Detect)
	  (Voltages from 8V to 65V are
	  supported by one regulator model)
		• 12-Volt (12V Model Required)
		• 24-Volt (24V Model Required)
		• 48-Volt (48V Model Required)
		  (Different regulator models required
		  based on system voltage)
			• 12-Volt
			• 24-Volt
			  (Voltage manually selectable)
				• 12-Volt
				• 24-Volt
				  (Voltage manually selectable)

CANbus Libraries Supported	• J1939 • RV-C • OSEnergy • SMA • Victron BMS (11 bit) • Victron VE.can/VREG • Discover AEbus • LUX • LithiumWerks™ • Marine Network	None	Single Vendor proprietary	None

Active Regulation Based n Battery Current	• Manages charging based on
	  battery C-rate limits
	• Accurately determines fully charged
	  battery based on tail currents
	• Enables zero output charging when
	  battery is fully charged (Zero Output
	  Technology)
		No	No	No

System Configuration	• Internal DIP switches
	• Downloadable pre-engineered profiles
	  (Windows compatible)
	• Android and iPhone apps
	• Third party hardware / software
		• Magnetic Reed Switch
		• Optimal remote configuration
		  (Requires additional purchase)
			• 3-position switch
			• Optimal remote configuration
			  (requires additional purchase)
				• 4-position switch
				• Optimal remote configuration
				  (requires additional purchase)

Remote Display	Integrates seamlessly with popular monitoring equipment, in addition to monitoring in the Wakespeed app	• Proprietary monitor
		  (Requires additional purchase)
			• Proprietary monitor
			  (Requires additional purchase)
				• Proprietary monitor
				  (Requires additional purchase)

Adaptive Idle Technology	Dynamically reduces alternator output to prevent stalling and sluggish performance at low engine RPM	None	None	None
Zero Output Technology	Enables alternator to safely remain active while supporting system loads, ensuring that fully charged batteries are protected from dangerous overcharge conditions	None	None	None
Extended Battery Temperature Support	Reduces battery stress by limiting charging current as batteries approach temperature limits. Charging suspended outside of safe temperature limits. All parameters are adjustable to support battery manufacturer requirements.	• High temperature shutoff • Low temperature shutoff	• High temperature shutoff**	• Fixed high temperature shutoff
Enclosure	IP67-Rated flanged cast aluminum box	Potted in aluminum extrusion	Sealed plastic	IP67 plastic enclosure
Notes	* Alternator must be manufactured or modified for external regulation ** Additional capabilities when used with vendor proprietary batteries			