

Tricom®

FUTUR



Energy. Endurance. Power.

▶ MAXIMUM EFFICIENCY



You can't get any more efficient than this

With the new TriCOM FUTUR, we introduce the first fully resonant switching HF (High Frequency) charging system in the world.

In principle, HF chargers are "switching power supplies", which means that electronic switches are switched on and off at high frequency (50-100 kHz). All HF chargers currently available today have a switching process that is not "full resonant", but "quasi-resonant" or "hard" which inherently leads to power loss during the switching process.

For the new TriCOM Futur we have developed a state-of-the-art charger that is ahead of its time: A new SR-Switching

Technology (Soft Resonance) that guarantees very "soft," lossless, high frequency switching (from 50 kHz to 170 kHz) over the entire operating range of a full charging cycle.

This HF technology is new for charging devices and guarantees a maximum efficiency of up to 97%. In addition, a maximum total charging efficiency is achieved in connection with the improved TriCOM Futur charge characteristics.

In multi-module operation, an innovative, intelligent module activation management also optimizes energy consumption even further during partial load operation and increases the service life.

SR-Switching Technology

▶ EASY TOUCH



Programming with a Touch Display

TriCOM FUTUR resonant frequency Chargers, in addition to the proven "one button" operation, are now available with the new Easy Touch graphic display

Using the Easy Touch resistive touch screen with its clear and structured menus, you can quickly select between 32 different charging programs for different types of batteries and different battery capacities. You can also switch to a set-up mode menu which allows you to program individual parameters.



Simple to use

▶ ECO ENERGY



Intelligent Charging

Our overarching design goal, regardless of whether our products are used individually or in a group, is always to conserve natural resources and reduce the environmental impact.

Regardless of whether the new high efficiency TriCOM FUTUR is used in combination with the patented Futur charging process or the charging station is managed with Total E-Control 4.0, the environment as well as the users benefit equally from innovative and energy, time, cost, and resource-saving system solutions.

The »IONIC Mixing« option has been further improved to reduce power consumption by up to 12%. This results in lower water consumption and therefore the maintenance intervals are significantly extended.

Protect the environment

▶ TOTAL CONTROL



Monitoring and Management System

The new Total E-Control 4.0 wireless monitoring and management system permanently optimizes battery and vehicle usage, and thus saves resources.

The Total E-Control offers the ability to use this proven management system more effectively through an innovative wireless networking capability and it can be selectively expanded using our new monitoring modules.

Combinable System Modules:

- ▶ **next Battery Guard 4.0** - the proven, intelligent monitoring system with wireless networking.
- ▶ **icon Battery Guard 4.0** - now has a new wireless battery controller.
- ▶ **Central monitoring** - of batteries and chargers (can be configured individually).
- ▶ **NetVision** - remote access to batteries and chargers via the Internet/mobile phone network.
- ▶ **ConVision App** - monitoring and scanning function for tablets and smartphones.

Wireless

▶ KEEP COOL



The clean solution

An innovative, “encapsulated active Cooling” system for the power electronics guarantees a longer service life and saves money as well as resources.

The high efficiency of the TriCOM FUTUR with the new SR-Switching Technology simultaneously minimizes heat losses. For this reason, direct active cooling of the electrical system using a fan is not necessary. The passive convection cooling system prevents dirt and grime from penetrating into the device and thus protects the electronic modules. This increases the service life of the charger and significantly minimizes contamination by water, dust, and acid fumes. This permanently reduces service, replacement parts, and material costs.

Passive Cool – Active Save

▶ QUICK CHECK



Service-friendly design

The modular system that has proven itself over many years continues in the new TriCOM FUTUR and is further optimized with Quick Check.

Quick Check allows very effective inspection of the charger and allows quick, time-saving servicing.

The status of the charger and possible application errors can be queried very quickly via ConVision, the Easy Touch display, or the USB interface. When service is required, the service technician has quick access to the charger via the front panel and has at a glance a full overview of the status of the charger controller, the power module, and the power phases available. If necessary, the power modules can be swapped quickly and easily using the new plug-in system on the side panel.

The charger can continue to operate in the "In-Service" mode even when fewer modules are installed.

Service friendly



State of the art charging systems

- ▶ **Maximum energy efficiency with a highest efficiency of up to 97% realized through:**
 - A pioneering multi-resonance converter technology »SR-Switching« for charging devices that is one-of-a-kind in the world.
 - An intelligent activation management system for the charging modules when operating under a partial load (3-phase chargers).
 - Significantly reduced standby power consumption.
 - Optimal TriCOM Futur charge profile with IONIC Mixing.
- ▶ **“In-Service” Operation** - chargers will continue to charge with reduced output even after the removal of individual modules.
- ▶ **Encapsulated cooling** - of the power semiconductors using heat sinks to keep dust and grime to a minimum.

Suitable Battery Types:

- ▶ Lead-Acid Batteries (tubular, flat plate, low-maintenance and maintenance-free).
- ▶ Nickel Cadmium batteries.
- ▶ Lithium-Ion Batteries (optionally available with a CAN interface).
- ▶ Programming of further battery types upon request.

SYSTEM FEATURES

- ▶ **SR-Switching HF (High Frequency) charging system** - High system efficiency of up to 97%.
- ▶ **ECO Energy** - Charging with the highest possible energy efficiency - Intelligent solution for wireless networking – Save resources using an easy-to-install battery monitor.
- ▶ **Graphic Touch Display** - Intuitive operation via a 4.3" multilingual touch screen with a real-time clock and time zone setting.
- ▶ **Plug & Play** - fully automatic with dynamic adjustments based on the battery's age, temperature and state of charge.
- ▶ **Service Messages** - accurate display of all maintenance needs and faults.
- ▶ **Total E-Control 4.0** - wireless monitoring and management system permanently optimizes battery usage and the vehicle management system and thus saves resources.
- ▶ **Quick Check** - quick and easy inspection of the charger using ConVision, USB interface and the touch screen display.
- ▶ **Standard USB interface** - for communication with data media: Update the firmware, Read out the charge history, Activate additional functions and control access to the charger settings.
- ▶ **Ease of Service** - Modular design of the charger with an innovative plug-in technology and a cabinet concept that includes access from the side.
- ▶ **ConVision App** - concise programming and analysis system, stores the last 512 charge events in real time, optimal analysis of your fleet, exact failure mode incident control, provides ability to make battery/charger decisions without additional effort.
- ▶ **Electrical Standards** - TriCOM Futur Chargers comply with all European standards for EMC and electrical safety.
- ▶ **Options: Temperature sensor, Battery Management Counter, IONIC Mixing, Remote control** - high flexibility, ideal for customization and makes economic sense.





TriCOM® FUTUR Charger Models

Type of Charger	Charge Character. / Charge Time / Battery Capacity C6 / [Ah]							AC Input		Weight [lbs]	Type of Cabinet
	Tubular, Flat Plate, PzS				Gel, PzV		Opportunity Charge	V	A		
	6,5 - 7,5 h Futur*	7,5 - 8,5 h Futur*	8,5 - 10,0 h Futur*	10,0 - 14,0 h Futur*	12,0 - 14,0 h	VRLA, GIV 11,0 - 14,0 h					
Z 24 / 40	200 - 250	250 - 320	320 - 400	400 - 500	267 - 333	223 - 334	160 - 200	480	2.8	25	RF 550
Z 24 / 50	250 - 312	313 - 400	400 - 500	500 - 625	334 - 417	278 - 417	200 - 250	480	3.5	25	RF 550
Z 24 / 60	300 - 375	375 - 480	480 - 600	600 - 750	400 - 500	334 - 501	240 - 300	480	4.2	25	RF 550
Z 24 / 70	350 - 437	438 - 560	560 - 700	700 - 875	467 - 583	389 - 583	280 - 350	480	4.8	25	RF 550
Z 24 / 80	400 - 500	500 - 640	640 - 800	800 - 1000	534 - 667	445 - 667	320 - 400	480	5.5	25	RF 550
Z 24 / 90	450 - 562	563 - 720	720 - 900	900 - 1125	600 - 750	500 - 750	360 - 450	480	6.2	25	RF 550
Z 24 / 100	500 - 625	625 - 800	800 - 1000	1000 - 1250	667 - 833	556 - 834	400 - 500	480	6.9	25	RF 550
Z 24 / 110	550 - 687	688 - 880	880 - 1100	1100 - 1375	734 - 917	612 - 918	440 - 550	480	6.4	25	RF 550
Z 24 / 120	600 - 750	750 - 960	960 - 1200	1200 - 1500	800 - 1000	667 - 1000	480 - 600	480	7.0	25	RF 550
Z 24 / 130	650 - 812	813 - 1040	1040 - 1300	1300 - 1625	867 - 1083	723 - 1084	520 - 650	480	7.8	55	RF 550
Z 24 / 140	700 - 875	875 - 1120	1120 - 1400	1400 - 1750	934 - 1167	778 - 1167	560 - 700	480	8.4	55	RF 550
Z 24 / 150	750 - 937	938 - 1200	1200 - 1500	1500 - 1875	1000 - 1250	834 - 1251	600 - 750	480	9.0	55	RF 550
Z 24 / 160	800 - 1000	1000 - 1280	1280 - 1600	1600 - 2000	1067 - 1333	889 - 1333	640 - 800	480	9.6	55	RF 550
Z 24 / 170	850 - 1062	1063 - 1360	1360 - 1700	1700 - 2125	1134 - 1417	945 - 1417	680 - 850	480	10.2	55	RF 550
Z 24 / 180	900 - 1125	1125 - 1440	1440 - 1800	1800 - 2250	1200 - 1500	1000 - 1500	720 - 900	480	10.8	55	RF 550
Z 24 / 190	950 - 1187	1188 - 1520	1520 - 1900	1900 - 2375	1267 - 1583	1056 - 1584	760 - 950	480	11.4	55	RF 550
Z 24 / 200	1000 - 1250	1250 - 1600	1600 - 2000	2000 - 2500	1334 - 1667	1112 - 1668	800 - 1000	480	12.0	55	RF 550
Z 24 / 210	1050 - 1312	1313 - 1680	1680 - 2100	2100 - 2625	1400 - 1750	1167 - 1750	840 - 1050	480	12.6	55	RF 550
Z 24 / 220	1100 - 1375	1375 - 1760	1760 - 2200	2200 - 2750	1467 - 1833	1223 - 1834	880 - 1100	480	11.1	55	RF 550
Z 24 / 230	1150 - 1437	1438 - 1840	1840 - 2300	2300 - 2875	1534 - 1917	1278 - 1917	920 - 1150	480	11.6	55	RF 550
Z 24 / 240	1200 - 1500	1500 - 1920	1920 - 2400	2400 - 3000	1600 - 2000	1334 - 2001	960 - 1200	480	12.1	55	RF 550
Z 24 / 250	1250 - 1562	1563 - 2000	2000 - 2500	2500 - 3125	1667 - 2083	1389 - 2083	1000 - 1250	480	12.6	55	RF 550
D 24 / 260	1300 - 1625	1625 - 2080	2080 - 2600	2600 - 3250	1734 - 2167	1445 - 2167	1040 - 1300	480	10.4	68	RF 550
D 24 / 270	1350 - 1687	1688 - 2160	2160 - 2700	2700 - 3375	1800 - 2250	1500 - 2250	1080 - 1350	480	10.8	68	RF 550
D 24 / 280	1400 - 1750	1750 - 2240	2240 - 2800	2800 - 3500	1867 - 2333	1556 - 2334	1120 - 1400	480	11.2	68	RF 550
D 24 / 290	1450 - 1812	1813 - 2320	2320 - 2900	2900 - 3625	1934 - 2417	1612 - 2418	1160 - 1450	480	11.6	68	RF 550
D 24 / 300	1500 - 1875	1875 - 2400	2400 - 3000	3000 - 3750	2000 - 2500	1667 - 2500	1200 - 1500	480	12.0	68	RF 550
Z 36/48 / 30	175 - 218	219 - 280	280 - 350	350 - 437	234 - 292	195 - 292	120 - 150	480	3.1/4.1	25	RF 550
Z 36/48 / 40	200 - 250	250 - 320	320 - 400	400 - 500	267 - 333	223 - 334	160 - 200	480	4.1/5.4	25	RF 550
Z 36/48 / 50	250 - 312	313 - 400	400 - 500	500 - 625	334 - 417	278 - 417	200 - 250	480	5.1/6.8	25	RF 550
Z 36/48 / 60	300 - 375	375 - 480	480 - 600	600 - 750	400 - 500	334 - 501	240 - 300	480	6.1/6.8	25	RF 550
Z 36/48 / 70	350 - 437	438 - 560	560 - 700	700 - 875	467 - 583	389 - 583	280 - 350	480	6.2/8.2	55	RF 550
Z 36/48 / 80	400 - 500	500 - 640	640 - 800	800 - 1000	534 - 667	445 - 667	320 - 400	480	7.1/9.4	55	RF 550
Z 36/48 / 90	450 - 562	563 - 720	720 - 900	900 - 1125	600 - 750	500 - 750	360 - 450	480	8.0/10.6	55	RF 550
Z 36/48 / 100	500 - 625	625 - 800	800 - 1000	1000 - 1250	667 - 833	556 - 834	400 - 500	480	8.9/11.8	55	RF 550
Z 36/48 / 110	550 - 687	688 - 880	880 - 1100	1100 - 1375	734 - 917	612 - 918	440 - 550	480	9.8/12.9	55	RF 550
Z 36/48 / 120	600 - 750	750 - 960	960 - 1200	1200 - 1500	800 - 1000	667 - 1000	480 - 600	480	10.7/11.8	55	RF 550
D 36/48 / 130	650 - 812	813 - 1040	1040 - 1300	1300 - 1625	867 - 1083	723 - 1084	520 - 650	480	11.5/12.8	55	RF 550
D 36/48 / 140	700 - 875	875 - 1120	1120 - 1400	1400 - 1750	934 - 1167	778 - 1167	560 - 700	480	8.3/11.0	68	RF 550
D 36/48 / 150	750 - 937	938 - 1200	1200 - 1500	1500 - 1875	1000 - 1250	834 - 1251	600 - 750	480	8.9/11.8	68	RF 550
D 36/48 / 160	800 - 1000	1000 - 1280	1280 - 1600	1600 - 2000	1067 - 1333	889 - 1333	640 - 800	480	9.5/12.5	68	RF 550
D 36/48 / 170	850 - 1062	1063 - 1360	1360 - 1700	1700 - 2125	1134 - 1417	945 - 1417	680 - 850	480	10.1/11.1	68	RF 550
D 36/48 / 180	900 - 1125	1125 - 1440	1440 - 1800	1800 - 2250	1200 - 1500	1000 - 1500	720 - 900	480	10.7/11.8	68	RF 550
D 36/48 / 190	950 - 1187	1188 - 1520	1520 - 1900	1900 - 2375	1267 - 1583	1056 - 1584	760 - 950	480	11.2/12.5	68	RF 550
D 36/48 / 200	1000 - 1250	1250 - 1600	1600 - 2000	2000 - 2500	1334 - 1667	1112 - 1668	800 - 1000	480	13.6/18.0	108	RF 560
D 36/48 / 210	1050 - 1312	1313 - 1680	1680 - 2100	2100 - 2625	1400 - 1750	1167 - 1750	840 - 1050	480	14.2/18.9	108	RF 560
D 36/48 / 220	1100 - 1375	1375 - 1760	1760 - 2200	2200 - 2750	1467 - 1833	1223 - 1834	880 - 1100	480	14.9/19.8	108	RF 560
D 36/48 / 230	1150 - 1437	1438 - 1840	1840 - 2300	2300 - 2875	1534 - 1917	1278 - 1917	920 - 1150	480	15.6/17.3	108	RF 560
D 36/48 / 240	1200 - 1500	1500 - 1920	1920 - 2400	2400 - 3000	1600 - 2000	1334 - 2001	960 - 1200	480	16.3/18.0	108	RF 560
D 36/48 / 250	1250 - 1562	1563 - 2000	2000 - 2500	2500 - 3125	1667 - 2083	1389 - 2083	1000 - 1250	480	16.9/18.8	108	RF 560
D 36/48 / 260	1300 - 1625	1625 - 2080	2080 - 2600	2600 - 3250	1734 - 2167	1445 - 2167	1040 - 1300	480	17.6/19.5	108	RF 560
D 36/48 / 270	1350 - 1687	1688 - 2160	2160 - 2700	2700 - 3375	1800 - 2250	1500 - 2250	1080 - 1350	480	19.2/25.4	121	RF 650
D 36/48 / 280	1400 - 1750	1750 - 2240	2240 - 2800	2800 - 3500	1867 - 2333	1556 - 2334	1120 - 1400	480	19.9/22.0	121	RF 650
D 36/48 / 290	1450 - 1812	1813 - 2320	2320 - 2900	2900 - 3625	1934 - 2417	1612 - 2418	1160 - 1450	480	20.6/22.8	121	RF 650
D 36/48 / 300	1500 - 1875	1875 - 2400	2400 - 3000	3000 - 3750	2000 - 2500	1667 - 2500	1200 - 1500	480	21.3/23.6	121	RF 650

Type of Charger	Charge Character. / Charge Time / Battery Capacity C6 / [Ah]							AC Input		Weight [lbs]	Type of Cabinet
	Tubular, Flat Plate, PzS				Gel, PzV	VRLA, GIV	Opportunity Charge	V	A		
	6,5 - 7,5 h Futur*	7,5 - 8,5 h Futur*	8,5 - 10,0 h Futur*	10,0 - 14,0 h Futur*	12,0 - 14,0 h	11,0 - 14,0 h					
Z 72/80 / 10	50 - 62	63 - 80	80 - 100	100 - 125	67 - 83	56 - 84	40 - 50	480	2.0/2.2	25	RF 550
Z 72/80 / 20	100 - 125	125 - 160	160 - 200	200 - 250	134 - 167	112 - 168	80 - 100	480	4.0/4.5	25	RF 550
Z 72/80 / 30	150 - 187	188 - 240	240 - 300	300 - 375	200 - 250	167 - 250	120 - 150	480	6.1/6.7	25	RF 550
Z 72/80 / 40	200 - 250	250 - 320	320 - 400	400 - 500	267 - 333	223 - 334	160 - 200	480	7.0/7.5	25	RF 550
Z 72/80 / 50	250 - 312	313 - 400	400 - 500	500 - 625	334 - 417	278 - 417	200 - 250	480	8.8/9.7	55	RF 550
Z 72/80 / 60	300 - 375	375 - 480	480 - 600	600 - 750	400 - 500	334 - 501	240 - 300	480	10.5/11.7	55	RF 550
Z 72/80 / 65	325 - 406	407 - 520	520 - 650	650 - 812	434 - 542	362 - 543	260 - 325	480	11.4/12.6	55	RF 550
Z 72/80 / 70	350 - 437	438 - 560	560 - 700	700 - 875	467 - 583	389 - 583	280 - 350	480	12.3/11.4	55	RF 550
Z 72/80 / 80	400 - 500	500 - 640	640 - 800	800 - 1000	534 - 667	445 - 667	320 - 400	480	11.7/13.0	55	RF 550
D 72/80 / 90	450 - 562	563 - 720	720 - 900	900 - 1125	600 - 750	500 - 750	360 - 450	480	10.5/11.7	68	RF 550
D 72/80 / 100	500 - 625	625 - 800	800 - 1000	1000 - 1250	667 - 833	556 - 834	400 - 500	480	11.7/13.0	68	RF 550
D 72/80 / 110	550 - 687	688 - 880	880 - 1100	1100 - 1375	734 - 917	612 - 918	440 - 550	480	12.8/11.9	68	RF 550
D 72/80 / 120	600 - 750	750 - 960	960 - 1200	1200 - 1500	800 - 1000	667 - 1000	480 - 600	480	11.7/13.0	68	RF 550
D 72/80 / 130	650 - 812	813 - 1040	1040 - 1300	1300 - 1625	867 - 1083	723 - 1084	520 - 650	480	17.4/19.3	108	RF 560
D 72/80 / 140	700 - 875	875 - 1120	1120 - 1400	1400 - 1750	934 - 1167	778 - 1167	560 - 700	480	18.7/17.4	108	RF 560
D 72/80 / 150	750 - 937	938 - 1200	1200 - 1500	1500 - 1875	1000 - 1250	834 - 1251	600 - 750	480	16.8/18.6	108	RF 560
D 72/80 / 160	800 - 1000	1000 - 1280	1280 - 1600	1600 - 2000	1067 - 1333	889 - 1333	640 - 800	480	17.9/19.8	108	RF 560
D 72/80 / 170	850 - 1062	1063 - 1360	1360 - 1700	1700 - 2125	1134 - 1417	945 - 1417	680 - 850	480	23.8/22.1	121	RF 650
D 72/80 / 180	900 - 1125	1125 - 1440	1440 - 1800	1800 - 2250	1200 - 1500	1000 - 1500	720 - 900	480	25.2/23.4	121	RF 650
D 72/80 / 190	950 - 1187	1188 - 1520	1520 - 1900	1900 - 2375	1267 - 1583	1056 - 1584	760 - 950	480	22.2/24.7	121	RF 650
D 72/80 / 200	1000 - 1250	1250 - 1600	1600 - 2000	2000 - 2500	1334 - 1667	1112 - 1668	800 - 1000	480	23.4/26.0	121	RF 650
D 72/80 / 210	1050 - 1312	1313 - 1680	1680 - 2100	2100 - 2625	1400 - 1750	1167 - 1750	840 - 1050	480	24.5/22.7	134	RF 650
D 72/80 / 220	1100 - 1375	1375 - 1760	1760 - 2200	2200 - 2750	1467 - 1833	1223 - 1834	880 - 1100	480	25.7/23.8	134	RF 650
D 72/80 / 230	1150 - 1437	1438 - 1840	1840 - 2300	2300 - 2875	1534 - 1917	1278 - 1917	920 - 1150	480	22.4/24.9	134	RF 650
D 72/80 / 240	1200 - 1500	1500 - 1920	1920 - 2400	2400 - 3000	1600 - 2000	1334 - 2001	960 - 1200	480	23.4/26.0	134	RF 650
D 72/80 / 250	1250 - 1562	1563 - 2000	2000 - 2500	2500 - 3125	1667 - 2083	1389 - 2083	1000 - 1250	480	31.5/29.2	163	RF 750
D 72/80 / 260	1300 - 1625	1625 - 2080	2080 - 2600	2600 - 3250	1734 - 2167	1445 - 2167	1040 - 1300	480	27.4/30.3	163	RF 750
D 72/80 / 270	1350 - 1687	1688 - 2160	2160 - 2700	2700 - 3375	1800 - 2250	1500 - 2250	1080 - 1350	480	28.4/31.5	163	RF 750
D 72/80 / 280	1400 - 1750	1750 - 2240	2240 - 2800	2800 - 3500	1867 - 2333	1556 - 2334	1120 - 1400	480	29.5/32.7	163	RF 750
D 72/80 / 290	1450 - 1812	1813 - 2320	2320 - 2900	2900 - 3625	1934 - 2417	1612 - 2418	1160 - 1450	480	38.1/35.3	187	RF 950
D 72/80 / 300	1500 - 1875	1875 - 2400	2400 - 3000	3000 - 3750	2000 - 2500	1667 - 2500	1200 - 1500	480	32.9/36.5	187	RF 950

* TriCOM FUTUR utilizes a patented European charge curve that effectively provides an extremely smooth and efficient battery charge.

Type of Cabinet	Width	Depth	Height
RF 550	16.9 in	14.0 in	16.3 in
RF 560	16.9 in	14.0 in	20.5 in
RF 650	16.9 in	14.0 in	28.9 in
RF 750	16.9 in	14.0 in	33.1 in
RF 950	16.9 in	14.0 in	45.5 in



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