

DATASHEET

PXE SERIES POWER PRODUCTS

Basic Frequency Inverter

PXe-PI550A1 Series

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About

PX Electronic specialise in the design of electrical power measuring instrumentation. Including power analysers, High Voltage Switching, HiPot Testing, ground bond testing and DC loads. Our product expertise and consultancy includes applications associated with electrical safety equipment, AC power analysis, energy instruments and current sensors and current probes. Applications include EV, wind turbines, green power, automation, military power systems, power electronics, power conversion, electric cars, generators, motors, fans and pumps.

Our range of Test & Measuring products includes power analysers, single & three phase watt meters measuring from DC to 2MHz along with HV related switching and IR measurement products.

PX offers PC based software solutions. This enables PX measuring instruments and transducers to be controlled via USB, Ethernet, RS232, RS485 and IEEE-488 interfaces. Various display and storage options are available to suit the customer's need. An "in house" software customisation service is available.

PX has a global support network, enabling us to distribute our products worldwide from a variety of distributors and representatives to meet the needs of our customers.

PXe-PI550AI Series

Basic Frequency Inverter

Performance Features

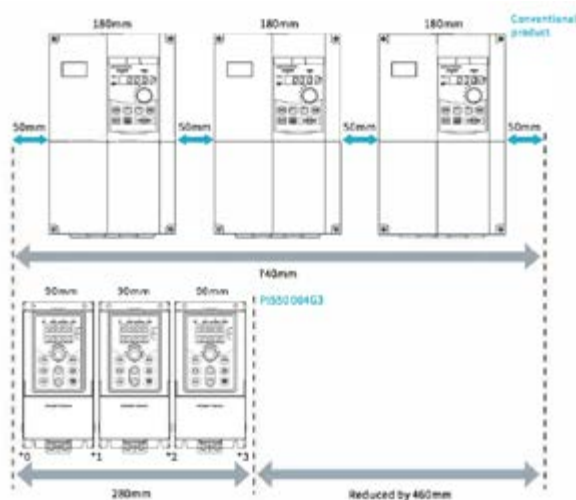
The PXe-PISSOAI series basic inverter has been produced to meet market demand for low power, small volume and simple speed regulation inverters. As a small volume and large capacity of the basic inverter product, the PXe-PISSOAI has high power density, high EMC specification design, high protection performance and other significant advantages. It can be widely used in textile, paper, drawing, winding, machine tools, packaging, food, fan, water pump and other industries as well as small automated machinery.



Compact design for miniaturization

- Optimal power density design, effectively minimize product volume;
- Book structure design with full power segment, support seamless installation in minimum space; Installation mode: Support wall mounting and guide rail installations

380V 4kW Example

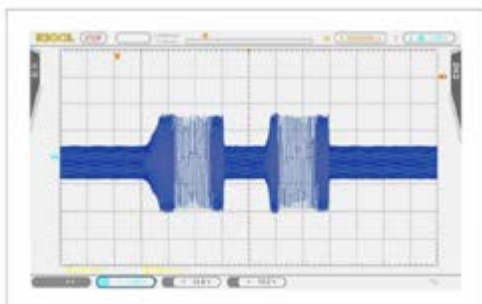


Excellent control performance



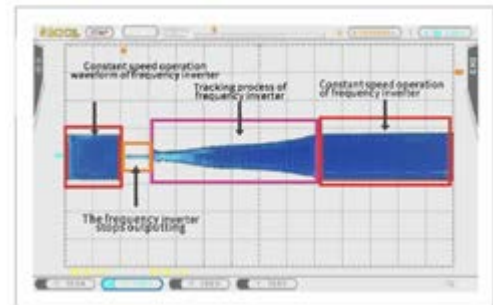
1) Leading motor drive technology

- No PG vector control, with PG vector control, VF control to meet different load process requirements.
- Advanced vector control algorithm can realize the current vector control of induction induction motor and permanent magnet synchronous motor with high performance. (PISSOE is permanent magnet synchronous motor version)



2) Excellent control performance

- Speed stability accuracy: $\pm 0.50\%$ (without PG vector control), $\pm 0.020\%$ (with PG vector control)
- Speed range: 1:100 (without PG vector control), 1:1000 (with PG vector control)
- Torque response: $< 40\text{ms}$ (without PG vector control), $< 5\text{ms}$ (with PG vector control)
- Heavy load overload capacity: 110% rated stable operation (110% continuous operation) 150% rated load 1min, 180% rated load SS.



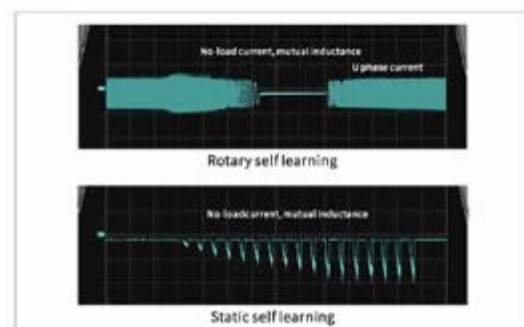
3) Real hard speed tracking function: "car start"

- Accurate, stable and reliable tracking

Rich easy-to-use features

1) Self-learning of accurate motor parameters

- Convenient, simple operation, providing higher control accuracy and response speed
- Can be fully self-learning motor parameters (rotation self-learning) or static self-learning (motor and load can not be separated from the occasion), debugging



Standard Specifications

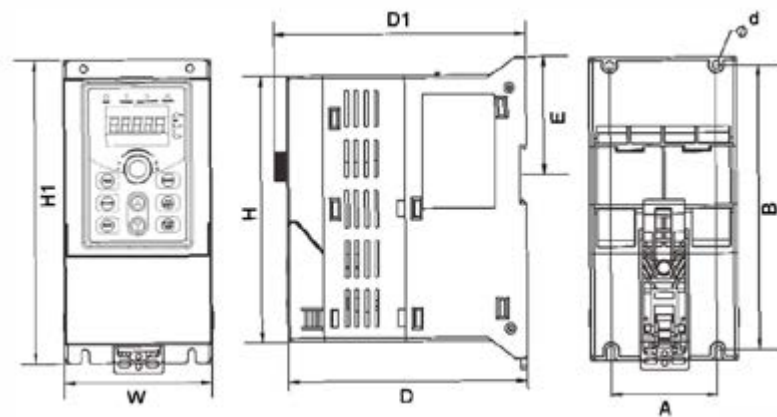
Item	Function	Specification
Power Input	Rated voltage	AC 1PH 220V(-15%)~240V(+10%)/AC 3PH 220V(-15%)~240V(+10%) AC 3PH 380V(-15%)~440V(+10%)/AC 3PH 480V(-10%)~480V(+10%)
	Input frequency	50Hz/60Hz
	Allowing fluctuations	Continuous voltage fluctuation: $\pm 10\%$
		The voltage imbalance rate is less than 3%
Control System		Input frequency fluctuation: $\pm 5\%$
		Distortion rate meets the standard I EC61800-2
	Control system	High performance vector control inverter based on DSP
	Control method	V/F control, vector control W/O PG
	Automatic torque boost function	Realize low frequency (1 Hz) and large output torque control under the V/F control mode
	Acceleration/deceleration control	Straight or S-curve mode. Four times available and time range is 0.0 to 6500.0s
	V/F curve mode	Linear, square root/m-th power, custom V/F curve
	Over load capability	G type:rated current 150% -1 minute, rated current 180%-2 seconds Ftype:rated current 120% -1 minute, rated current 150%-2 seconds
	Maximum frequency	1, Vector control:0 to 300Hz; 2, V/F control:0 to 3200Hz
	Carrier Frequency	0.5 to 16kHz; automatically adjust carrier frequency according to the load characteristics
	Input frequency resolution	Digital setting: 0.01 Hz Analog setting: maximum frequency*0.025%
	Start torque	G-type machine: 0.5Hz/150% (without PG vector control); F-type machine: 0.5Hz/100% (without PG daily control)
	Speed range	1: 100 (without PG vector control)
	Steady speed accuracy	No PG vector control: $\leq 0.5\%$ (rated synchronous speed)
	Torque response	$\leq 20\text{ms}$ (without PG vector control)
	Torque boost	Automatic torque boost; manual torque boost(0.1 % to 30.0%)
	DC braking	DDC braking frequency: 0.0Hz to max. frequency, braking time: 0.0 to 100.0 seconds, braking current value: 0.0~100.0s
	Jogging control	Jog Frequency Range: 0.00Hz to max. frequency; Jog Ac/deceleration lime: 0.0s to 6500.0s
	Built-in PID	Easy to realize closed-loop control system for the process control
	Automatic voltage regulation(AVR)	Automatically maintain a constant output voltage when the voltage of electricity grid changes
	Torque limit and control	Automatically track current motor torque when the inverter starts
Personalization Function	Self-inspection of peripherals after power-on	After powering on,peripheral equipment will perform safety testing,such as ground, short circuit,etc.
	Common DC bus function	Multiple inverters can use a common DC bus.
	Quick current limiting	Quick current limiting The current limiting algorithm is used to reduce the inverter overcurrent probability, and improve function whole unit anti-interference capability.
	Timing control	Timing control function: time setting range(0m to 6500m)

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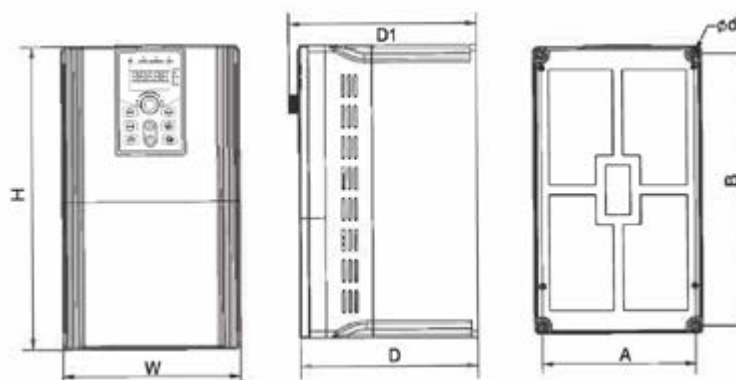
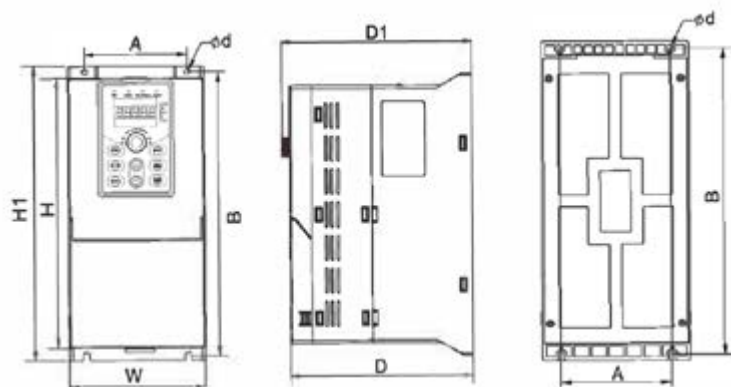
Standard Specifications (continued)

Item	Function		Specification
Running	Input Signal	DI1 input terminal	6 digital input terminal, DIS can be high speed pulse input (0~100kHz square wave)
		AI1 analog input	1 analog AI 1 input terminal, can choose 0~10V or 0~20mA input
		Multi-speed	At most 16-speed can be set(run by using the multi-function terminals or program)
		Emergency stop	Interrupt controller output
		Fault reset	When the protection function is active, you can automatically or manually reset the fault condition
		PID feedback signal	Including DC(0 to 1 OV), DC(0 to 20mA)
	Output signal	Output terminal	1 collector output terminal SPA; 1 relay output terminal; 1 DA1 analog output terminal
		SPA/Relay output	Each port has 40 signals can be optional, contact capacity of relay:normally open contact SA/AC 250V;1A/DC 30V
		DA 1 analog output	1 analog output, 16 signals can be selected such as frequency,current, voltage and other, output signal range (0 to 10V / 0 to 20mA)
	Running command channel		Three channels: operation panel, control terminals and serial communication port. They can be switched through a variety of ways
	Frequency source		Total 9 frequency sources: digital, analog voltage, multi-speed and serial port. They can be switched through a variety of ways
	Run function		Limit frequency, jump frequency, frequency compensation, auto-tuning, PID control
Protection function	Inverter protection		Overvoltage protection, undervoltage protection, overcurrent protection, overload protection, overheat protection, overcurrent stall protection, overvoltage stall protection, lasting-phase protection (optional), communication error, PID feedback signal abnormalities, PG failure and short circuit to ground protection
Display	LED display keyboard	Running information	Monitoring objects including: running frequency, set frequency, bus voltage, output voltage, output current, output power, output torque, input terminal status, output terminal status, analog AI1 value, motor Actual running speed, PID set value percentage, PID feedback value percentage
		Error message	At most save three error message, and the time, type, voltage, current, frequency and work status can be queried when the failure is occurred
	Key lock and function selection		Lock part or all of keys, define the function scope of some keys to prevent misuse
	IGBT temperature		Display current IGBT temperature
Communication	RS485		Built in RS485
Environment	Environment temperature		-10°C to 40°C (temperature at 40°C to 50°C, please derating for use)
	Storage temperature		-20°C to 65°C
	Environment humidity		Less than 90% R.H, no condensation of moisture
	Vibration		Below 5.9m/s ² (= 0.6g)
	Application sites		Indoor where no sunlight or corrosive, explosive gas and water vapor, dust, flammable gas, oil mist, water vapor, drip or salt, etc
	Altitude		No derating is used below 1000m, and 1 % derating is used for every 100m increase above 1000m. The highest altitude is 3000m
	Protection level		IP20
Product standard	Product adopts safety standards		IEC61800-5-1:2007
	Product adopts EMC standards		IEC61800-3:2005
Other	Cooling method		Forced air cooling

Technical Specification



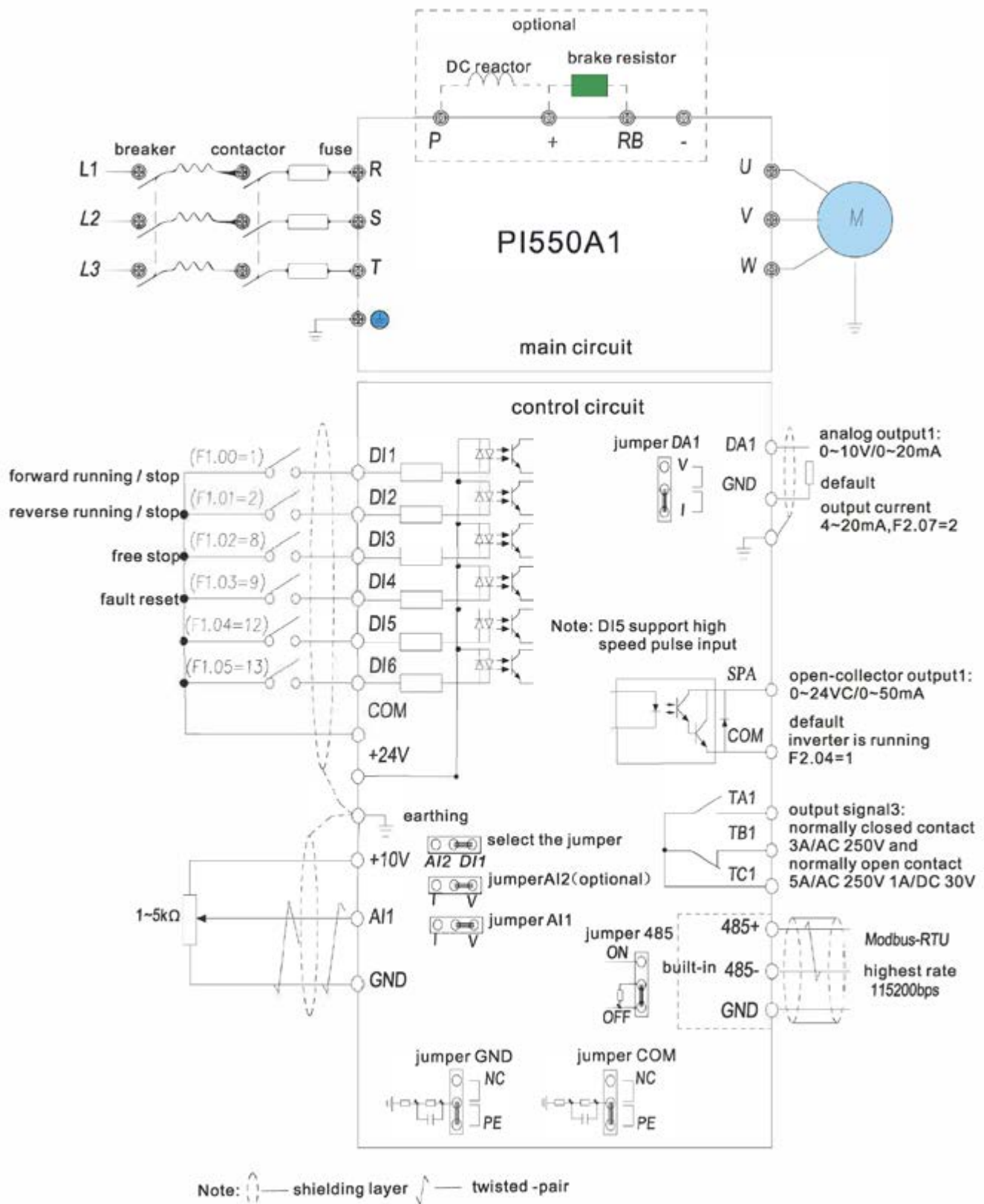
Base No.	Dimensions(mm)					Installation dimensions(mm)			DIN-Rail mounting (mm) E	N.w. (kg)
	H	H1	W	D	D1	A	B	d		
A1	163	185	90	146	154	65	174	5	72.5	1.6
A2	163	185	90	166	174	65	174	5	72.5	1.8
A3	238	260	120	182	190	90	250	5	/	2.7
A4	290	/	170	193	201	155	276	5	/	5.8



Configuration Parameter

Base No.	Inverter Model	Output Power (kW)	Dimensions(mm)					Installation dimensions(mm)			DIN-Rail mounting (mm) E	N.w. (kg)
			H	H1	W	D	D1	A	B	d		
Single phase 220VAC external dimension diagram and installation dimensions												
A1	PI550A1 0R4G1	0.4	163	185	90	146	154	65	174	5	72.5	1.4
	PI550A1 0R7G1	0.75										
A2	PI550A1 1R5G1	1.5	163	185	90	166	174	65	174	5	72.5	1.6
	PI550A1 2R2G1	2.2										
A3	PI550A1 004G1	4	238	260	120	182	190	90	250	5	/	3.2
A4	PI550A1 5R5G1	5.5	290	/	170	193	201	155	276	5	/	5.9
Single phase 220VAC external dimension diagram and installation dimensions, load for single-phase motor, only valid for PI550A1G1S model												
A1	PI550A1 0R4G1S	0.4	163	185	90	146	154	65	174	5	72.5	1.4
	PI550A1 0R7G1S	0.75										
A2	PI550A1 1R5G1S	1.5	163	185	90	166	174	65	174	5	72.5	1.6
	PI550A1 2R2G1S	2.2										
A3	PI550A1 004G1S	4	238	260	120	182	190	90	250	5	/	3.2
A4	PI550A1 5R5G1S	5.5	290	/	170	193	201	155	276	5	/	5.9
Outline dimension diagram and installation dimensions of three-phase 220VAC												
A1	PI550A1 0R4G2	0.4	163	185	90	146	154	65	174	5	72.5	1.4
	PI550A1 0R7G2	0.75										
	PI550A1 1R5G2	1.5										
A2	PI550A1 2R2G2	2.2	163	185	90	166	174	65	174	5	72.5	1.6
A3	PI550A1 004G2	4	238	260	120	182	190	90	250	5	/	3.2
	PI550A1 5R5G2	5.5										
A4	PI550A1 7R5G2	7.5	290	/	170	193	201	155	276	5	/	5.9
	PI550A1 011G2	11										
Outline dimension diagram and installation dimensions of three-phase 380VAC												
A1	PI550A1 0R7G3	0.75	163	185	90	146	154	65	174	5	72.5	1.4
	PI550A1 1R5G3	1.5										
	PI550A1 2R2G3	2.2										
A2	PI550A1 004G3	4	163	185	90	166	174	65	174	5	72.5	1.6
A3	PI550A1 5R5G3	5.5	238	260	120	182	190	90	250	5	/	3.2
	PI550A1 7R5F3	7.5										
	PI550A1 7R5G3	7.5										
	PI550A1 011F3	11										
	PI550A1 011G3	11										
A4	PI550A1 015F3	15	290	/	170	193	201	155	276	5	/	5.9
	PI550A1 015G3/PI550A1 018F3	15/18.5										
	PI550A1 018G3/PI550A1 022F3	18.5/22										
	PI550A1 022G3	22										
Outline dimension diagram and installation dimensions of three-phase 480VAC												
A1	PI550A1 0R7G4	0.75	163	185	90	146	154	65	174	5	72.5	1.4
	PI550A1 1R5G4	1.5										
	PI550A1 2R2G4	2.2										
A2	PI550A1 004G4	4	163	185	90	166	174	65	174	5	72.5	1.6
A3	PI550A1 5R5G4	5.5	238	260	120	182	190	90	250	5	/	3.2
	PI550A1 7R5G4	7.5										
	PI550A1 011F4	11										
	PI550A1 011G4	11										
A4	PI550A1 015F4	15	290	/	170	193	201	155	276	5	/	5.9
	PI550A1 015G4/PI550A1 018F4	15/18.5										
	PI550A1 018G4/PI550A1 022F4	18.5/22										
	PI550A1 022G4	22										

Wiring diagram



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PX Electronics
13b Southview Park,
Marsack Street,
Reading
Berkshire
RG4 5AF
United Kingdom



Tel: +44 118 206 7525
Email: info@pxelectronic.com
Website: www.pxelectronic.com