

TekSea®

TEKPOWER

Technical Catalog

Industrial UPS SCR-IGBT

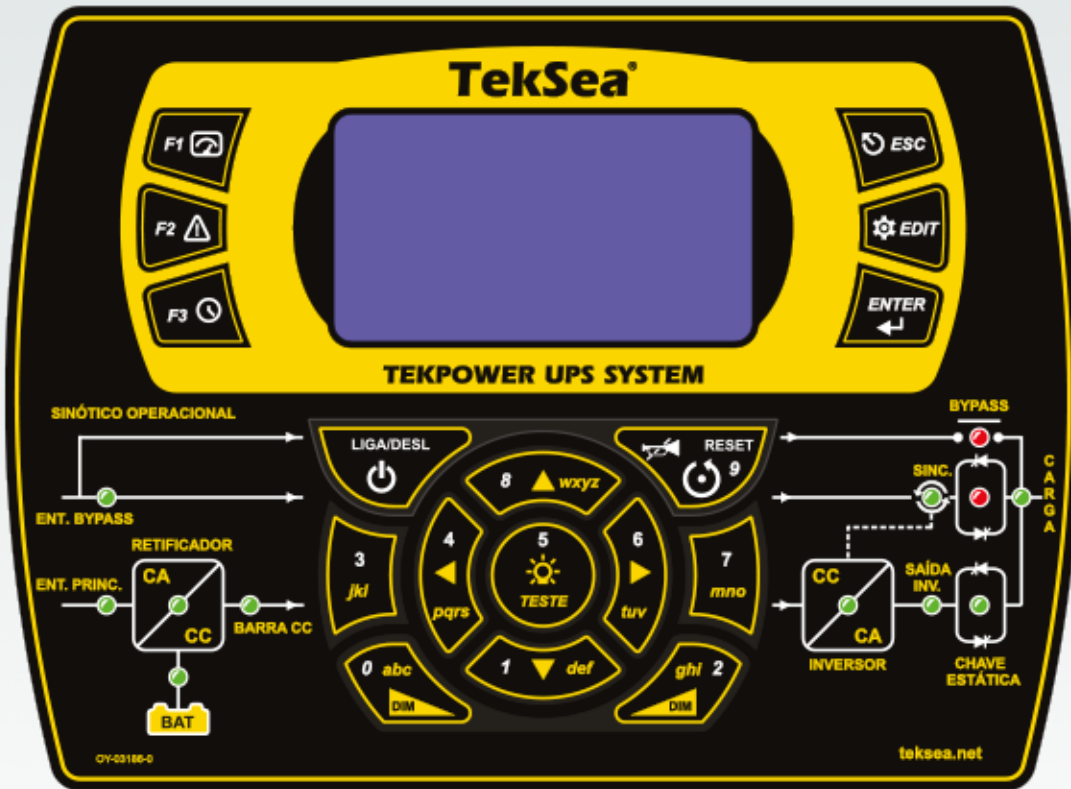


- 100% National Technology
- Advanced solution for critical industrial applications
- User-friendly interface with graphical display and synoptic view
- High performance, robustness and reliability

FEATURES

- Performance classification VFI-SS-111 (IEC 62040-3)
- SCR rectifier with 6 or 12 pulses
- IGBT inverter with discontinuous vector modulation (D-SVM)
- Operation in systems 3F/3F+N and 3F/1F+N
- Decentralized control and interface
- Full galvanic isolation (Input, Output and Battery)
- Online – Double Conversion
- Scalable up to 120kVA
- DC Link voltage flexibility
- Low harmonic distortion levels
- Compatible with large battery banks
- Compatible with generator sets (GMG)
- Battery Test Function
- Available with multiple communication protocols:
Modbus RTU, Modbus TCP, DNP3, SNMP, MMS IEC61850
- Designed according to national standards





HMI – Human Machine Interface

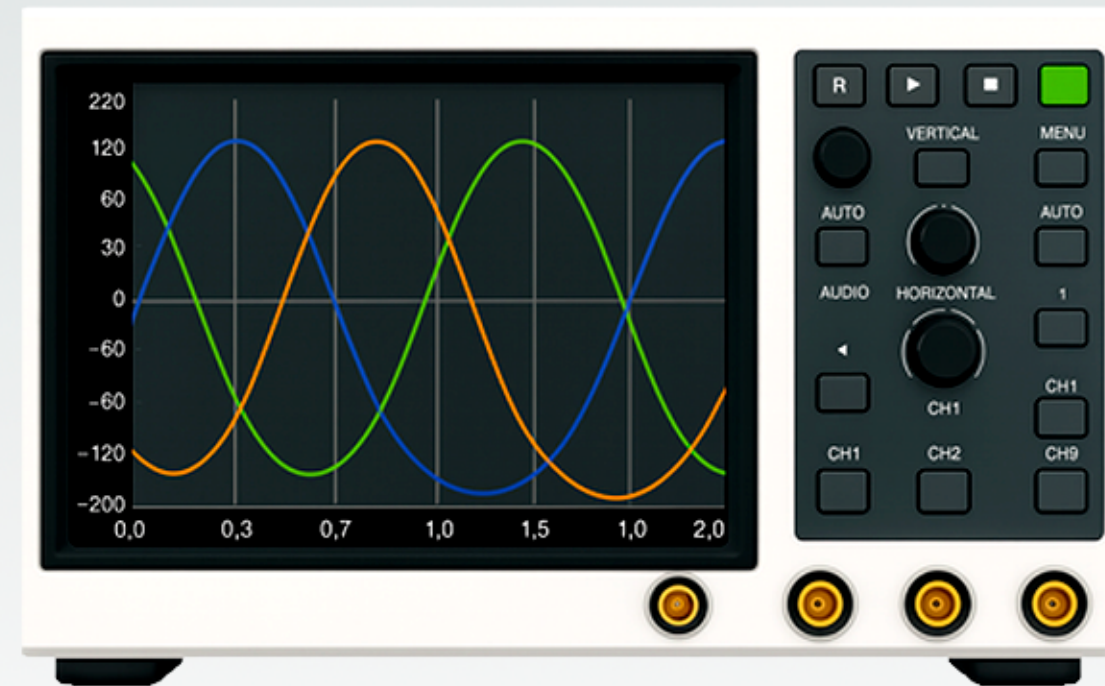
Complete and user-friendly management

Dedicated monitoring per converter

128 x 64 pixel graphical display

Operational synoptic

Alarm and event log



Harmonic Distortion: extremely low levels AC Output:

THDv: < 1% for linear loads

THDv: < 5% for non-linear loads



Battery Discharge Test

Mode with Active Current Control

Maintains constant discharge current according to rectifier settings

Ideal for standardized manufacturer tests

Accurate evaluation of capacity (Ah) and autonomy (min)

Mode without Current Control

Discharge current defined by connected loads

Ideal for real UPS autonomy validation

Realistic operation simulations



Generator Profile

Alternative configuration for generator operation, with features such as:

Increased tolerance of bypass source voltage or full branch inhibition



Special Functions

Emergency Bypass

Automatically transfers loads to the bypass source in case of UPS failure

Static Switch Sensitivity

Fine adjustment of response to voltage transients according to IEC-62040-3 curves (High, Medium or Low)

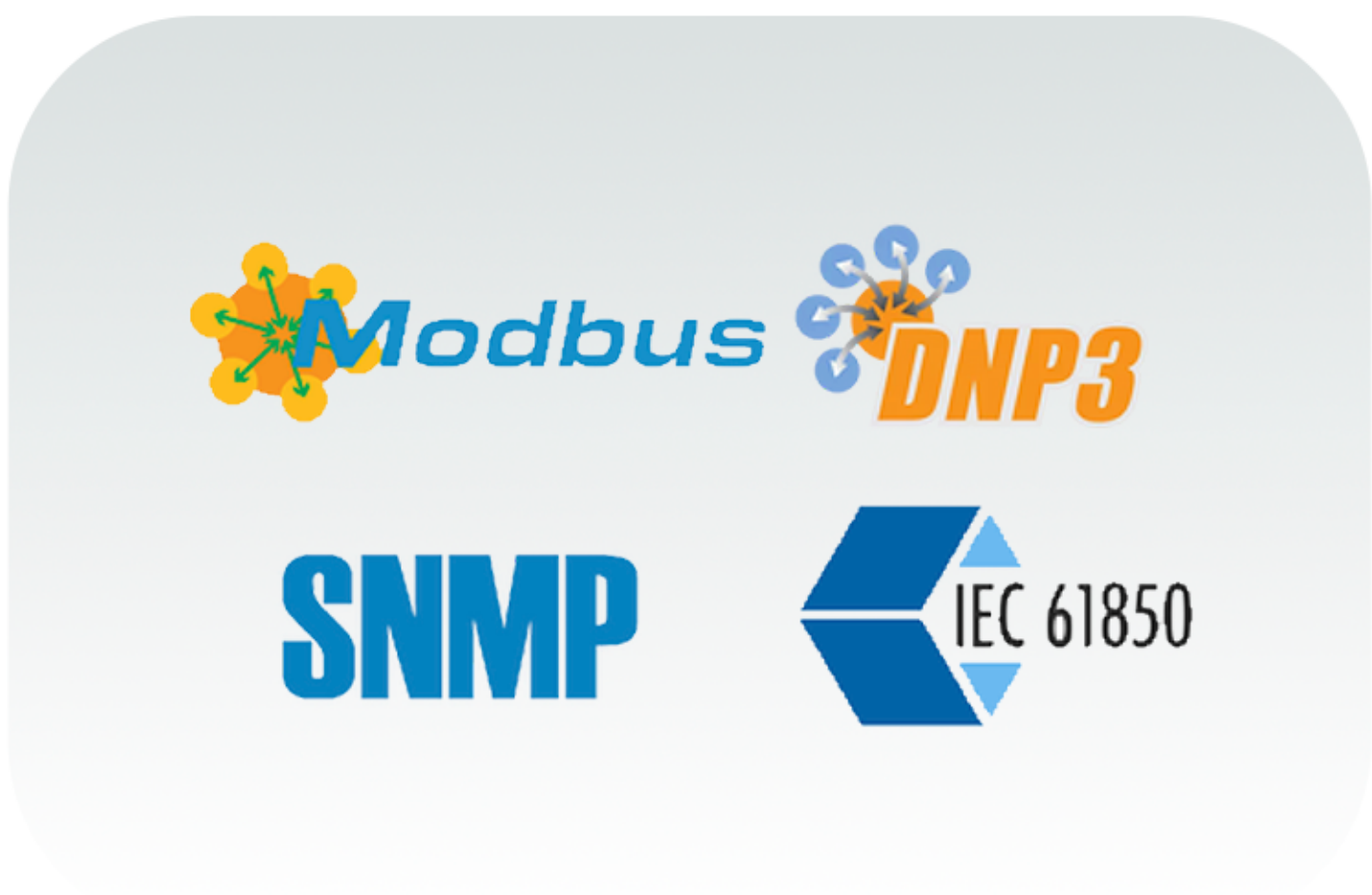
Static Switch Transfer Modes

Optimized modes for inductive and rotating loads

Maintenance Bypass with Interlock

Allows safe testing and maintenance without load interruption and avoids undesired parallel operation with the grid

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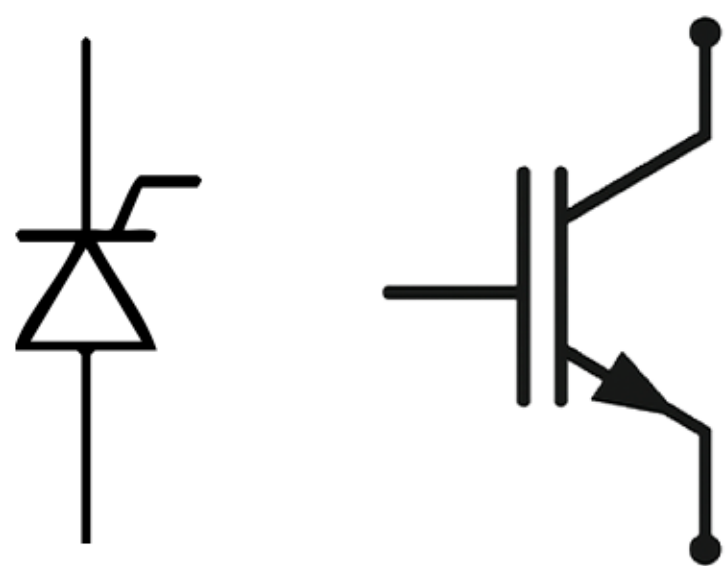


Integration with supervision systems

Available protocols:

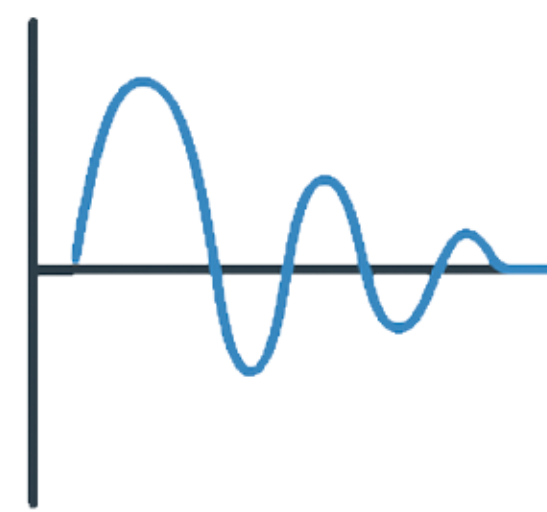
- Modbus RTU
- Modbus TCP
- DNP3
- SNMP (v1, v2c y v3)
- MMS IEC 61850

Technological Differentials



SCR + IGBT Architecture: Robustness and Performance

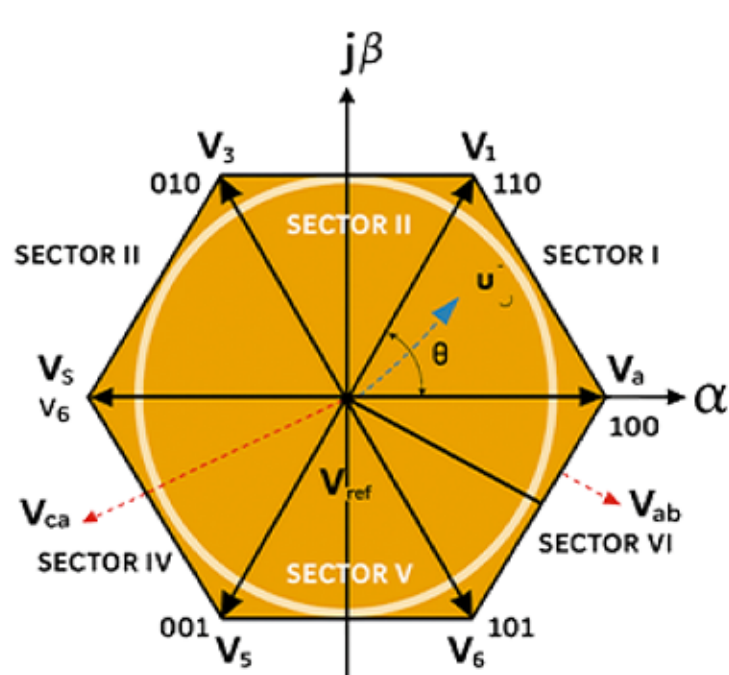
The TekSea Industrial UPS uses SCR rectifier and IGBT inverter, combining robustness and performance. It ensures reliability in environments with severe power conditions, making it ideal for critical industrial applications.



Proprietary Active Damping Technique

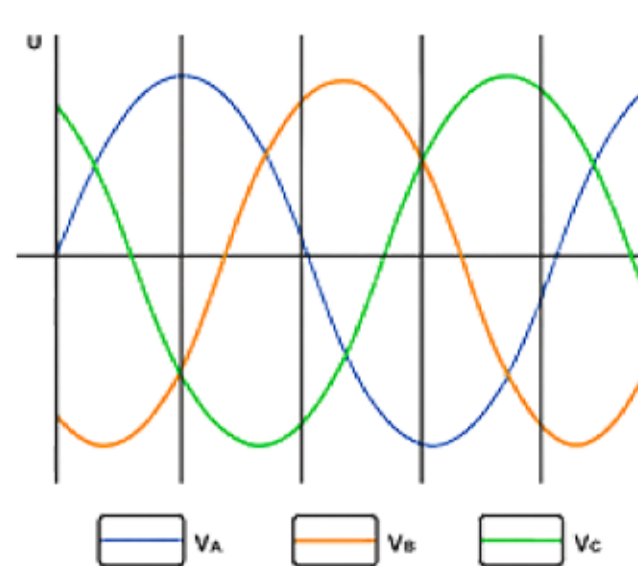
Ensures stable current control under critical grid conditions, eliminating the need for dissipative components. Fully implemented in software, it reduces thermal dissipation and increases system efficiency.

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Discontinuous Vector Modulation (D-SVM)

Optimizes IGBT switching control, reducing switching losses and improving efficiency.



Multi-Resonant Output Voltage Control

Reduces harmonic distortion caused by non-linear loads, ensuring high power quality for sensitive equipment.

Technological Differentials



VFI-SS-111 Classification (IEC 62040-3)

The TekSea Industrial SCR-IGBT UPS complies with the most stringent IEC 62040-3 classification and meets N2760 (Petrobras) and NBR 15014 standards, featuring full grid isolation through double conversion topology, precise voltage and frequency regulation, and dynamic performance according to the strictest limits of the standard. It maintains low harmonic distortion levels even with non-linear loads.



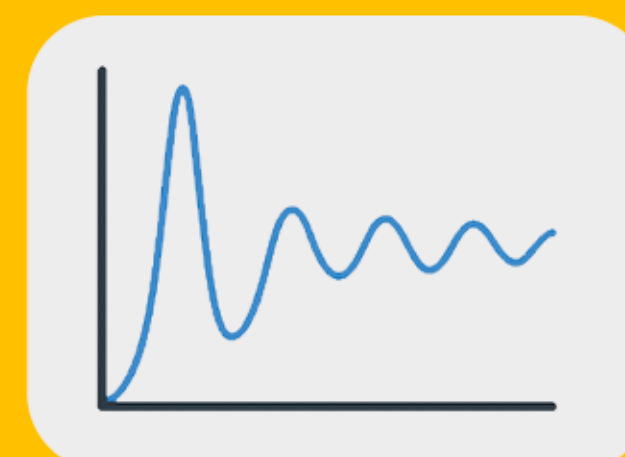
Precise Synchronism via PLL (Phase-Locked Loop)

The PLL automatically detects the fundamental component of the grid, even under distorted conditions, ensuring stable and precise synchronization. Ideal for operation with unstable grids or generators.



Battery Test With and Without Current Control

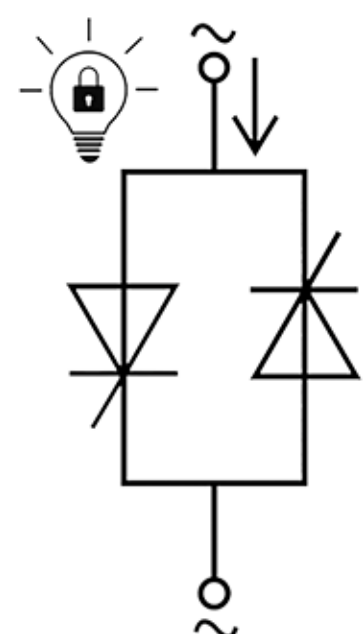
Built-in technology that allows automatic testing of battery autonomy and real capacity, ensuring system reliability in the field.



Total Short-Circuit Protection

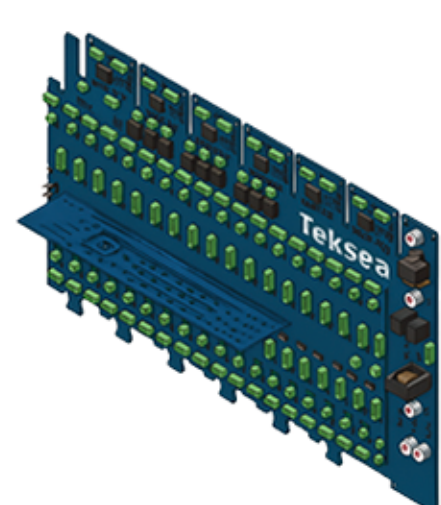
Active control system to limit short-circuit currents, with fault clearing capability, ensuring equipment reliability and operational continuity.

Technological Differentials



Proprietary Conduction Detection Technology

With hardware interlocking, enables fast and safe switching in static switch thyristors, preventing momentary short circuits between sources and minimizing voltage interruptions.



Digital Control on Proprietary Platform

Control fully implemented in DSP (Digital Signal Processor), providing high precision, flexibility and future scalability.



Full Isolation

Fully isolated between the three system ports (input, output and batteries), ensuring maximum safety and protection.



100% National Technology

TekSea invests in national technology as a strategic pillar, with solutions developed by engineers, masters and PhDs, fostering innovation and technological advancement in the industry.

TECHNICAL SPECIFICATIONS

General Data	Compliance with:	IEC-62040-3, N2760, NBR 15014
	Power Range	Up to 120 kVA
	Batteries*	110Vdc / 120Vdc / 220Vdc / 240Vdc
	Topology	Online Double Conversion
	Technology	Industrial, SCR Rectifier and IGBT Inverter
	Isolation	Galvanic, through transformers (Input, Output and Batteries)
Main Input	System	3F + PE
	Nominal Voltage	According to customer request
	Voltage Variation	According to customer request
	Nominal Frequency	50 / 60 Hz, according to customer request
	Frequency Variation	±10%
	Power Factor	6 pulses: 0.85 / 12 pulses: 0.92
	Current Distortion (THDi)	6 pulses: 30–35% / 12 pulses: 10–15%
	THDv Tolerated	up to 20%
Bypass Input	System	3F + N + PE
	Nominal Voltage	200 / 208 / 220 / 380 / 400 / 415 / 440 / 460 / 480 V
	Voltage Variation*	-20% / +15%
	Nominal Frequency	50 / 60 Hz, according to customer request
	Frequency Variation	±10%
	Static Switch Overload	125%: continuous operation 200%: 30 seconds
Inverter	Waveform	Sinewave
	Nominal Voltage	110 / 120 / 127 / 200 / 208 / 220 / 380 / 400 / 415 / 440 / 460 / 480 V
	Nominal Frequency	50 / 60 Hz, according to customer request
	Frequency Regulation	0.1% (with internal crystal oscillator)
	Synchronization Range	Standard: ±5% Configurable: ±10%
	Synchronization Speed	Standard: 1.0 Hz/s (50Hz) / 1.2 Hz/s (60Hz) Configurable: 0.1 – 10 Hz/s (50Hz) / 0.12 – 12 Hz/s (60Hz)
	Output Voltage Adjustment	Up to ±5%
	Nominal Power Factor	0,80
	Static Regulation	± 1%
	Dynamic Regulation	VFI-SS-111 (Classification 1, according to IEC-62040-3)
	Output THDv	According to IEC 62040-3: <1% (linear load) <5% (non-linear load)
	Overload	110%: 60 minutes 125%: 10 minutes 150%: 1 minute
	Inverter Short-Circuit Performance	Active limitation of short-circuit current Phase-Neutral short-circuit current: ~3 x In for 3 s Phase-Phase short-circuit current: ~1.7 x In for 3 s

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TekSea Sistemas de Energia Ltda.

Brasil - Santa Catarina
 Rua Adele Wruck, 59, Itoupavazinha
 CEP 89066-354, Blumenau,
 Fone: +55 47 3339-8179

Brasil - São Paulo

Av. Antônio Artioli, 570,
 Sala Zug 62 – Swiss Park Office
 CEP 13049-253, Campinas,
 Fone +55 19 3278-3022

TECHNICAL SPECIFICATIONS

SYSTEM	Display	Graphic HMI 128 x 64 pixels
	Standard Communication Protocols	Modbus RTU - RS485 Dry Contact
	Ethernet Communication Protocols (optional)*	Modbus TCP DNP3 SNMP v1, v2c and v3 MMS IEC61850
	Additional Features	Automatic AC pre-charge Automatic emergency bypass Battery test
	Optional	Bypass input voltage stabilizer Isolation transformer in bypass input External maintenance bypass panel
ENVIRONMENTAL CONDITIONS	Operating Temperature	0 ~ 40°C
	Humidity	0 ~ 95%

* Other options upon request.

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Discover other solutions from our portfolio



Energy

Thyristor and Switched Rectifier Chargers
(with and without battery bank)

Battery Monitoring System (BMS)

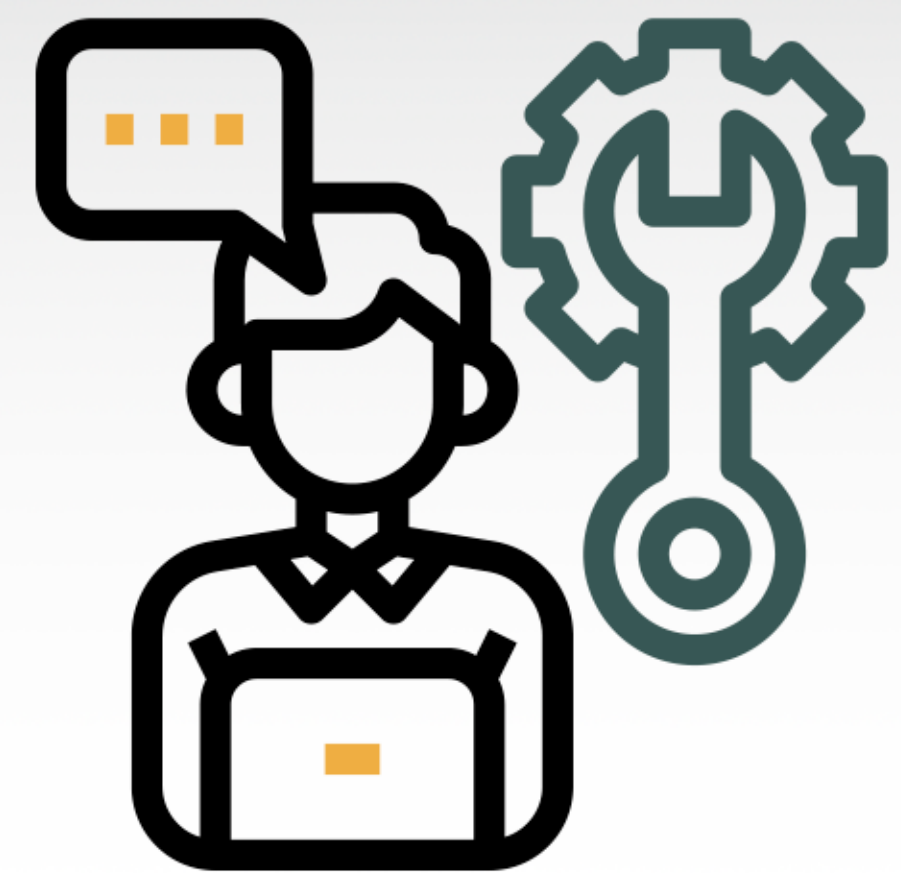
DC/AC Inverters with static switch



Integración

Electrical Panels for Auxiliary Services

Monitoring and Automation Systems



Services

Maintenance contracts and specialized technical support

Spare parts supply

Retrofit and modernization services

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Get in touch and learn how to integrate these solutions into your project.

Need more information?



www.teksea.net

The information contained in this document consists of general descriptions of available technical solutions and is for reference purposes only.

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