

# Tricom®

## ▶ FUTUR smart / FUTUR mini



**Energy. Endurance. Power.**

# ▶ TriCOM® FUTUR smart and TriCOM® FUTUR mini



## Two strong performers

Innovative high-frequency (HF) charging technology found in two strong performers – TriCOM FUTUR smart and TriCOM FUTUR mini. The TriCOM FUTUR charger series for traction and block-type batteries features a highly integrated circuit technology. TriCOM FUTUR chargers do not operate with conventional thyristors, but with clocked driver circuit semiconductors.

User-friendly, compact and stable cabinets ensure trouble-free operation and facilitate ease of use. The electronic charging system is controlled by a microprocessor which monitors the charging process and ensures an optimally charged battery. Overall quality, quality assurance and continuous improvement are of highest priority and guarantee a market leading charging system.

## Conservation of resources

As a result of an improved efficiency compared to conventional chargers, the energy consumption is reduced by up to 20%.

The TriCOM FUTUR series chargers feature the **FUTUR charge curve**: A patented charging profile for dynamic, particularly “soft” charging - regardless of the battery type, battery age and state of charge.

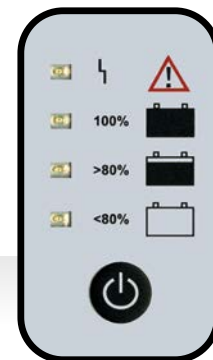
## SYSTEM FEATURES

- ▶ **Deep discharge software start function** from 0.5 V / cell - corresponds to 1/4 of the nominal battery voltage.
- ▶ **Very high efficiency** - energy costs reduced by up to 20%.
- ▶ **Low residual ripple** - significantly lower heating of the battery during charge.
- ▶ **Greatly reduced volume and weight** - small space requirement, on-board ability.
- ▶ **Status display** - traffic light function with high-performance LEDs (visible from a distance).
- ▶ **ConVision** - compact programming and analysis system, storage of the last 256 charging data sets, optimum analysis possibility for your vehicle fleet, exact error checking in the event of a fault, read-out option without additional work.
- ▶ **Fully automatic charging process** - Plug & Play for all battery states of discharge.
- ▶ **Programmable charger curves** - one device for all battery technologies, optimized setting for each application.
- ▶ **Electrical safety to EN standards** - safe operation in all applications.
- ▶ **Optimum use** - minimum reactive power consumption, sine wave mains current consumption, no negative system disturbances.
- ▶ **Options** - high flexibility, ideal adaptation possible, investment security. Details of the options are available on request.

Charger TriCOM FUTUR smart



Graphic display TriCOM FUTUR smart



Charger TriCOM FUTUR mini





# Tricom® FUTUR mini table of types

Device type	Charging times depending on capacity C5 in Ah						Mains connection		Weight in kg	Housing type
	PzS				PzV	GIV	AC	Plug		
	6.5 - 7.5 h	7.5 - 8.5 h	8.5 - 10.0 h	10.0 - 14.0 h	12.0 - 14.0 h	11.0 - 14.0 h				
<b>12 V</b>										
E 12 / 2	10 - 13	13 - 16	16 - 20	20 - 25	13 - 17	11 - 17	E 230	round pin attachment / EURO	1.5	HF 90
E 12 / 3	15 - 19	19 - 24	24 - 30	30 - 38	20 - 25	17 - 25	E 230	round pin attachment / EURO	1.5	HF 90
E 12 / 4	20 - 25	25 - 32	32 - 40	40 - 50	27 - 33	22 - 33	E 230	round pin attachment / EURO	1.5	HF 90
E 12 / 5	25 - 31	31 - 40	40 - 50	50 - 63	33 - 42	28 - 42	E 230	round pin attachment / EURO	1.5	HF 90
E 12 / 6	30 - 38	38 - 48	48 - 60	60 - 75	40 - 50	33 - 50	E 230	round pin attachment / EURO	1.5	HF 90
E 12 / 8	40 - 50	50 - 64	64 - 80	80 - 100	53 - 67	44 - 67	E 230	round pin attachment / EURO	1.5	HF 90
E 12 / 10	50 - 63	63 - 80	80 - 100	100 - 125	67 - 83	56 - 83	E 230	round pin attachment / EURO	1.5	HF 90
E 12 / 12	60 - 75	75 - 96	96 - 120	120 - 150	80 - 100	67 - 100	E 230	round pin attachment / EURO	1.5	HF 90
E 12 / 13	65 - 81	81 - 104	104 - 130	130 - 163	87 - 108	72 - 108	E 230	round pin attachment / EURO	1.5	HF 90
E 12 / 15	75 - 94	94 - 120	120 - 150	150 - 188	100 - 125	83 - 125	E 230	round pin attachment / EURO	1.5	HF 90
<b>24 V</b>										
E 24 / 3	15 - 19	19 - 24	24 - 30	30 - 38	20 - 25	17 - 25	E 230	round pin attachment / EURO	1.5	HF 90
E 24 / 4	20 - 25	25 - 32	32 - 40	40 - 50	27 - 33	22 - 33	E 230	round pin attachment / EURO	1.5	HF 90
E 24 / 5	25 - 31	31 - 40	40 - 50	50 - 63	33 - 42	28 - 42	E 230	round pin attachment / EURO	1.5	HF 90
E 24 / 6	30 - 38	38 - 48	48 - 60	60 - 75	40 - 50	33 - 50	E 230	round pin attachment / EURO	1.5	HF 90
E 24 / 8	40 - 50	50 - 64	64 - 80	80 - 100	53 - 67	44 - 67	E 230	round pin attachment / EURO	1.5	HF 90
E 24 / 10	50 - 63	63 - 80	80 - 100	100 - 125	67 - 83	56 - 83	E 230	round pin attachment / EURO	1.5	HF 90
E 24 / 12	60 - 75	75 - 96	96 - 120	120 - 150	80 - 100	67 - 100	E 230	round pin attachment / EURO	1.5	HF 90
E 24 / 13	65 - 81	81 - 104	104 - 130	130 - 163	87 - 108	72 - 108	E 230	round pin attachment / EURO	1.5	HF 90
E 24 / 15	75 - 94	94 - 120	120 - 150	150 - 188	100 - 125	83 - 125	E 230	round pin attachment / EURO	1.5	HF 90
<b>36 V</b>										
E 36 / 4	20 - 25	25 - 32	32 - 40	40 - 50	27 - 33	22 - 33	E 230	round pin attachment / EURO	1.5	HF 90
E 36 / 6	30 - 38	38 - 48	48 - 60	60 - 75	40 - 50	33 - 50	E 230	round pin attachment / EURO	1.5	HF 90
E 36 / 8	40 - 50	50 - 64	64 - 80	80 - 100	53 - 67	44 - 67	E 230	round pin attachment / EURO	1.5	HF 90
<b>48 V</b>										
E 48 / 4	20 - 25	25 - 32	32 - 40	40 - 50	27 - 33	22 - 33	E 230	round pin attachment / EURO	1.5	HF 90
E 48 / 6	30 - 38	38 - 48	48 - 60	60 - 75	40 - 50	33 - 50	E 230	round pin attachment / EURO	1.5	HF 90
E 48 / 8	40 - 50	50 - 64	64 - 80	80 - 100	53 - 67	44 - 67	E 230	round pin attachment / EURO	1.5	HF 90

Housing type	Width	Height	Depth
HF 90	180 mm	115 mm	70 mm

# Tricom® FUTUR mini care table of types

Device type	Charging times depending on capacity C5 in Ah						Mains connection		Weight in kg	Housing type
	PzS				PzV	GIV	AC	Plug		
	6.5 - 7.5 h	7.5 - 8.5 h	8.5 - 10.0 h	10.0 - 14.0 h	12.0 - 14.0 h	11.0 - 14.0 h				
<b>24 V B65FP with 3-pin XLR plug</b>										
E 24 / 8 active	40 - 50	50 - 64	64 - 80	80 - 100	53 - 67	44 - 67	E 230	round pin attachment / EURO	1.5	HF 90
E 24 / 12 active	60 - 75	75 - 96	96 - 120	120 - 150	80 - 100	67 - 100	E 230	round pin attachment / EURO	1.5	HF 90
<b>24 V B70FP with 3-pin XLR plug</b>										
E 24 / 8 passive	40 - 50	50 - 64	64 - 80	80 - 100	53 - 67	44 - 67	E 230	round pin attachment / EURO	1.5	HF 90
E 24 / 12 passive	60 - 75	75 - 96	96 - 120	120 - 150	80 - 100	67 - 100	E 230	round pin attachment / EURO	1.5	HF 90

Housing type	Width	Height	Depth
HF 90	180 mm	115 mm	70 mm
HF 70	220 mm	86 mm	130 mm

# TriCOM<sup>®</sup> FUTUR smart table of types

Device type	Charging times depending on capacity C5 in Ah						Mains connection			Weight in kg	Housing type
	PzS				PzV	GIV	AC	Plug	kVA		
	6.5 - 7.5 h	7.5 - 8.5 h	8.5 - 10.0 h	10.0 - 14.0 h	12.0 - 14.0 h	11.0 - 14.0 h					
<b>12 V</b>											
E 12 / 6	30 - 38	38 - 48	48 - 60	60 - 75	40 - 50	33 - 50	E 230	Schuko	0.104	3.0	HF 180
E 12 / 8	40 - 50	50 - 64	64 - 80	80 - 100	53 - 67	44 - 67	E 230	Schuko	0.139	3.0	HF 180
E 12 / 10	50 - 63	63 - 80	80 - 100	100 - 125	67 - 83	56 - 83	E 230	Schuko	0.173	3.0	HF 180
E 12 / 12	60 - 75	75 - 96	96 - 120	120 - 150	80 - 100	67 - 100	E 230	Schuko	0.208	3.0	HF 180
E 12 / 15	75 - 94	94 - 120	120 - 150	150 - 188	100 - 125	83 - 125	E 230	Schuko	0.260	3.0	HF 180
E 12 / 20	100 - 125	125 - 160	160 - 200	200 - 250	133 - 167	111 - 167	E 230	Schuko	0.347	3.0	HF 180
E 12 / 25	125 - 156	156 - 200	200 - 250	250 - 313	167 - 208	139 - 208	E 230	Schuko	0.433	3.0	HF 180
E 12 / 30	150 - 188	188 - 240	240 - 300	300 - 375	200 - 250	167 - 250	E 230	Schuko	0.520	3.0	HF 180
E 12 / 35	175 - 219	219 - 280	280 - 350	350 - 438	233 - 292	195 - 292	E 230	Schuko	0.607	3.0	HF 180
E 12 / 40	200 - 250	250 - 320	320 - 400	400 - 500	267 - 333	222 - 333	E 230	Schuko	0.693	3.5	HF 190
E 12 / 50	250 - 313	313 - 400	400 - 500	500 - 625	334 - 417	278 - 417	E 230	Schuko	0.867	3.5	HF 190
<b>24 V</b>											
E 24 / 6	30 - 38	38 - 48	48 - 60	60 - 75	40 - 50	33 - 50	E 230	Schuko	0.200	3.0	HF 180
E 24 / 8	40 - 50	50 - 64	64 - 80	80 - 100	53 - 67	44 - 67	E 230	Schuko	0.267	3.0	HF 180
E 24 / 10	50 - 63	63 - 80	80 - 100	100 - 125	67 - 83	56 - 83	E 230	Schuko	0.333	3.0	HF 180
E 24 / 12	60 - 75	75 - 96	96 - 120	120 - 150	80 - 100	67 - 100	E 230	Schuko	0.400	3.0	HF 180
E 24 / 15	75 - 94	94 - 120	120 - 150	150 - 188	100 - 125	83 - 125	E 230	Schuko	0.500	3.0	HF 180
E 24 / 20	100 - 125	125 - 160	160 - 200	200 - 250	133 - 167	111 - 167	E 230	Schuko	0.667	3.0	HF 180
E 24 / 25	125 - 156	156 - 200	200 - 250	250 - 313	167 - 208	139 - 208	E 230	Schuko	0.833	3.0	HF 180
E 24 / 30	150 - 188	188 - 240	240 - 300	300 - 375	200 - 250	167 - 250	E 230	Schuko	1.000	3.0	HF 180
E 24 / 35	175 - 219	219 - 280	280 - 350	350 - 438	233 - 292	195 - 292	E 230	Schuko	1.167	3.0	HF 180
E 24 / 40	200 - 250	250 - 320	320 - 400	400 - 500	267 - 333	222 - 333	E 230	Schuko	1.333	3.5	HF 190
E 24 / 50	250 - 313	313 - 400	400 - 500	500 - 625	334 - 417	278 - 417	E 230	Schuko	1.667	3.5	HF 190
E 24 / 60	300 - 375	375 - 480	480 - 600	600 - 750	400 - 500	335 - 500	E 230	Schuko	2.000	10	HF 450
E 24 / 65	325 - 407	407 - 520	520 - 650	650 - 812	434 - 542	362 - 543	E 230	Schuko	2.170	10	HF 450
E 24 / 70	350 - 438	438 - 560	560 - 700	700 - 875	467 - 583	389 - 583	E 230	Schuko	2.330	10	HF 450
E 24 / 75	375 - 469	469 - 600	600 - 75	750 - 937	500 - 625	417 - 625	E 230	Schuko	2.500	10	HF 450
E 24 / 80	400 - 500	500 - 640	640 - 800	800 - 1000	534 - 667	445 - 667	E 230	Schuko	2.670	10	HF 450
<b>36 V</b>											
E 36 / 10	50 - 63	63 - 80	80 - 100	100 - 125	67 - 83	56 - 83	E 230	Schuko	0.493	3.0	HF 180
E 36 / 12	60 - 75	75 - 96	96 - 120	120 - 150	80 - 100	67 - 100	E 230	Schuko	0.592	3.0	HF 180
E 36 / 15	75 - 94	94 - 120	120 - 150	150 - 188	100 - 125	83 - 125	E 230	Schuko	0.740	3.0	HF 180
E 36 / 20	100 - 125	125 - 160	160 - 200	200 - 250	133 - 167	111 - 167	E 230	Schuko	0.987	3.0	HF 180
E 36 / 25	125 - 156	156 - 200	200 - 250	250 - 313	167 - 208	139 - 208	E 230	Schuko	1.233	3.5	HF 190
E 36 / 30	150 - 188	188 - 240	240 - 300	300 - 375	200 - 250	167 - 250	E 230	Schuko	1.480	3.5	HF 190
E 36 / 35	175 - 219	219 - 280	280 - 350	350 - 438	233 - 292	195 - 292	E 230	Schuko	1.727	3.5	HF 190
E 36 / 40	200 - 250	250 - 320	320 - 400	400 - 500	267 - 333	222 - 333	E 230	Schuko	1.973	3.5	HF 190
<b>48 V</b>											
E 48 / 10	50 - 63	63 - 80	80 - 100	100 - 125	67 - 83	56 - 83	E 230	Schuko	0.653	3.0	HF 180
E 48 / 12	60 - 75	75 - 96	96 - 120	120 - 150	80 - 100	67 - 100	E 230	Schuko	0.784	3.0	HF 180
E 48 / 15	75 - 94	94 - 120	120 - 150	150 - 188	100 - 125	83 - 125	E 230	Schuko	0.980	3.0	HF 180
E 48 / 20	100 - 125	125 - 160	160 - 200	200 - 250	133 - 167	111 - 167	E 230	Schuko	1.307	3.5	HF 190
E 48 / 25	125 - 156	156 - 200	200 - 250	250 - 313	167 - 208	139 - 208	E 230	Schuko	1.633	3.5	HF 190
E 48 / 30	150 - 188	188 - 240	240 - 300	300 - 375	200 - 250	167 - 250	E 230	Schuko	1.960	3.5	HF 190

Housing type	Width	Height	Depth
HF 180	262 mm	92 mm	164 mm
HF 190	262 mm	112 mm	164 mm
HF 450	430 mm	256 mm	115 mm



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