



# WS48-12X

WAKESPEED 48V/12V BI-DIRECTIONAL DC-DC CONVERTER

POWERED BY  
**dragonfly**<sup>®</sup>  
ENERGY



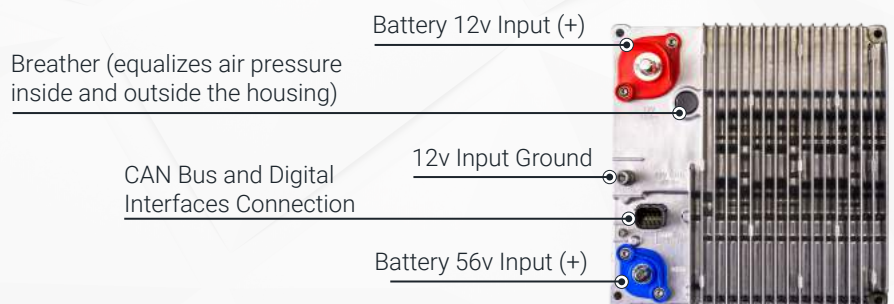
## POWER WHERE YOU NEED IT

Unlock next-level power capabilities with high energy systems. Experience lower costs, faster charging, and more real-world power availability. The Wakespeed 48v/12v Bi-Directional DC-DC Converter (WS48-12x) simplifies and streamlines installation with its efficient bi-directional buck/boost DCDC converter. From installation using the existing chassis alternator, to supplementing or even replacing the chassis alternator with a high energy unit, the WS48-12x seamlessly manages power distribution, putting it exactly where you need it.

For Use With The Wakespeed WS500 Only.

### FEATURES:

- Seamless transfer of up to 3,000 watts of power from one voltage bus to the other.
- Support for 12v/48v power buses.
- Works with existing chassis alternators - no changes needed.
- Charge higher voltage batteries utilizing existing chassis electrical system.
- Suppliant system power generation using 2nd higher voltage alternator fully controlled by the WS3000.
- On demand supplemental chassis electrical system power to support surge loads without cost of additional batteries.
- J1939/RV-C based CAN support for system and BMS integration.
- Wide BMS integration support, both CAN and non-CAN based batteries.
- Compatible with additional WS500 controlled alternators installed in same system.





# WS48-12x

## WAKESPEED 48V/12V BI-DIRECTIONAL DC-DC CONVERTER

SYSTEM VOLTAGE	
12v - 48v	Bidirectional power transfer from two power busses
48v - 12v	
12v INPUT RANGE	8v to 16v (reduced capacity below 12v and above 15v)
48V INPUT RANGE	24v to 60v (reduced capacity below 48v and above 60v)
ALTERNATOR SUPPORT	
CHASSIS ALTERNATOR	12v
HIGH ENERGY ALTERNATOR	48v
DEPLOYMENT OPTIONS	12v Chassis Alternator
	48v High Energy Alternator
	Both 12v Chassis and 48v High Energy Alternators
ALTERNATOR MANAGEMENT	
CHASSIS ALTERNATOR	No change needed. Alternator monitored for overloading and overheating
HIGH ENERGY ALTERNATOR	Full Management
TERMINAL MANAGEMENT	
ALTERNATOR MONITORING	Both Chassis and High Energy Alternators are monitored and managed for overheating
DC-DC CONVERTS	DC-DC converter scales back to prevent overheating.

BATTERY CHARGE PROFILES	
CHARGE PROFILE	Preset and configurable profiles to match battery manufactures guidance
CHARGE PHASE CRITERIA	Flexible charging protocol integrating: System voltage, Battery Acceptance Current, Battery Temperature, Alternator Temperature, and/or Time duration
EXTENDED BATTERY TEMPERATURE RANGE SUPPORT	Converter can be configured to provide safe charging of batteries outside of normal temperature ranges by dynamically limiting charge current.
CONFIGURATIONS	
VIA APP	Full feature Application allows for simple configuration of alternator, battery, BMS and communication options.
COMMUNICATIONS	
CAN	J1939 based CAN for system configuration, integration and monitoring.
PROTOCOLS	J1939, RV-C, Marine
BMS PROTOCOLS	RV-C, SMA, Victron, LUX, Others
USB	Diagnostics/configuration. Firmware upgrade.
FIRMWARE UPDATES	
YES	Controller firmware updatable via built-in USB connector

COMPATIBILITY	
SYSTEM	Fully compatible with Wakespeed WS500 Advanced Alternator Controller
BMS	Wide range of BMS integration supporting both CAN and non-CAN integration
CONNECTIONS	
SYSTEM	Multi-pin harness provides for system, optional alternator, CAN and BMS connection
POWER	12v: M10 48v: M8 Ground: M6
PROTECTIONS	
12V	Reverse polarity, over current, short-circuit, under voltage and overvoltage protections
48V	Reverse polarity, short-circuit, overcurrent, under voltage and overvoltage protections
PHYSICAL AND ENVIRONMENTAL	
DIMENSIONS	8.93" x 9.17" x 2.44" / 226.8mm x 233mm x 62mm
IP RATING	IP69K, IP67
OPERATING AMBIENT TEMPERATURE	-40°C to 75°C