

Technical Catalog

DC / AC Inverter 19" Rack – PSI



Peace of mind for critical missions

- High-precision pure sine wave DC/AC conversion
- Robust solution for critical industrial and laboratory applications
- Low output harmonic distortion ($\text{THDv} \leq 3\%$)
- Intuitive HMI for configuration and monitoring

Product Overview

The TekPower PSI is a static inverter designed for energy conversion in critical systems, converting direct current (DC) into alternating current (AC) with a pure sine wave output and low harmonic distortion. The equipment features digital control and precise voltage and frequency regulation, designed to supply sensitive loads that require high-quality power.

The system architecture features dual power input, with DC input and AC input via bypass, allowing operation with different priority strategies. Automatic switching between the power sources occurs at high speed, maintaining supply continuity and ensuring high system availability.

Built into a standard 19" rack enclosure, the TekPower PSI is available in power ratings from 1 kVA to 10 kVA and is compatible with multiple DC voltage levels, enabling direct integration with existing busbars. Its design allows continuous, unattended operation, with monitoring, signaling and communication features for integration with supervisory systems.



Main Differentiators

Dual Power Input Architecture (DC + AC)

Topology with DC input and AC input (bypass), allowing priority selection and automatic transfer between sources, ensuring continuity of power supply.

Pure Sine Wave Output

Output with low harmonic distortion ($\text{THD} \leq 3\%$), suitable for sensitive and electronic equipment.

Integration with Supervisory Systems

Available with RS232, RS485 (Modbus) interfaces and dry contacts for integration with SCADA and industrial systems. Other communication protocols may be provided upon request.

Compact 19" Rack Format

Reduced space requirements in panels and racks, with 2U and 4U versions according to power rating.

Integration into Freestanding Systems and Customized Solutions

Possibility of supply in freestanding industrial panels, with customized engineering for complete system integration — including distribution, protection, supervision and interconnections — meeting application-specific requirements and facilitating field installation.

Integrated Automatic Transfer Switch

High-speed automatic switching, with transfer between inverter and bypass in less than $\frac{1}{2}$ AC cycle.

High Operational Reliability

Designed for continuous operation, with real-time monitoring, self-diagnostics and automatic restart after failures.

Application Flexibility

Compatible with different DC voltage levels (24 V, 48 V, 110/125 V and 220 V), allowing use in existing power systems.

Complete Integrated Protection

Includes protection against overload, short circuit, undervoltage/overvoltage and overtemperature, ensuring operational safety.

Architecture and Topology

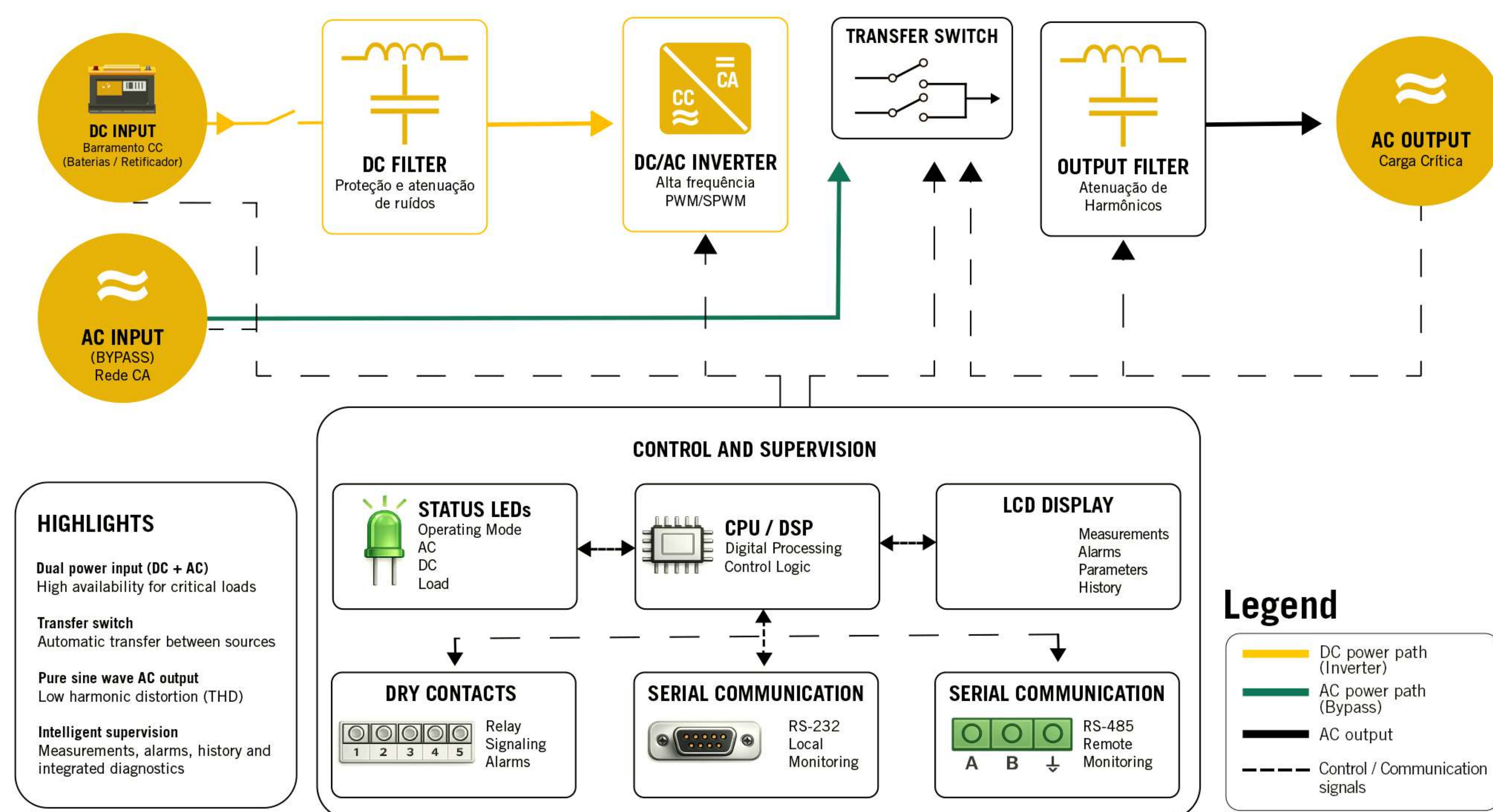
The TekPower PSI is based on a high-frequency DC/AC conversion architecture, using digital control and PWM/SPWM modulation to generate a pure sine wave output voltage, with low harmonic distortion and high stability.

The topology incorporates dual power input, consisting of a direct current (DC) input and an alternating current (AC) input via bypass, allowing operation with source priority selection and automatic transfer between sources within a reduced time, ensuring continuity of power supply.

The system is designed for continuous operation, with monitoring of the main electrical parameters and self-diagnostics, ensuring high operational reliability.

DIAGRAMA FUNCIONAL - TEKPOWER PSI

Dual power input architecture (DC + AC) with automatic switching and intelligent supervision.



Note: The diagram represents the functional blocks and main power and control paths of the system.

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TECHNICAL SPECIFICATIONS

GROUP	PARAMETER	1 kVA	2 kVA	3 kVA	4 kVA
DC INPUT	Nominal Voltage (VDC)	24/48/125/220	24/48/125/220	24/48/125/220	48/125/220
	DC Input Voltage (24V)	22–28V	22–28V	22–28V	-
	DC Input Voltage (48V)	45,5–57V	45,5–57V	45,5–57V	45,5–57V
	DC Input Voltage (125V)	100–150V	100–150V	100–150V	100–150V
	DC Input Voltage (220V)	208–260V	208–260V	208–260V	208–260V
	DC Input Current (24V)	42A	83A	125A	-
	DC Input Current (48V)	21A	42A	63A	83A
	DC Input Current (125V)	9A	18A	27A	36A
	DC Input Current (220V)	4,5A	9A	13,5A	18A
AC INPUT (BYPASS)	Voltage	90–132V / 180–260V			
	Frequency	50/60Hz			
	Current	4,5A/8,3A	9,1A/16,5A	13,6A/26A	18,2A/33A
AC OUTPUT	Voltage	127/220V			
	Static Regulation	±1%			
	Current	3,6A	7,3A	11A	14,5A
	Frequency (Hz)	50/60Hz			
	THDv	≤3% (linear load)			
	Transfer Time	≤5 ms (HMI transfer) ≤8 ms (transfer due to grid failure)			
	Waveform	Sine wave			
INVERTER	Technology	High-Frequency PWM/SPWM			
	Efficiency	≥85%			
	Power Factor	0.8			
	Dynamic Response	<5% overshoot / Recovery time: <5 ms			
	100–120% Overload	60s			
	121–150% Overload	10s			
INTERFACE	Display	128 × 64 pixel LCD			
	Communication	Modbus RTU – RS232/RS485			
	Optional	SNMP v2c (with optional card) / Modbus TCP, DNP3, MMS IEC61850, SNMPv3 (with gateway) / Others upon request			
	Dry Contacts	5 relay outputs (60 V/0.5 A) Output 1: DC Input Fault (DC Undervoltage/Overvoltage) Output 2: AC Input Fault (AC Undervoltage/Overvoltage) Output 3: Overload Output 4: Bypass Mode (Operation via Bypass) Output 5: AC Output Fault (Inverter Fault)			

TekSea Sistemas de Energia Ltda.

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

Brazil – São Paulo
Av. Antônio Artioli, 570,
Sala Zug 62 – Swiss Park Office
CEP 13049-253, Campinas
Phone: +55 19 3278-3022

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DC / AC Inverter – 19" Rack

TECHNICAL SPECIFICATIONS

GROUP	PARAMETER	1 kVA	2 kVA	3 kVA	4 kVA
PROTECTIONS	DC Input	Undervoltage/overvoltage, overcurrent, reverse polarity			
	AC Input	Undervoltage/overvoltage			
	Internal	Overload, overtemperature, short circuit			
ENVIRONMENTAL	Temperature	-20 ~ 50°C			
	Humidity	5-95% non-condensing			
	Altitude	Nominal power: ≤2000 m. Derating of 2% for every 100 m above elevation. Maximum altitude: 5000 m.			
	Noise	≤40 dB			
MECHANICAL	Format	19" Rack			
	Height	2U			
	Dimensions	482 x 347 x 88mm			
	Ventilation	2 fans			4 fans
STANDARDS	LVD	EN60950-1			
	EMC/EMI	EN61000-6-1/3			



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TECHNICAL SPECIFICATIONS

GROUP	Parâmetro	5 kVA	6 kVA	8 kVA	10 kVA
DC INPUT	Nominal Voltage (VDC)	48/125/220	48/125/220	48/125/220	48/125/220
	DC Input Voltage (24V)	-	-	-	-
	DC Input Voltage (48V)	45,5–57V	45,5–57V	45,5–57V	45,5–57V
	DC Input Voltage (125V)	100–150V	100–150V	100–150V	100–150V
	DC Input Voltage (220V)	208–260V	208–260V	208–260V	208–260V
	DC Input Current (24V)	-	-	-	-
	DC Input Current (48V)	104A	125A	167A	208A
	DC Input Current (125V)	45A	55A	72A	90A
	DC Input Current (220V)	22,5A	27A	36A	45A
AC INPUT (BYPASS)	Voltage	90–132V / 180–260V			
	Frequency	50/60Hz			
	Current	22,7A/41A	27,2A/50A	36,3A/-	45,4A/-
AC OUTPUT	Voltage	127/220V			
	Static Regulation	±1%			
	Current	18,2A	21,8A	29A	36,3A
	Frequency (Hz)	50/60Hz			
	THDv	≤3% (linear load)			
	Transfer Time	≤5ms (HMI transfer) ≤8ms (transfer due to grid failure)			
	Waveform	Sine wave			
INVERTER	Technology	High-Frequency PWM/SPWM			
	Efficiency	≥85%			
	Power Factor	0.8			
	Dynamic Response	<5% overshoot / Recovery time: <5ms			
	100–120% Overload	60s			
	121–150% Overload	10s			
INTERFACE	Display	128 × 64 pixel LCD			
	Communication	Modbus RTU – RS232/RS485			
	Optional	SNMP v2c (with optional card) / Modbus TCP, DNP3, MMS IEC61850, SNMPv3 (with gateway) / Others upon request			
	Dry Contacts	5 relay outputs (60V/0.5A) Output 1: DC Input Fault (DC Undervoltage/Overvoltage) Output 2: AC Input Fault (AC Undervoltage/Overvoltage) Output 3: Overload Output 4: Bypass Mode (Operation via Bypass) Output 5: AC Output Fault (Inverter Fault)			

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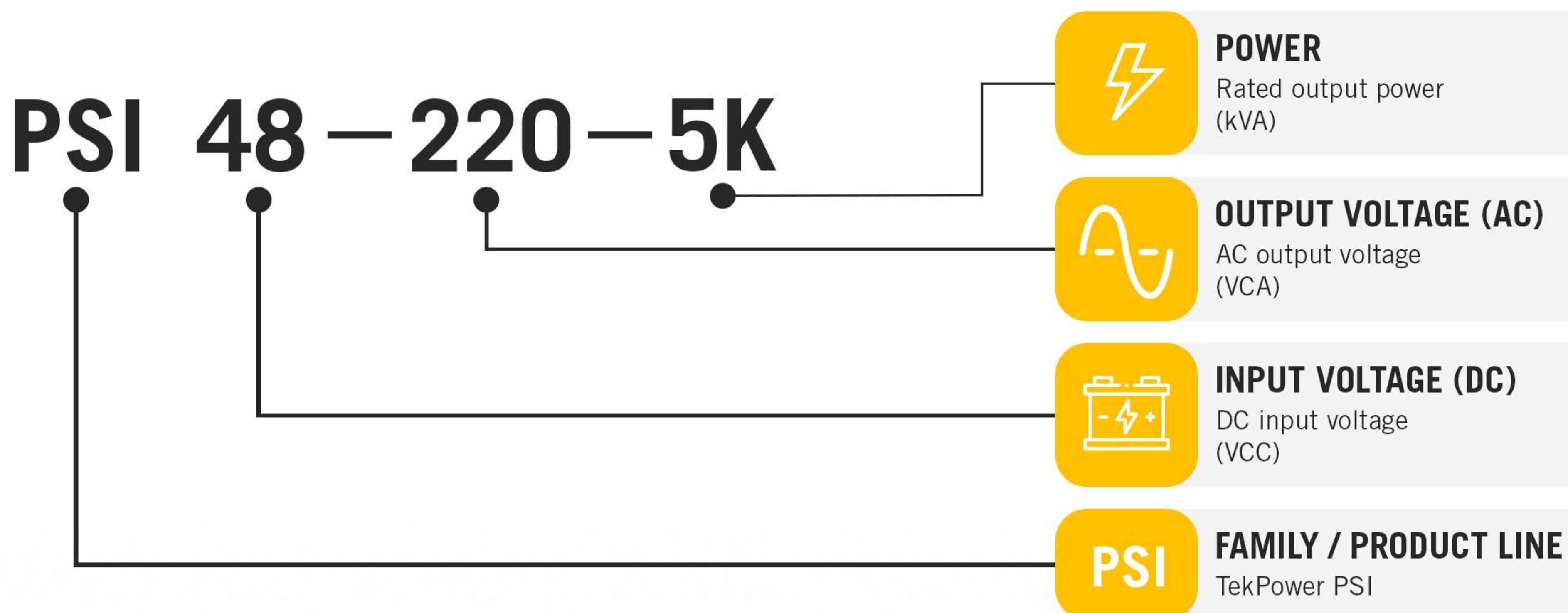
GROUP	PARAMETER	5 kVA	6 kVA	8 kVA	10 kVA
PROTECTIONS	DC Input	Undervoltage, overvoltage, overcurrent, reverse polarity			
	AC Input	Undervoltage/overvoltage			
	Internal	Overload, overtemperature, short circuit			
ENVIRONMENTAL	Temperature	−20 ~ 50°C			
	Humidity	5–95% non-condensing			
	Altitude	Nominal power: ≤2000 m. Derating of 2% for every 100 m above elevation. Maximum altitude: 5000 m.			
	Noise	≤40dB			
MECHANICAL	Format	19" Rack			
	Height	2U		4U	
	Dimensions	482 x 347 x 88mm		482 x 470 x 176mm	
	Ventilation	4 fans	6 fans	4 fans	
STANDARDS	LVD	EN60950-1			
	EMC/EMI	EN61000-6-1/3			

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CODING STRUCTURE TEKPOWER PSI



READING EXAMPLE

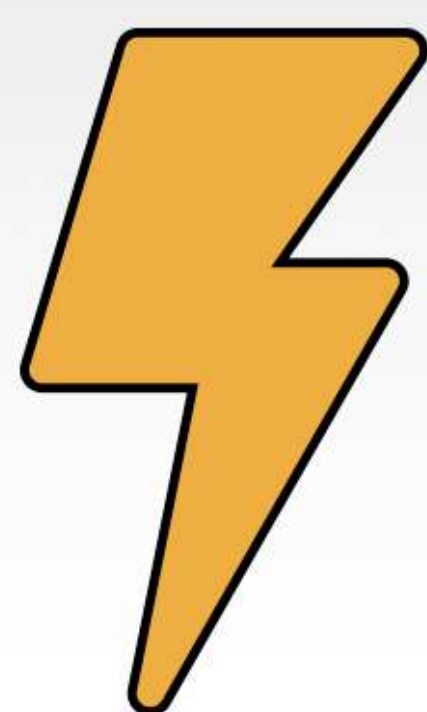
TEKPOWER PSI 48–220–5K

TekPower PSI series inverter,
with 48 VDC input, 220 VAC output and 5 kVA power rating.

48 = 48 VDC input
220 = 220 VAC output
5K = 5 kVA power rating

i The coding follows the standard: TEKPOWER PSI [DC Voltage] - [AC Voltage] - [Power]

Discover other solutions in our portfolio



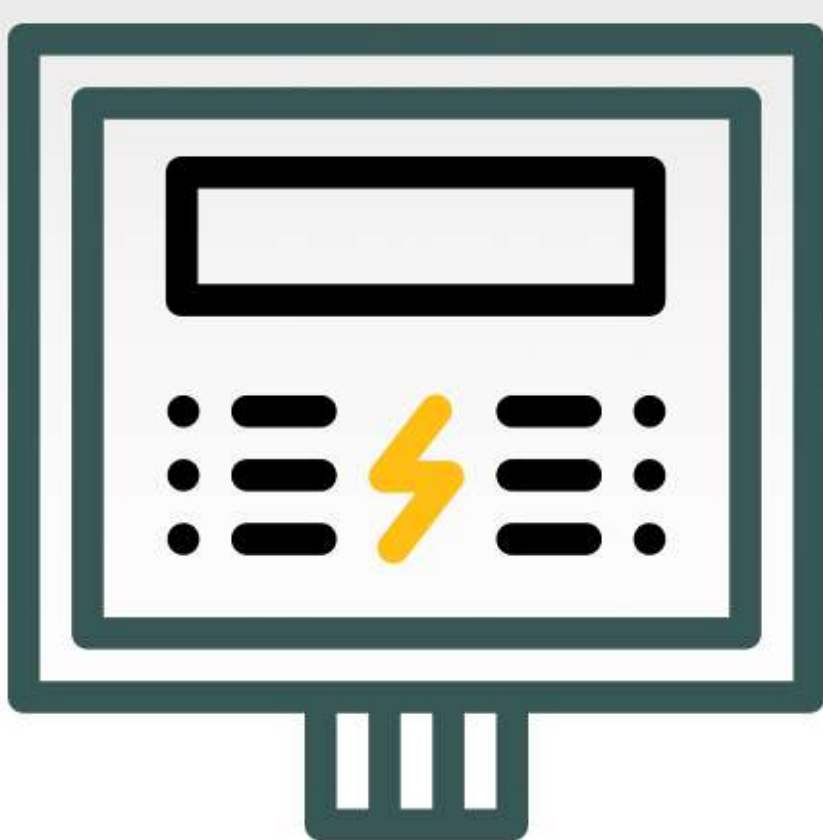
ENERGY

Thyristor Battery Chargers
(with and without battery bank)

Industrial and Commercial UPS
(Modular)

BMS – Battery Monitoring
System

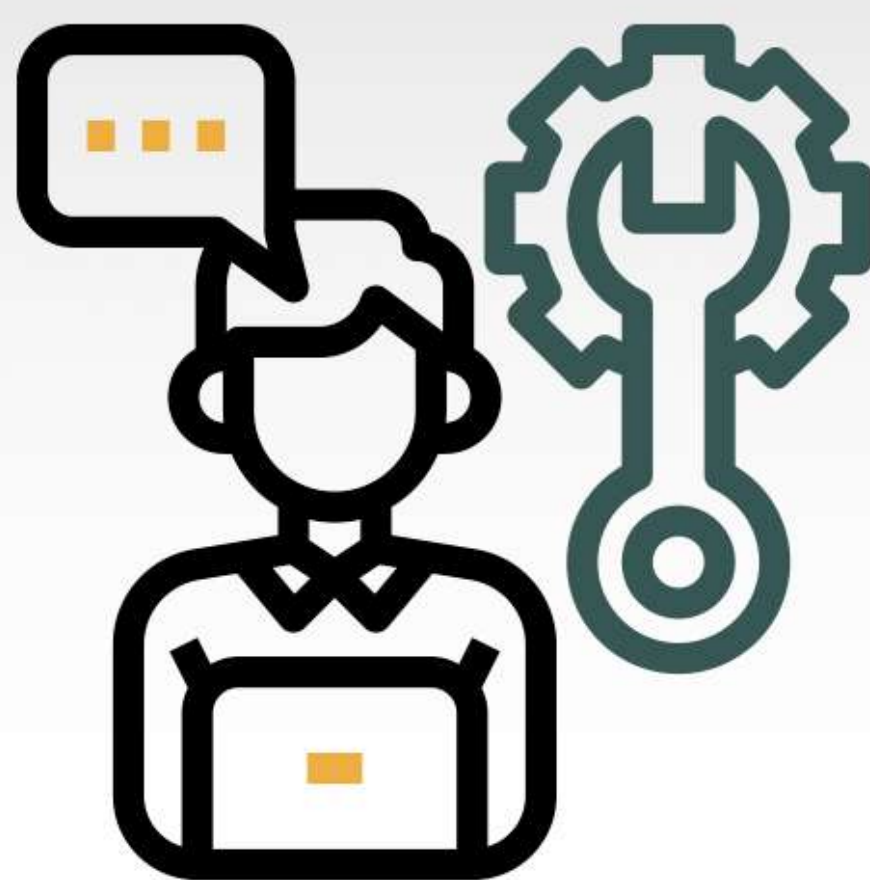
DC/AC Inverters with Static
Transfer Switch



INTEGRATION

Electrical Panels for Auxiliary
Services

Monitoring and Automation
Systems



SERVICES

Maintenance contracts
and specialized technical
support

Spare parts supply

Retrofit and modernization
services

24/7 hotline support

06-2025

**Get in touch and find out 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 the available technical solutions and is intended for reference purposes only.

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