

PXe-PI150 Smart Frequency Inverter

Compact variable-frequency drive | 0.4kW to 5.5kW

The PXe-PI150 is a compact low-power frequency inverter designed for straightforward commissioning, efficient thermal performance and reliable motor control.

It combines V/F and sensorless vector control with built-in PID, flexible digital and analogue I/O, RS485 communications and several mounting arrangements.



Where this product fits

A practical choice for compact machinery, pumps, fans, workshop equipment and process systems where controlled motor speed, torque and acceleration are required from a small enclosure.

Compact machinery

Small enclosure, side-by-side installation and DIN-rail or wall mounting.

Process control

Built-in PID, analogue feedback and flexible command sources.

General motor loads

Suitable for pumps, fans, workshop equipment and light industrial machinery.

Power range

0.4kW to 5.5kW

Input options

1PH 220V, 3PH 220V or 3PH 380V

Control

V/F and vector control without PG

Communications

Built-in RS485

Selection starting point

Confirm the available supply, motor rated voltage and current, load type, required speed range, starting duty, control method, analogue signal requirements, communications and mounting arrangement.

Built-in PID

Closed-loop control using analogue or communications feedback.

AVR

Automatic voltage regulation supports stable motor output.

Jog control

Dedicated jog frequency and acceleration/deceleration settings.

16-speed operation

Multi-speed selection through terminals or programme.

Performance and installation

Compact construction with several practical mounting and control options

Save installation space

Compact design supports side-by-side installation.

Simple commissioning

Local keypad as standard; external keyboard available.

Flexible mounting

Wall, screw and DIN-rail mounting arrangements.

Protection-led design

Fast current limiting and comprehensive inverter protection.



Side-by-side installation without reserved spacing



DIN-rail mounting for quick cabinet installation

Performance features

Reduced cabinet space

The source comparison indicates an enclosure-volume reduction of approximately 30% at 5.5kW against a conventional comparator.

Energy efficiency

Motor speed can be matched to the process requirement, helping reduce unnecessary energy use.

User-friendly operation

Local display, parameter keys, fault history and key-lock functions support day-to-day operation.

Thermal layout

Component placement is developed around thermal simulation to support compact construction and controlled temperature rise.

Control capability

Torque control, enhanced braking functions and protection for immediate power interruption are provided.

Mounting flexibility

Units may be mounted vertically, side-by-side, by screw fixing or on DIN rail.

Technical specification

Power input and motor-control performance. Values are retained in full from the source datasheet.

1. Power input	
Rated voltage	AC 1PH 220V (-15%) to 240V (+10%); AC 3PH 220V (-15%) to 240V (+10%); AC 3PH 380V (-15%) to 440V (+10%).
Input frequency	50Hz / 60Hz.
Allowable fluctuations	Continuous voltage fluctuation: $\pm 10\%$; voltage unbalance rate less than 3%; input frequency fluctuation: $\pm 5\%$; distortion to satisfy IEC 61800-2.

2. Control performance	
Control system	High-performance vector control inverter based on DSP.
Control method	V/F control and vector control without PG.
Automatic torque boost	Provides large output torque at low frequency, including 1Hz operation under V/F control.
Acceleration / deceleration	Straight-line or S-curve mode. Four acceleration/deceleration times are available; setting range 0.0 to 6500.0s.
V/F curve mode	Linear, square-root / m-th power and custom V/F curves.
Overload capability	G type: 150% rated current for 1 minute; 180% rated current for 2 seconds.
Maximum frequency	Vector control: 0 to 300Hz. V/F control: 0 to 3200Hz.
Carrier frequency	0.5 to 16kHz; automatically adjusted according to load characteristics.
Input frequency resolution	Digital setting: 0.01Hz. Analogue setting: maximum frequency $\times$ 0.025%.
Starting torque	G type: 0.5Hz / 150% under vector control without PG.
Speed range	1:100 under vector control without PG.
Steady-speed precision	Vector control without PG: $\pm 0.5\%$ of rated synchronous speed.
Torque response	$\leq 40\text{ms}$ under vector control without PG.
Torque boost	Automatic torque boost; manual torque boost from 0.1% to 30.0%.
DC braking	Braking frequency 0.0Hz to maximum frequency; braking time 0.0 to 100.0s; braking current 0.0% to 100.0%.
Jogging control	Jog frequency 0.00Hz to maximum frequency; jog acceleration/deceleration time 0.0 to 6500.0s.
Built-in PID	Supports closed-loop process control.
Automatic voltage regulation (AVR)	Automatically maintains constant output voltage when the mains voltage changes.
Torque limit and control	Automatically tracks current motor torque when the inverter starts.

Control methods V/F control and sensorless vector control without PG.	Overload duty 150% rated current for 1 minute; 180% for 2 seconds.	Frequency capability Up to 300Hz in vector control and 3200Hz in V/F control.
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Technical specification

Personalisation functions, command sources and input/output capability

3. Personalisation functions	
Peripheral self-inspection after power-on	After power-up, peripheral equipment can be checked for conditions including ground fault and short circuit.
Quick current limiting	Current-limiting algorithm reduces the probability of inverter overcurrent and improves whole-unit anti-interference capability.
Timing control	Timing control setting range: 0 to 6500 minutes.

4. Running functions and I/O	
Digital inputs	Five digital input terminals.
AI1 analogue input	One analogue input terminal selectable for 0 to 20mA or 0 to 10V.
Multi-speed	Up to 16 speeds can be set using the multifunction terminals or programme.
Emergency stop	Interrupt controller output.
Fault reset	When a protection function is active, the fault condition can be reset automatically or manually.
PID feedback signal	DC 0 to 10V or DC 0 to 20mA.
Output signal	One relay output and one DA1 analogue output.
Relay output	Forty selectable signals. Normally open contact capacity: 5A at AC 250V and 1A at DC 30V.
DA1 analogue output	One analogue output with 16 selectable signals including frequency, current and voltage. Output range 0 to 10V or 0 to 20mA.
Running command channel	Three channels: operation panel, control terminals and serial communications port. Channels can be switched in several ways.
Frequency source	Seven frequency sources, including digital, analogue voltage, analogue current, multi-speed and serial port references. Sources can be switched in several ways.
Run functions	Frequency limiting, jump frequency, frequency compensation, auto-tuning and PID control.

Control architecture

The PXe-PI150 accepts commands from the local operation panel, control terminals or serial communications. Frequency references can be selected from digital, analogue, multi-speed and communications sources.

Command channels Operation panel, control terminals and serial communications.	Analogue I/O AI1 input plus DA1 selectable voltage or current output.	Digital functions Five digital inputs, fault reset, emergency stop and multi-speed control.
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Technical specification

Protection, display, communications, environment and construction

5. Protection	
Inverter protection	Overvoltage, undervoltage, overcurrent, overload, overheat, overcurrent stall, overvoltage stall, phase-loss protection (optional), communication error, abnormal PID feedback signal, PG failure and short circuit to ground.

6. Display and monitoring	
LED display / running information	Running frequency, set frequency, bus voltage, output voltage, output current, output power, output torque, input terminal status, output terminal status, analogue AI1 value, actual motor speed, PID set-value percentage and PID feedback percentage.
Error history	Stores up to three error messages. The time, type, voltage, current, frequency and operating status at the time of failure can be queried.
Key lock and function selection	Part or all of the keys can be locked, and the function scope of selected keys can be defined to prevent misuse.
IGBT temperature	Displays the inverter's internal IGBT temperature.

7. Communications	
RS485	Built-in RS485 communications.

8. Environment	
Operating temperature	-10°C to 40°C. Derating is required from 40°C to 50°C.
Storage temperature	-20°C to 65°C.
Humidity	Less than 90% RH, non-condensing.
Vibration	Below 5.9m/s ² (0.6g).
Application environment	Indoor use, away from direct sunlight, corrosive or explosive gas, water vapour, dust, flammable gas, oil mist, dripping water and salt contamination.
Altitude	No derating below 1000m. Above 1000m, derate by 1% for each additional 100m. Maximum altitude 3000m.
Protection level	IP20.

9. Standards and construction	
Safety standard	IEC 61800-5-1:2007.
EMC standard	IEC 61800-3:2005.
Cooling method	Forced-air cooling.
Installation method	DIN-rail mounting, wall mounting and side-by-side installation.

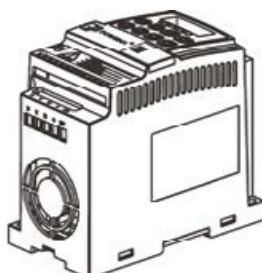
Operating limits -10°C to 40°C without derating; up to 3000m with altitude derating.	Standards IEC 61800-5-1:2007 safety and IEC 61800-3:2005 EMC.	Construction IP20, forced-air cooling, wall, DIN-rail or side-by-side mounting.
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Model range and dimensions

Electrical ratings and mechanical data for the PXe-PI150 series



Compact enclosure



Side-view construction



Isometric arrangement

Electrical model table

Model	Input voltage	Output power (kW)	Input current (A)	Output current (A)
PXe-PI150-0R4G1(Z)	1PH 220V	0.4	5.4	2.5
PXe-PI150-0R4G2(Z)	3PH 220V	0.4	4.1	2.5
PXe-PI150-0R7G1(Z)	1PH 220V	0.75	8.2	4.0
PXe-PI150-0R7G2(Z)	3PH 220V	0.75	5.3	4.0
PXe-PI150-0R7G3(Z)	3PH 380V	0.75	4.3	2.5
PXe-PI150-1R5G1(Z)	1PH 220V	1.5	14.0	7.0
PXe-PI150-1R5G2(Z)	3PH 220V	1.5	8.0	7.0
PXe-PI150-1R5G3(Z)	3PH 380V	1.5	5.0	3.8
PXe-PI150-2R2G3(Z)	3PH 380V	2.2	5.8	5.1
PXe-PI150-2R2G1(Z)	1PH 220V	2.2	23.0	10.0
PXe-PI150-2R2G2(Z)	3PH 220V	2.2	11.8	10.0
PXe-PI150-004G3(Z)	3PH 380V	4.0	10.5	9.0
PXe-PI150-5R5G3(Z)	3PH 380V	5.5	14.6	13.0

Mechanical dimensions

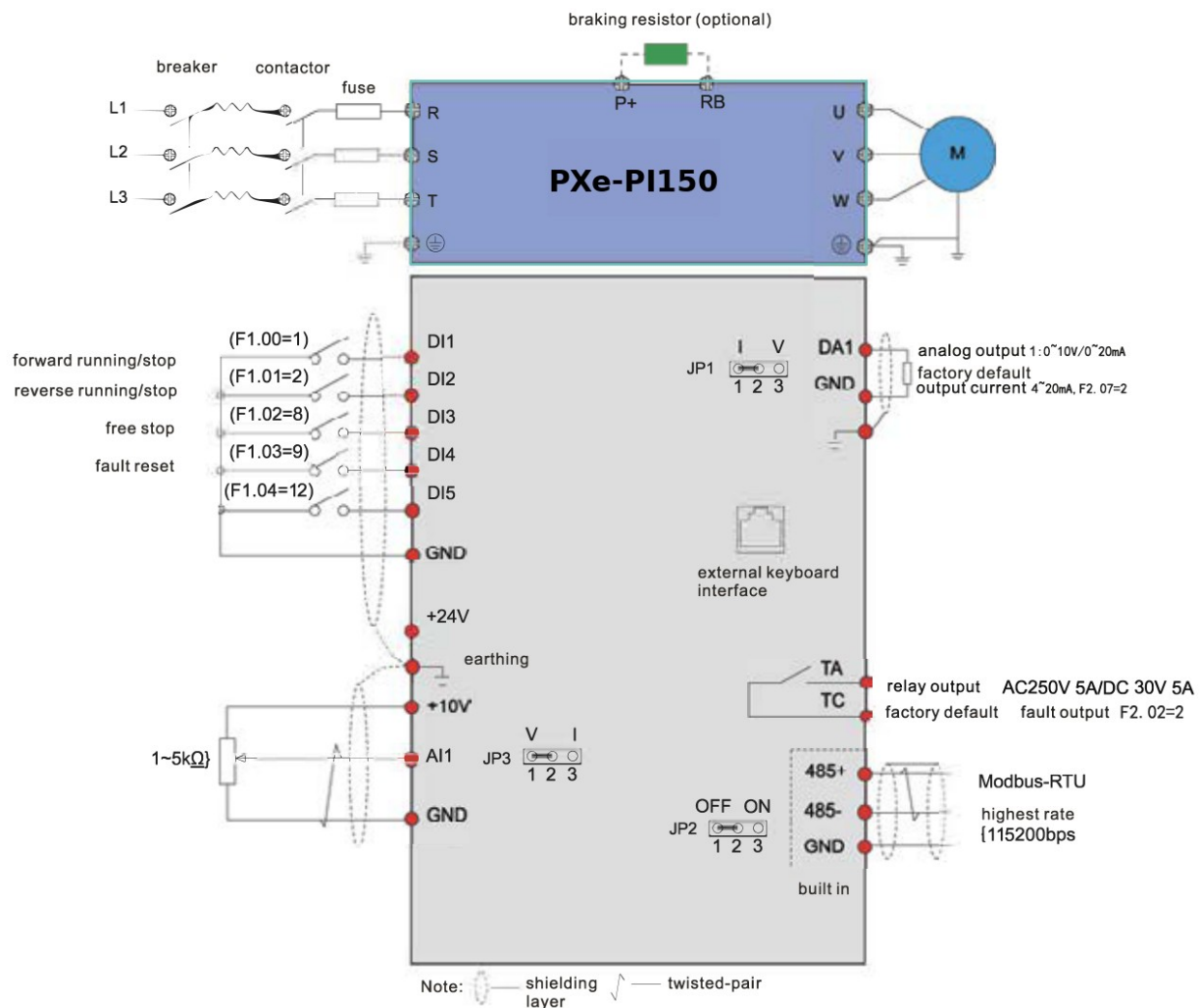
Chassis	Models	L	W	H	a	b	d	DIN rail	Weight
A	0R4G1/G2; 0R7G1/G2/G3; 1R5G1/G2/G3; 2R2G3	138	72	123.5	127	61	Ø5	62	1.1kg
B	2R2G1/G2; 004G3; 5R5G3	185	72	134	175	45	Ø5	82	1.3kg

Dimension references

L, W and H are overall enclosure dimensions. a, b and d are installation dimensions. The DIN-rail value is the mounting dimension shown in the original specification. All dimensions are in millimetres.

Wiring and interfaces

Typical main-circuit, control-terminal and communications arrangement



Digital inputs

Five DI terminals shown for forward run/stop, reverse run/stop, free stop and fault reset functions.

Outputs

DA1 analogue output and a relay output are provided for monitoring and status functions.

Analogue input

AI1 accepts 0 to 10V or 0 to 20mA, selected by the relevant input configuration.

Communications

Built-in RS485 / Modbus-RTU. The source diagram states a maximum communications rate of 115200bps.

Installation note

Confirm the exact terminal assignment, jumper position, earthing, braking-resistor requirement and motor connection against the operating manual and the selected model before energising the inverter.

Configuration, applications and project information

Practical information for selection, commissioning and quotation



Local operator interface

- Five-digit LED display and running indication
- Parameter / ESC, shift, increase and decrease keys
- RUN, STOP/RESET, ENTER and quick multifunction controls
- Support for an optional external keyboard
- Separate input, output and cooling arrangements

Information required to confirm a model

Supply

Input voltage, phase, frequency and available protection.

Motor

Rated voltage, current, power, frequency, speed and connection.

Load and duty

Load type, starting torque, acceleration time, cyclic duty and braking requirement.

Control

Local, terminal or RS485 control; analogue reference and PID feedback requirements.

Installation

Wall or DIN rail, side-by-side layout, ambient temperature, altitude and enclosure conditions.

Accessories

External keyboard, braking resistor, communications integration and project documentation.

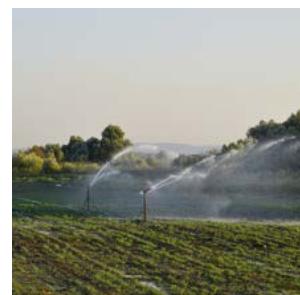
Typical applications



Fabrication and cutting



Machine tools and workshops



Pumps, fans and process loads

PX Electronics Limited

Unit 13B, Southview Park
Marsack Street, Reading
Berkshire RG4 5AF, United Kingdom

Discuss your requirement

+44 118 206 7525
info@pxelectronic.com
www.pxelectronic.com