



Versatile Industrial Charging Systems

V HFM SERIES

High-Frequency Modular Chargers

- ▶ Efficient
- ▶ Maximum Battery Life
- ▶ Intelligent Control
- ▶ Compact
- ▶ Flexible Configurations
- ▶ Reliable and Redundant

*Capable of Conventional,
Opportunity & Fast Charging.*



We Have What You Need...

Efficient and Versatile High-Frequency Modular Chargers to Maximize Your Battery and Your Investment.

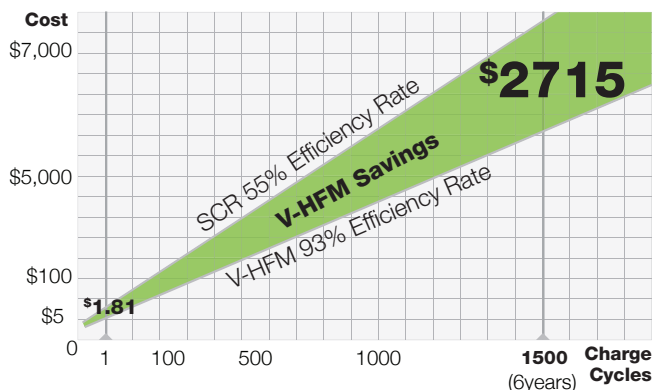
V-HFM Series Chargers are not like typical high-frequency chargers offered by other companies. This charger offers more energy efficiency over the entire charge cycle while saving money. With a compact design that uses less space in your operation, V-HFM Series Chargers deliver flexible solutions to suit almost any battery-charging requirement, *including conventional, opportunity and fast charging*. And when efficiency, reliability and flexibility are key factors for your business, rely on V-HFM Series Chargers to deliver the best solution for your battery charging needs.



High Efficiency and Maximum Battery Life

More efficiency helps to lower energy costs. Gain up to 38 percent power savings with the V-HFM Series Charger when compared to traditional Ferro and SCR chargers. With the ability to achieve 93% efficiency over an entire charge cycle, you can lower your costs by reducing amp-draw rate all while being environmentally sound.

Why is efficiency important to you? It saves you money!

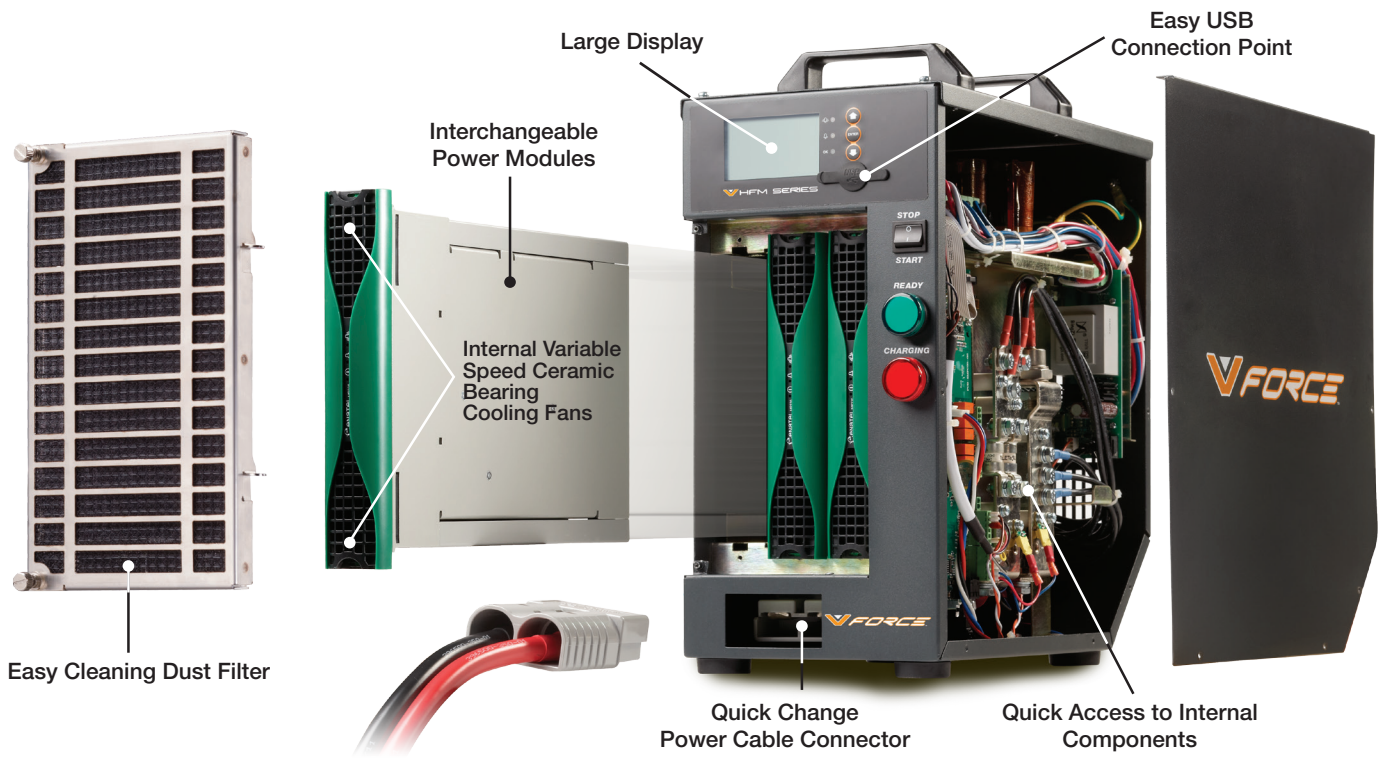


Within the chart above, \$1.81 represents the savings per charge cycle when charging a 36V 1050AH battery with a V-HFM charger versus a typical SCR/Ferro charger. *KWH rate of \$.07 used.

Maximize battery life. With the optional Battery Monitoring Identification Device (BMID) module installed, the charger can read the battery temperature and cell voltage accurately and provide precise control over the charge profile ensuring the battery is charged optimally. The V-HFM Series Charger delivers constant charging through two key features:

- **IEI (constant current – constant voltage – constant current) charge profile** reduces the amount of heat generated during the entire charge cycle. Notably, the critical gassing voltage is tightly controlled at the battery terminals during the constant voltage stage minimizing battery-damaging heat during each and every charge. Charge termination by dV/dt (change in voltage over time) prevents the battery from over and under charging to maximize battery and charger efficiency.
- **Auto/manual equalization charge** feature ensures an equalize charge every week. Manual, cycle count and day/time options are available to ensure your batteries are equalized to fit your schedule while maximizing battery performance and life — by default this occurs every Saturday at 5 p.m. The BMID module monitors the midpoint voltage of the battery, which can give an early indication of battery problems and trigger an equalize cycle to fix the problem before the battery deteriorates further.

Maximum **Versatility** in Design, Reliability and Expandability



Intelligent control. The V-HFM Series Charger allows for configurable options such as variations to the charge profile and the ability to easily adjust when needed. Software driven, the charger's onboard intelligence allows monitoring of performance and battery condition. The charger's software also prevents charging of an incorrect battery type and configuration. The V-HFM Series Charger offers conventional charge profiles for flooded and sealed batteries. The opportunity and fast charge profiles are offered for flooded batteries only. The charger stores a lifetime of charge cycles that are easily accessible through the USB port. An auto/manual equalization charge feature ensures an equalize charge every week. In addition, the charger's intelligent control provides relays and communication ports for future expansion.



Compact and lightweight design. This charger offers a smaller footprint and occupies approximately 67% (41% for FS5/FS9 models) less space than the typical charger cabinet so more chargers can be situated in a given charging location. The charger offers a light-

weight design allowing easy one-man installation. Mount the compact charger where it makes sense for your operation — on the wall, shelf, rack or virtually anywhere.

Versatile design means flexible solutions for you.

The V-HFM Series Charger has the ability to be programmed for use with 24/36/48 volt batteries and can be easily changed or expanded to accommodate most charging demands now and those needed in the future. Also, in the event your current application requires upgrading to a larger battery, the V-HFM Series Charger can be easily upgraded by adding another module. *This charger series is capable of conventional, opportunity or fast charging nearly any battery size.*

Reliable and redundant. High-frequency modular chargers have been the chargers of choice for the telecommunications industry for years due to their reliable performance, compact size and versatility. The V-HFM Series Chargers emulate this historical and reliable performance by taking the best features proven in the telecommunications industry and putting them to work in your facility. In the event of a module failure, the module is easy to replace. Additionally, if a module does fail, the V-HFM Series Charger will continue to charge at a reduced rate until your local service technician arrives. This redundant back-up feature along with a plug-and-play feature allows for easier service and reliability.

Supported by:




FS3



FS5-FS9



Specifications

Model	FS3 - Single or Three Phase	FS3 - Three Phase	FS5 - Three Phase	FS9 - Three Phase
Module Type	MP130	MP330	MP330	MP330
Mains Voltage	208-240V AC	380-480V AC		
Efficiency	Up to 93%			
Nominal Charging Voltage	24V, 36V, 48V			
Charging Current	Up to 180A	Up to 300A	Up to 540A	
Battery Capacity 8 hr (.16c)	Up to 1175Ahr	Up to 1500Ahr	Up to 3375Ahr	
Opportunity Charging (.25c)	Up to 750Ahr	Up to 1200Ahr	Up to 2160Ahr	
Fast Charging (.4c)	Up to 450Ahr	Up to 750Ahr	Up to 1350Ahr	
Dimensions	7.75W x 15.25D x 15.25H in	13.40W x 26.0D x 17.32H in		
Weight	46 lbs (3X mod.)	95 lbs (5X mod.)	123 lbs (9X mod.)	
Frequency Range	50-60 Hz			
Marks of Conformity	 CE and RoHS Compliant - UL Listed			
Warranty	1 + 4 (1 year full parts and labor, 4 years parts)			

Safety Features

- Reverse polarity protection prevents charging of an incorrect battery configuration
- Extensive alarm monitoring of the charger and battery allowing you to have a safe charge every time
- Protective timers monitor each stage in the charging cycle
- The control card will stop the charge if any critical voltage or current threshold is exceeded

Charge Information Displayed

- Charge Stage
- Amp Hours Returned
- Charge time of each stage and complete time
- Current rate
- Battery and cell voltage
- Green LED lights up when charge is complete

Options and Accessories

Battery Monitoring Identification Device (BMID)

The BMID module is designed to mount on top of the battery. When the battery is plugged into the V-HFM Series Charger, it talks to the charger and sends the information on the charge profile to that specific battery. During the charge process the module constantly reports cell voltage and temperature to optimize the charger settings.



The BMID module also stores charge history information to allow analysis of operating conditions and lifetime performance.

Universal Mounting Bracket

A universal mounting bracket allows the charger to be wall mounted from either the rear or side as well as floor mounted. This option is available on the FS3 model only. The bracket for the FS5/9 model is available as a wall mount shelf only. Dimensions: 22 1/2" H X 22 3/4" W X 24" D

