TekSea®

TEKPOWER

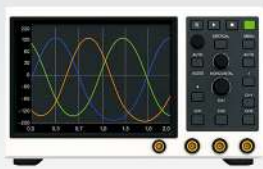
Technical Catalog

Industrial UPS Full-IGBT

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

FEATURES

- Performance classification VFI-SS-111 (IEC 62040-3)
- Bidirectional IGBT rectifier
- IGBT inverter with discontinuous vector modulation (D-SVM)
- Operation in systems 3F – 3F+N Full galvanic isolation (Input, Output and Battery)
- Online – Double Conversion
- Scalable up to 120 kVA
- 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 and international standards IEC 62040 and N2760



HMI – Human Machine Interface

Complete and user-friendly management

128 x 64 pixel graphical display

Operational synoptic

Harmonic Distortion: extremely low levels

AC Output:
THDv: < 1% for linear loads
THDv: < 5% for non-linear loads

AC Input:
THDi: < 8%
Power Factor: 0.99

Battery Test

Regenerative Mode to AC Grid:

High energy efficiency

Energy is fed back to the grid

Eliminates the need for test loads

Precise control of the discharge process

Load Discharge Mode:

Battery energy directly supplies connected loads via inverter

Allows constant or variable current testing according to load consumption

Ideal for autonomy validation and real UPS behavior

Generator Profile

Alternative configuration for generator operation, with features such as:

Increased tolerance of bypass source voltage or full branch inhibition

Active power limitation

Gradual ramp startup

Battery charging current reduction

Rectifier power factor adjustment

Special Functions

Emergency Bypass
Automatically transfers loads to the bypass grid in case of UPS failure

Cold Start
Allows UPS startup directly from batteries without AC input

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 interrupting the load and preventing undesired parallelism with the grid

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Integration with supervision systems

Available protocols:

Modbus RTU

Modbus TCP

DNP3

SNMP (v1, v2c y v3)

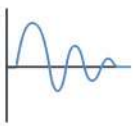
MMS IEC 61850

between others

Technological Differentials

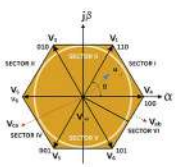
High-Performance IGBT Modules

The use of high-frequency switched IGBT modules provides the system with higher efficiency, performance and lower acoustic noise levels. The unit power factor is ensured, with the possibility of controlling the displacement factor and active power to adapt to grid conditions.



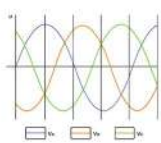
Proprietary Active Damping Technique

This solution ensures stability of current control under critical grid conditions, eliminating the need for dissipative components. Being fully implemented in software, it reduces thermal dissipation and increases system efficiency.



Discontinuous Vector Modulation (D-SVM)

This strategy optimizes IGBT switching in order to reduce switching losses, providing an increase in efficiency.



Multi-Resonant Control of Output Voltages

This technique reduces harmonic distortions caused by non-linear loads, providing high power quality for distortion-sensitive loads.

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Technological Differentials

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

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

Active Ripple Control in Battery Current

An innovative system that mitigates battery current ripple, contributing to longer system lifespan.

Regenerative Battery Test with Anti-Islanding Protection

It features a battery testing system that ensures safety even in situations of unexpected disconnection from the electrical grid.

Total Protection against Short-Circuit

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

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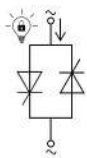
Technological Differentials



Proprietary Conduction Detection Technology

With hardware interlocking, this technology enables fast and safe switching in the static switch thyristors, preventing momentary short circuits between competing sources and minimizing voltage interruptions in the load during the process.

Complete Isolation

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

Digital Control on Proprietary Platform

Control is fully implemented in DSP (Digital Signal Processor), using a proprietary platform that allows high precision, flexibility and future expansions.

100% National Technology

TekSea invests in national technology as a strategic pillar, with solutions developed by a technical team composed of engineers, masters and PhDs.

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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, Full-IGBT
	Isolation	Galvanic, through Transformers (Input, Output and Batteries)
Main Input	System	3F + 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%
	Power Factor	0.99 (configurable)
	Current Distortion	THDi <8%
	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 Frequencyl	50 / 60 Hz, according to customer request
	Frequency Variation	±10%
	Static Switch Overload	125%: Continuous operation 200%: 30 seconds
Inverter	Waveform	Sine wave
	Nominal Voltage	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 short-circuit current limitation 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
Swiss Park Office, Zug
CEP 13040-073, 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 in the Rectifier Automatic DC pre-charge Battery polarity inversion protection Cold-Start Automatic Emergency Bypass
	Optional	Bypass input voltage stabilizer Isolation transformer in bypass input External maintenance bypass panel
Environmental Conditions	Operating Temperature Humidity	0 ~ 40°C 0 ~ 95%

*Other options upon request.

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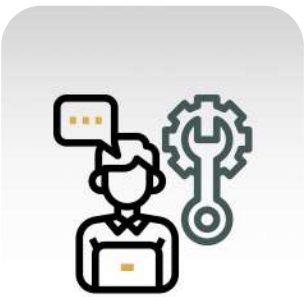
Discover other solutions from our portfolio



Energy

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

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

Spare parts supply

Retrofit and modernization services

Get in touch and 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 for reference purposes only.

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