

DC Input Static Frequency Converters

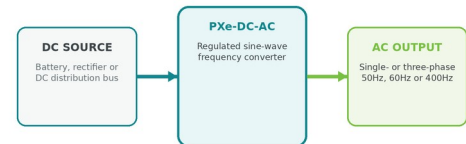
PXe-DC-AC Series | Single- or three-phase AC output | 50Hz, 60Hz or 400Hz

PX Electronics PXe-DC-AC Series Static Frequency Converters convert an available DC supply into a stable, regulated AC output. Systems can be configured for single-phase or three-phase output, with voltage, frequency and capacity selected around the connected equipment.

The range is intended for battery systems, high-voltage DC distribution, aerospace power buses, transport installations and specialist test systems. The PXe-440-1K is an example 1kVA configuration with nominal 440V DC input and 120/208V three-phase, four-wire 400Hz output.

DC INPUT STATIC FREQUENCY CON

Controlled AC power from low- or high-voltage DC systems



Typical DC inputs: 24/28V | 48V | 110/125V | 220V | 270V | 440V | 600V | 750V

Typical DC-to-AC conversion arrangement; final enclosure varies by input voltage and capacity.

Where this product fits

Suitable where equipment requires controlled 50Hz, 60Hz or 400Hz AC power from a DC source. The complete DC operating range, available source current, load type, starting demand and earthing arrangement are reviewed before the converter is selected.

Typical applications

Aircraft and avionics systems, rail auxiliary power, marine DC networks, defence equipment, battery-backed systems, telecommunications and specialist test installations.

Conversion duties

DC input to fixed-frequency single-phase or three-phase AC output, including 115/200V and 120/208V 400Hz configurations.

Installation formats

Rack-mounted, mobile or floor-standing construction, depending on converter capacity, input current, cooling and connection requirements.

Typical DC inputs

24/28V to 750V DC

Output phase

Single phase or three phase

Output frequency

Fixed 50Hz, 60Hz or 400Hz

Example model

PXe-440-1K, 1kVA

Selection starting point

Confirm the nominal, minimum and maximum DC voltage, available continuous and short-duration current, AC phase and voltage, output frequency, load kVA or kW, inrush demand, neutral requirement, DC earthing or floating-bus arrangement, installation format and required standards.

Configuration and model selection

A practical route from the DC source and load data to the correct converter configuration

1. DC source Nominal, minimum and maximum voltage	2. Available current Continuous supply and short-duration capability	3. AC output Phase, voltage, frequency and neutral	4. Project Load, protection, enclosure and compliance
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Available configurations

Parameter	Standard configuration	Project-specific consideration	Application note
DC input	Configured around the nominal DC bus voltage	Minimum and maximum operating limits are defined for the selected source	Battery, rectifier, industrial or transport DC supply
Typical nominal inputs	24/28V, 48V, 110/125V or 220V DC	270V, 440V, 600V or 750V DC also available	Low-voltage inputs require higher current for the same output power
AC output phase	Single-phase output	Three-phase 3-wire or 4-wire output with neutral	Output arrangement is selected around the connected equipment
AC output voltage	Industrial and specialist voltages	Including 115/200V and 120/208V configurations	Voltage is fixed for the project configuration
Output frequency	Fixed 50Hz or 60Hz	Fixed 400Hz for aviation and specialist applications	Frequency is selected to suit the application
Capacity	Selected to suit the DC source and load	Practical rating depends on input voltage and available current	Continuous and starting demand must both be assessed
Control	Local front-panel operation	RS232C, RS485 or GPIB optional	Required commands and measurement readback are agreed before manufacture
Construction	Rack-mounted or mobile	Floor-standing for higher current and larger systems	Enclosure and cooling depend on current, capacity and environment
Connections	Hard-wired terminals or EN 60309	MIL-standard or customer-selected connectors available	Cable length, cross-section and permitted voltage drop are reviewed

DC input current and cable selection

A lower DC input voltage requires more current to deliver the same AC output power. Selection therefore considers source current, cable length and cross-section, voltage drop, isolation, polarity protection and the minimum battery voltage near the end of discharge.

Example configuration

PXe-440-1K: nominal 440V DC input, example operating range 374V to 517V DC, 1kVA output, 120V L-N / 208V L-L three-phase plus neutral at 400Hz. Alternative input ranges, output voltages and capacities are engineered for the application.

Technical specification

PXe-440-1K example values. Alternative PXe-DC-AC configurations are confirmed in the quotation and project specification.

1. Range and DC input		2. AC output performance	
Capacity	1kVA	Output voltage	120V L-N / 208V L-L, three-phase + neutral
Arrangement	DC input; three-phase AC output	Rated current	2.75A per phase at 120V
Nominal DC input	440V DC	Output frequency	400Hz
Example DC range	374V to 517V DC	Accuracy	Voltage <±1% full scale; frequency <±0.1% full scale
Construction	IP22 rack-mount enclosure	Waveform	THD <3% at linear load; pure sine wave; crest factor 3:1
Connections	Hard-wired, EN 60309, MIL-standard or selected connectors	Overload	100% continuous; <110% 15min; <125% 10min; <150% 1min; <200% 5s
3. Protection, control and environment		4. Reliability, mechanical and compliance	
Interfaces	None standard; RS232C, RS485 or GPIB optional	Efficiency	>85%
Display	Frequency, voltage, current, power and power factor	Reliability	MTBF 50,000 hours; MTTR <30 minutes
Protection	Overcurrent, overload, overvoltage, overtemperature and short circuit	Dimensions	430 x 600 x 178mm
Cooling / noise	Variable-speed fan; base intake, rear exhaust; <65dB at 1m	Weight	32kg
Temperature	Operational -10°C to 55°C; ambient -10°C to 45°C	Standards	CE marked; UL conforming; GB 50054-95; GB 50150-1991/2006; GB 50171-1992; GB/T 16935.5-2008; GB/T 16935.4-2011
Humidity / altitude	10% to 90% non-condensing; below 1,800m	EMC / military	EN IEC 61000-3-2; EN 61000-3-3; EN 55032; EN 55035; MIL-STD-461; MIL-STD-704; STANAG 1008
Series flexibility		DC input selection	
The PXe-440-1K is an example. Single-phase or three-phase output, other frequencies and alternative capacities can be configured following technical review.		The complete DC voltage range, available source current, cable voltage drop, polarity, protection and earthed or floating-bus arrangement must be confirmed.	
Specification basis			
		Input range, capacity, dimensions, weight, protection and environmental performance are confirmed for each selected DC-to-AC configuration.	

Options, project support and quotation information

Configuration choices are reviewed against the DC source, connected load, installation and required project evidence.

Electrical and output options

Alternative DC input ranges, single-phase or three-phase AC output, neutral, alternative AC voltages and fixed 50Hz, 60Hz or 400Hz configurations.

Protection and communications

DC isolation, overvoltage and undervoltage monitoring, polarity protection, RS232C, RS485, GPIB and project-specific control or readback.

Mechanical and connection options

Rack-mount, mobile or floor-standing construction, higher ingress protection, conformal coating, cables, terminals and application-specific connectors.

Testing and project support

Factory acceptance testing, customer witness testing, cable assemblies, drawings, operating instructions and project-specific acceptance procedures.

Project support

FAT

Optional functional and performance testing

Witness testing

Customer or third-party attendance

Documentation

Drawings, specification and test records

Application review

Load, source and standards assessment

Information required to prepare a quotation

DC source

Type, nominal voltage and operating range

Available current

Continuous and short-duration source capability

AC output

Phase, voltage, frequency and neutral

Load

kVA/kW, load type and starting demand

DC arrangement

Polarity, isolation, earthing and protection

Installation

Format, IP rating, environment and standards

Dimensions, weight and final project specification

The PXe-440-1K example measures 430 x 600 x 178mm and weighs 32kg. Other configurations are confirmed at quotation because the DC voltage range, capacity, input current, output phase, enclosure, cooling, cables, connectors and compliance requirements affect the final construction.

Discuss your requirement

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