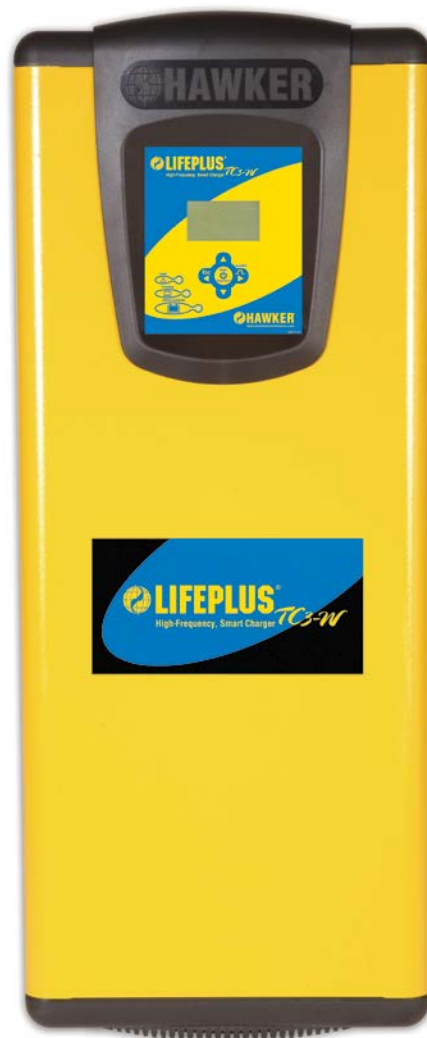




HAWKER[®]
LEADING EDGE POWER SOLUTIONS

L I F E P L U S[®] T C 3 - W



HIGH-FREQUENCY, IONIC SMART CHARGER

LIFEPLUS® TC3-W is the latest generation of high-frequency, IONIC smart chargers from HAWKER® – the world leader in high-frequency charging technology. Patented LIFEPLUS® chargers are the result of more than 25 years of high-frequency, smart charging experience. Only HAWKER® has the extensive, proven track record of substantially reducing charging costs and the cost of operation with high-frequency, IONIC smart chargers.



BENEFITS AND HIGHLIGHTS

The LIFEPLUS® TC3-W charger takes your business to the next level with a variety of benefits like:

Cost Savings – LIFEPLUS® TC3-W technology offers the highest conversion efficiency and highest power factor available in the industry – significantly reducing electrical consumption and demand charges. The TC3-W operates at efficiencies of 92% and a power factor of .96.

Plug ‘n Play Flexibility – The TC3-W responds dynamically to charge a wide range of battery voltages and capacities without user intervention. LIFEPLUS® is the easiest high-frequency charger in the industry to operate. On-site programming capabilities allow the charger to be custom tailored to the application’s specific needs.

Advanced Data Management – The TC3-W with the Ethernet option can be accessed remotely via a local network. The TC3-W communicates wirelessly to the Battery Boss® WC (BBWC) unit and maintains a data history of 17 different charge parameters from the last 896 operating cycles for easy analysis and optimization.

Opportunity Charging – The LIFEPLUS® TC3-W offers two user-friendly ways to employ opportunity charging – or charging during idle periods – to extend battery run times.

Extended Battery Warranty – LIFEPLUS® TC3-W delivers an optimal charge with less heat gain. POWERLINE™ and ENERGY-PLUS™ batteries charged on LIFEPLUS® TC3-W chargers (in the IONIC charge mode) extend battery life and increase the warranty to 6-years or 1,800 cycles – saving up to an additional 20% life on your battery investment.

The chart on the right depicts the three phases of the IONIC profile. Vertical lines identify pulses.

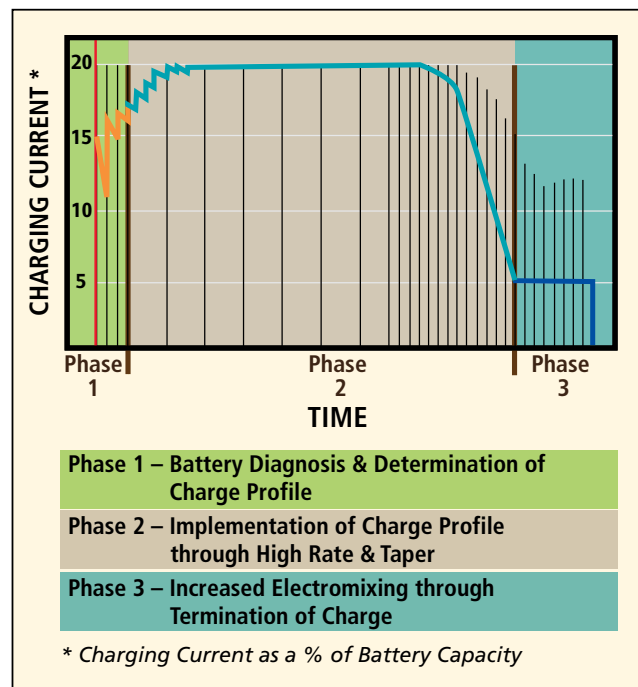
ADVANCED CAPABILITIES

In addition to being the only charger series that combines the knowledge of a patented method for diagnosing and recharging batteries with the unparalleled power factor and efficiency of a high-frequency switching power platform, LIFEPLUS® TC3-W offers these unique capabilities and benefits:

Selectable Charge Profile

The LIFEPLUS® TC3-W offers five different charge profile options based on your individual operational requirements:

- 1. IONIC** – This patented HAWKER® exclusive is the preferred choice for most applications. Employing periodic current pulses which both identify the battery’s true capacity and state of charge and mix the electrolyte throughout charge to avoid acid stratification, this profile provides the optimal recharge with minimal heating.



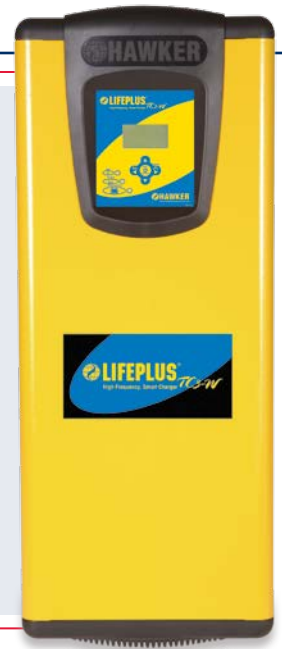
THE BOTTOM LINE FOR LIFEPLUS® TC3-W

LIFEPLUS® TC3-W chargers are the smartest and most energy-efficient chargers in the business. The TC3-W charger series reduces your battery recharge costs, reduces water consumption, and reduces battery maintenance and repair costs.

- **Energy Savings** – LIFEPLUS® TC3-W's precise profile charge, its IONIC profile and lower charge factor, and its unmatched electrical efficiency means that you can save on your electrical costs.
- **Maintenance Savings** – With the LIFEPLUS® charger IONIC technology and lower charge factor, you will spend at least 25% less time and less money watering your batteries, when charging in IONIC mode.

- **Battery Savings** – LIFEPLUS® TC3-W chargers can extend the life of your battery fleet by a minimum of 20%. Less heat generation during recharge means longer battery life, less downtime, and less money spent on battery repairs and replacements.
- **Obsolescence Savings** – LIFEPLUS® TC3-W's plug 'n play flexibility means that your chargers may not need to be replaced when your present trucks or batteries are replaced. LIFEPLUS® TC3-W covers three voltage ranges and a wide range of ampere-hour capacities in one unit – automatically.

LIFEPLUS® TC3-W – High-Frequency, IONIC Smart Charger



2. COLD STORAGE – The LIFEPLUS® TC3-W charger series allows the configuration of the charger for use with batteries in cold storage applications. The profile is an I-E-I charge type (constant current, constant voltage, constant current) with a number of user-configurable parameters.

3. ENVIROLINK™ – The LIFEPLUS® TC3-W charger comes standard with a profile specifically for the HAWKER® ENVIROLINK™ valve-regulated batteries, as well as the industry-standard gel batteries.

4. TPPL – This charge profile uses a 50% start rate, allowing for fast or opportunity charging of Thin Plate Pure Lead batteries. The LIFEPLUS® TC3-W charger has a built-in equalize charge that keeps the battery at the optimum state of charge throughout the day.

5. OPPORTUNITY – When the output of the IONIC profile is not sufficient for satisfactory opportunity charging, the OPPORTUNITY profile may be required. The OPPORTUNITY profile employs a start rate of 25% of battery capacity or the maximum output capacity of the charger, whichever is less (as opposed to 18-20% in the IONIC) for faster return during opportunity charging breaks. The OPPORTUNITY profile may be used in one of two ways:

- **Battery Boss® WC Control** – The BBWC enhances the TC3-W's already elite charging capabilities by collecting vital battery information, which is then processed by the TC3-W to help optimize battery throughput and life expectancy. This data can also be retrieved and analyzed by the user to better manage fleet operations. The BBWC is a compact, wireless electronic device that attaches to the battery and provides real-time data wirelessly to the charger.

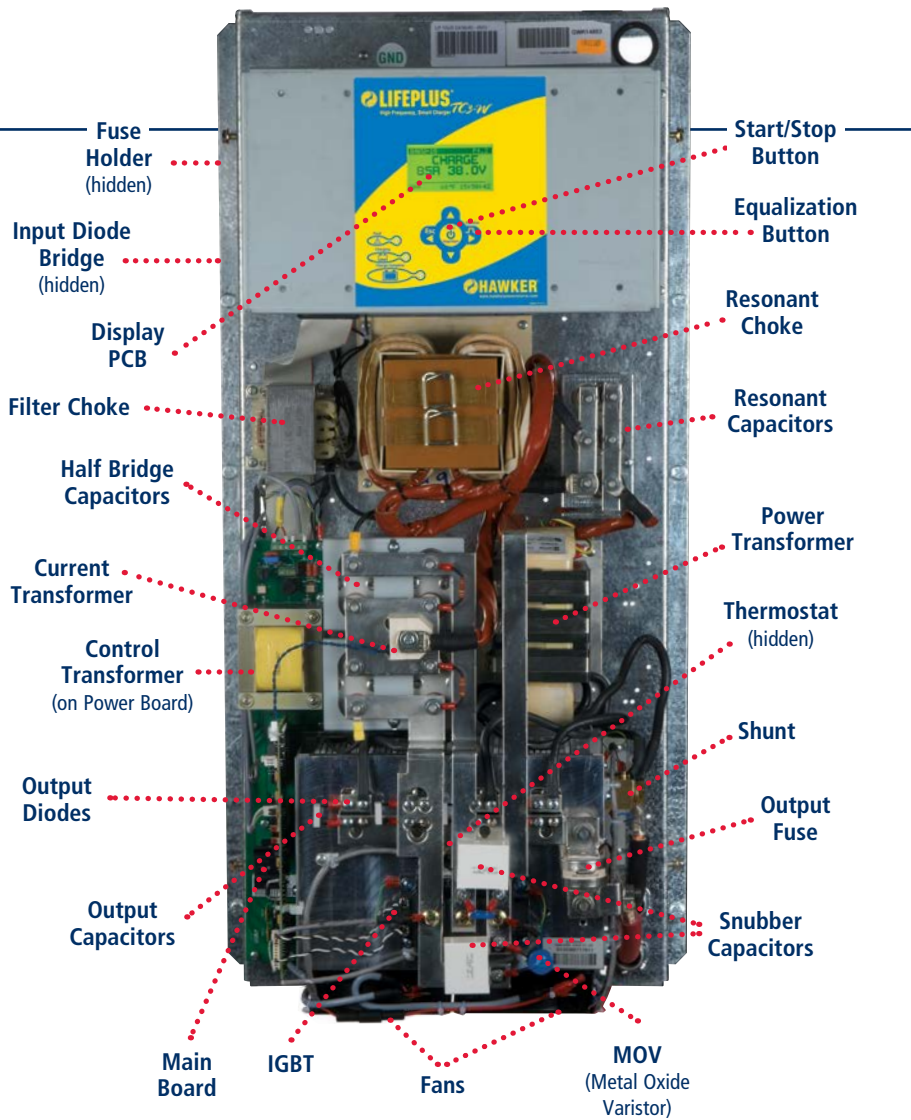
- **Control Panel** – The battery's size may be programmed through the charger's control panel. Please note: this has the disadvantage of making only that battery size suitable for the charger in opportunity mode.

Whether using the Battery Boss® WC or the Control Panel, the charger will only charge up to 80% state of charge during the day and then complete an IONIC finish charge daily, as programmed in the profile set-up.

Other Features

- Built-in USB port to conveniently download charger data and/or upload firmware to modify the charging capabilities from a USB drive.
- Auto cell sizing allows the TC3-W to charge batteries of multiple capacity ranges.
- Built-in, real-time clock automatically adjusts for daylight savings time.
- Programmable delay start, either a period of time after plugged-in or specific time of day
- Auto Equalize feature allows for equalization on multiple days of the week.
- Built-in arc-less circuit reduces arcing during accidental disconnection of connectors.
- Adjustable cable length setting
- Adjustable cable gauge setting

For additional information about HAWKER®'s high-frequency charging solutions, please call **1-877-7HAWKER** for a HAWKER® representative in your area.



THE LIFEPLUS® TC3-W

As the latest generation of high-frequency, IONIC smart charging technology, the TC3-W is backed by more than 25 years of HAWKER®'s high-frequency charging experience.

The LIFEPLUS® TC3-W charger is equipped with wireless capabilities for real-time data collection and monitoring. Its on-site programming functions allow the charger to be custom tailored to each application's specific needs. The LIFEPLUS® charger series features many product advancements and innovations to enhance your business.



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