










**Charger Solutions Customized
to Meet Your Material
Handling Power Needs**

REVOLUTION Modular High Frequency Battery Chargers **CONVENTIONAL, OPPORTUNITY & FAST MODULAR CHARGERS**

Innovative modular architecture with long term savings

The REVOLUTION Series is an innovative line of high frequency battery chargers that incorporates cutting edge modular power design that delivers peak efficiency greater than 93% and efficiencies greater than 90% throughout the entire charge cycle. As the charge cycle progresses and the output current tapers down, the charger will turn off unneeded modules, allowing the remaining modules to operate at peak efficiency.

-  *Flexible and scalable design*
-  *Multi-voltage 1.3kW power modules, that can be combined to produce over 30kW output*
-  *“Plug and Play” utility makes expansion easy and inexpensive*
-  *Can be programmed for conventional, opportunity or fast applications*
-  *Compatible with Lithium Ion, Lead Acid, VGA and other battery types*
-  *No Downtime! Charger remains operational if a power module fails*
-  *Wireless Communication*

The REVOLUTION Series is a combination of cutting edge charging and energy management technologies, with a smaller footprint, lower acquisition costs, easy maintenance, and flexible configurations, which makes updating your fleet of electric lift trucks a more attractive investment than ever before. Free your operation from spare batteries, daily battery changes, battery storage areas, and energy inefficient charging!

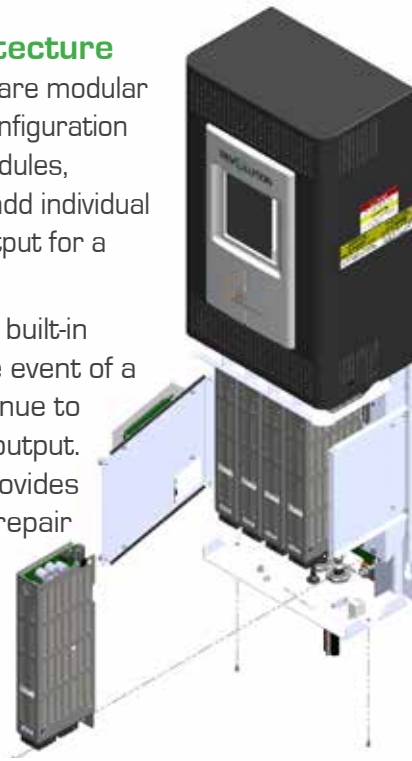


REVOLUTION

Variable Configuration Architecture

The REVOLUTION series of chargers are modular concept chargers offering multiple configuration capability. The independent power modules, installed in parallel, allow the user to add individual modules, increasing the charger's output for a minimal upgrade cost.

The parallel module design provides built-in redundancy that ensures that in the event of a module failure the charger will continue to operate, at a slightly lower current output. The unique modular architecture provides unmatched value, as diagnosis and repair of an REVOLUTION is the simplest and fastest of any charger in service today.



Unmatched energy savings

- Highest charging efficiency throughout the entire charge cycle
- Lowest energy costs related to battery charging
- Latest generation MOSFET power conversion technology
- CEC Compliant

Cost effective with long term savings

- Single cable outputs for up to 450 amps
- Eliminates the need to replace chargers as your lift truck/battery fleet changes in the future
- PowerCharge.Net monitoring system option allows you to collect and analyze fleet utilization information from a single location, optimizing your cost savings



The REVOLUTION charger, when combined with the PowerTrac 3 or SP+ data logger, has the ability to be multi-voltage (12/24/36/48/72/80), allowing the charger to automatically recognize and charge a wide range of batteries and amp hour capacities. Plus, it provides detailed fleet management information.

REVOLUTION Charger Specifications

Model	Module Size	Output Voltage	4kW	5kW	6kW	8kW	9kW	10kW	12kW	13kW	14kW	15kW	18kW	21kW	23kW	26kW	29kW	31kW		
5X	36	24/36	90	120	150															
	48	24/36/48	75/67	100/90	125/112															
	80	24/36/48/72/80	39	52	65															
8X	36	24/36			150	180	210	240												
	48	24/36/48			125/112	150/135	170/157	200/180												
	80	24/36/48/72/80			65	78	91	104												
12X	36	24/36						240	270	300	330	350								
	48	24/36/48						200/180	225/202	250/225	275/247	300/270								
	80	24/36/48/72/80						104	117	130	143	156								
16X	36	24/36										360	420 ^{SC}	480						
	48	24/36/48										300/270	350/315 ^{SC}	400/360 ^{SC}						
	80	24/36/48/72/80											182	208						
24X	36	24/36														540	600	660	700	
	48	24/36/48														450/405 ^{SC}	500/450 ^{SC}	550/495	600/540	
	80	24/36/48/72/80														234	260	286	312	
Number of Modules			3	4	5	6	7	8	9	10	11	12	14	16	18	20	22	24		
Charger kW Rating			3.9	5.2	6.5	7.8	9.1	10.4	11.7	13.0	14.3	15.6	18.2	20.8	23.4	26.0	28.6	31.2		
Input Current Draw			5.5	7.4	9.2	11.1	12.9	14.8	16.6	18.5	20.3	22.2	25.9	29.6	33.3	37.0	40.7	44.4		
AC Breaker			5X: 15A			8X: 20A		12X: 30A		16X: 40A		24X: 60A								
Max. Input Current			5X: 10A		8X: 15A		12X: 22A		16X: 30A		24X: 44A									
Input Voltage			480VAC, 3-phase ± 10%																	
Efficiency			Total charge cycle efficiency > 90%																	
			Peak charging efficiency > 93%																	
User Interface			LCD/Keypad, Ethernet (optional)																	
Cooling			Forced air (fans)																	
Dimensions (WxDxH)			5X: 12.5" x 8.5" x 20.25"			8X: 18.5" x 9.5" x 21"			12X: 26.5" x 9.5" x 21"											
			16X: 22" x 10" x 48"			24X: 30" x 10" x 48"														
Weight			5X: ≤ 56 lbs			8X: ≤ 81 lbs			12X: ≤ 120 lbs			16X: ≤ 210 lbs			24X: ≤ 300 lbs					
Certifications			UL and cUL listed; CEC Compliant																	

Conventional charge rate based on 17% start rate
Opportunity charge rate based on 25% start rate
Fast charge rate based on 40% start rate

80V chargers are capable of charging 24/36/48/72/80 batteries
48V chargers are capable of charging 24/36/48 batteries
36V chargers are capable of charging 24/36 batteries

^{SC} Single cable versions available please contact Power Designers for more details

Your Complete Power Solution Provider



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ISSUED: 03/2019 PD-RV-OV

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