

TekSea®

TEKCHARGER SWM

Technical Catalog

24VDC Switched Battery Charger



High-Frequency Technology for Marine and Industrial Applications

- Energy efficiency greater than 96%
- High-frequency switching technology
- Hot-swappable maintenance without system shutdown
- Wide input range: 85 to 300 VAC
- Compliant with DNV, ABS, RINA, LR, BV, and RBNA

Introduction and Overview

High-Frequency Switched Battery Charger

The **TECHARGER SWM** line of Battery Charger Rectifiers features high-frequency switching technology, providing a significant improvement in energy efficiency compared to the traditional thyristor-based line. Combined with a compact design, high energy efficiency, and modularity, these features make this a differentiated product for professional applications.

Main Applications:

- Automation and safety systems (SAS)
- Protection and control of electrical systems
- Navigation and communication systems installed onboard ships
- Batteries for MCP and MCA starting systems
- Industrial and offshore facilities

Compliance with Classification Societies:

- DNV (Det Norske Veritas)
- ABS (American Bureau of Shipping)
- RINA (Registro Italiano Navale)
- BV (Bureau Veritas)
- RBNA (Registro Bras. Navios e Aeronaves)



FEATURES

High Energy Efficiency

- Efficiency greater than 96%
- High-frequency switching technology
- Significant reduction in energy losses
- Reduced heat generation

Compact and Modular Design

- High power-density modules (39 W/in³)
- Saves space and installation costs
- Facilitates integration into electrical panels and electrical cabinets
- Two size options (N1 and N2)

Simplified Maintenance

- Front access for safe maintenance
- Hot-swap: fast hot maintenance (on-line)
- Replaceable modules without shutting down the system
- Reduced downtime

Electronic Protection:

- Reverse-polarity protection
- Short-circuit protection

Advanced Charge Management

- Intelligent battery charging
- Protection against overcharging and deep discharge
- Three charging stages (Bulk, Absorption, Float)

Wide Operating Range

- Input: 85–300 VAC
- Stable operation even with power-grid fluctuations
- Compatible with generators and unstable

Flexible Remote Monitoring

- RS485 interface
- SNMP Ethernet
- Integration with SCADA systems
- Remote control and monitoring



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CONTROLLER I MC480

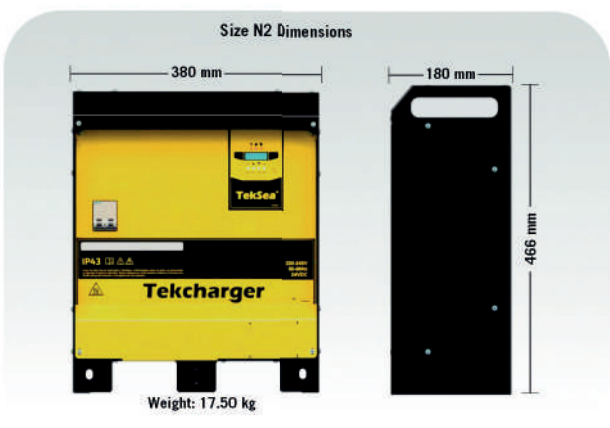
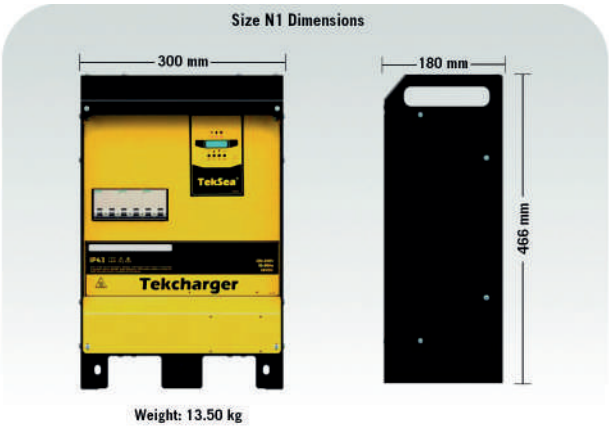
User Interface	LCD display with real-time information	
	Status indicator LEDs	Green: System on Yellow: Alert Red: Alarm
Inputs and Output	Analog inputs	3 AI
	Digital inputs	8 DI (with SPD protection)
	Alarm outputs	6 dry contacts (relays)
Communication	RS485 port (Modbus RTU)	
	SNMP Ethernet	
	Standard industrial protocols	
	Integration with supervisory	
Control Functions	Voltage and current monitoring	
	Charge stage control	
	Programmable alarms	
	Event logging (data logger)	

GENERAL SPECIFICATIONS BY MODEL

24V / 40A, 60A, 80A Models - Size N1 (C1B1)			
General Specifications	24V / 40A	24V / 60A	24V / 80A
Input	230V 2F 60Hz	230V 2F 60Hz	230V 2F 60Hz
Current	40A @ 28.8V	60A @ 28.8V	80A @ 28.8V
Output	26.5 ~ 28.8V	26.5 ~ 28.8V	26.5 ~ 28.8V
ALP Dim.	466x300x180	466x300x180	466x300x180
Weight	13,50 kg	13,50 kg	13,50 kg
24V / 120A, 140A, 160A Models - Size N2 (C1B1)			
General Specifications	24V / 120A	24V / 140A	24V / 160A
Input	230V 2F 60Hz	230V 2F 60Hz	230V 2F 60Hz
Current	120A @ 28.8V	140A @ 28.8V	160A @ 28.8V
Output	26.5 ~ 28.8V	26.5 ~ 28.8V	26.5 ~ 28.8V
ALP Dim.	466x380x180	466x380x180	466x380x180
Weight	17,50 kg	17,50 kg	17,50 kg



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Nomenclature System

APPLICATION TYPE

STD = Standard (Industrial)
STL = Standard Marine
(Aplicações marítimas)
HDP = Heavy Duty Performance

SIZE AND FINISH

BG = Black cover + Gray front
BY = Black cover + Yellow front
BW = Black cover + White front

POWER

24V020 = 24VCC, 20 Amperes
24V040 = 24VCC, 40 Amperes
24V160 = 24VCC, 160 Amperes

OUTPUT CONFIGURATION

C1 = 1 output for load
C2 = 2 outputs for loads
B1 = 1 battery bank
B2 = 2 battery banks
(diode-isolated)

OPTIONS

ELD = Earth Leakage Detector (Earth leakage detector)

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STL Application

Available Digital Outputs (Dry Contacts)

Output	Function	Description
D01	General Alarm	Any active alarm condition
D02	Positive Leakage	Detection of earth leakage on the positive pole
D03	Negative Leakage	Detection of earth leakage on the negative pole
D04	Input Trip	Failure in the AC input power supply
D05	Consumer Output Trip	Overload or failure at the consumer output
D06	Battery Output Trip	Overload or failure at the battery output



Earth Leakage Detector (ELD)

Earth Leakage Detector - Optional

Detects leakage currents between the DC system and ground, essential for:

- Protection of sensitive electronic equipment
- Prevention of galvanic corrosion in vessels
- Early detection of insulation faults

Sensitivity:

- Adjustable according to application
- Visual alarm and dry-contact alarm

Temperature Compensation

Recommended for temperature-compensated charge control, allowing the charging voltage to be adjusted according to the ambient temperature, ensuring greater battery reliability and service life.

For this function, an interface kit with a temperature sensor is required, which will be installed in the battery room.



Centralized Data Storage

All instrument data is connected to an interface with several available channels that will feed the CORE BOX CB3000 database. Through a dedicated Ethernet port on the CB3000, it will also be possible to store data originating from another database (Tekmation System IAMCS).

The TEKMDS system will provide data export access to external media through a dedicated Ethernet port for data transmission to a server with a remote database.

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TECHNICAL SPECIFICATIONS

AC INPUT	Input mode	220VAC (range: 85VAC ~ 300VAC)
	Frequency	50Hz/60Hz (45 ~ 65Hz)
	Power factor	≥ 0.99
	THD (Total Harmonic Distortion)	≤ 5%
	AC surge protection (SPD)	20kA/40kA, 8/20 μs
DC OUTPUT	Output voltage	22 ~ 29 VDC (adjustable)
	Maximum capacity	up to 160A
	Battery capacity	up to 1,600Ah
	Load circuits	customized according to requirements
	DC surge protection (SPD)	10kA/20kA, 8/20 μs
ENVIRONMENTAL CONDITIONS	Operating temperature	-40°C to +75°C
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Altitude	0 ~ 3000m
	Protection rating	IP23
STANDARDS AND CERTIFICATIONS	EMC	IEC61000-3-2, IEC61000-3-3
	Safety	UL60950-1, EN60950-1, IEC60950
	Marine certifications	DNV, ABS, RINA, BV

UR I RECTIFIER UNIT - TSU2480A MODULE

Electrical Characteristics	Input voltage	220VAC (85VAC ~ 300VAC)
	Efficiency	96%
	Power	3000W (176~300 VAC range)
	Power factor	≥ 0.99
	THD	≤ 5%
Operational Characteristics	Operating temperature	-40°C to +75°C (maximum power below 50°C)
	Hot-swap installation (hot replacement)	
	Modularity for easy maintenance	



COMPARISON TABLE



Characteristic	Teksea TEKCHARGER SWM	Blue Sea P12 Battery Chargers	Mastervolt ChargeMaster Plus	Quick Energy SBC NRG	Victron Energy Skylla-i Battery	TechnoMaster CRA
Efficiency	> 96%	~87-90%	88-90%	87-90%	~92%	~85-90%
Input Range	85-300 VCA	90-265 VCA	80-275 VCA	83-264 VCA	185-265 VCA	110-440 VCA
Hot-Swap	✓	✗	✗	✗	✗	✗
Modularity	✓	✗	Limited	✗	Limited	✗
Compliance	DNV, ABS, RINA, BV	ABYC, UL	CE, ABYC	RINA	N/E	N/E
Communication	RS485, Ethernet SNMP	✗	MasterBus/CZone	CAN BUS	VE.Can	Isolated dry contacts
Operating Temp.	-40°C a +75°C	-20°C to +60°C	-25°C to +80°C	-15°C to +70°C	-20°C to +60°C	N/E
Power Density	39W/in ³	~25W/in ³	~28W/in ³	~30W/in ³	~26W/in ³	~18-20W/in ³
Warranty	2 years	5 years	2 years	2 years	5 years	N/E
Local Manufacturing	✓	✗	✗	✗	✗	✓
THD	≤5%	N/A	N/A	N/A	N/A	N/E
Power Factor	≥0.99	>0.95	>0.98	=1	0,98	N/E

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Discover other solutions in our portfolio



Energy

Thyristor and Switched Battery Charger Rectifiers (with and without battery banks)

Industrial and Commercial UPS (Modular).

BMS - Battery Monitoring System

DC/AC Inverters with static switch.



Integration

Electrical Panels for Auxiliary Services

Monitoring and Automation Systems.



Services

Maintenance contracts and specialized technical support

Supply of spare parts and retrofit and modernization services

24/7 hotline support

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Contact us to learn how to integrate these solutions into your project.

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Need more information?



www.teksea.net

The information contained in this document consists of general descriptions of the available technical solutions and is provided for reference

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