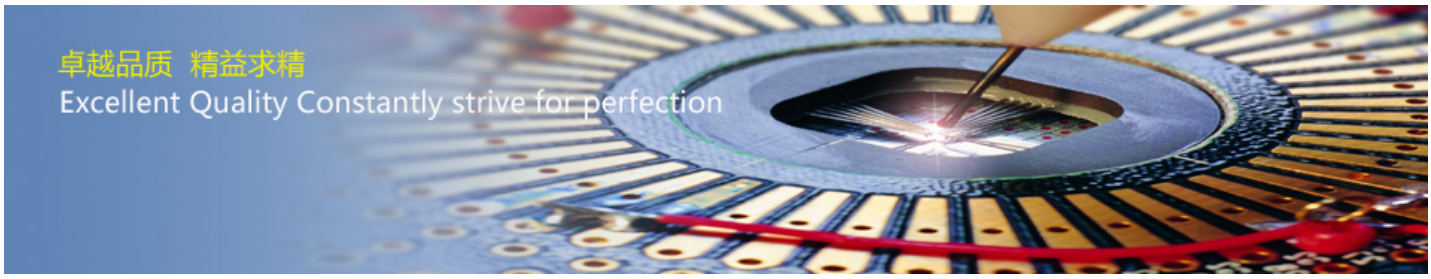

Products

New Products

Frequency Inverter

Soft starter

Servo Drives & Motor

PS7800 Frequency Inverter Cabinet Machine

Accessories

Contact Us More

Tel:

+86-755-29630738

Fax:

+86-755-29666485

Name：PI9000 High-performance universal vector control inverte

Power range：0.4-630KW

Voltage level：1-phase 220V

3-phase 220V

3-phase 380V

3-phase 480V

3-phase 690V

Description

Detail introduction：

PI9000 series frequency inverter is a new high-performance frequency inverter ,which is based on motor running and the new theories and technological achievements of control, with servo functions to finish the perfect control of the motor , to provide you with comprehensive solutions in high-end control fields.

Performance profile:

This series frequency inverter is a high-quality, multi-function vector control frequency inverter. By decoupling control of motor magnetic flux current and torque current to achieve rapid –response and accurate torque control, high-precision of speed operation and torque control in a wide range.

The new hardware platform, scientific production technology and complete testing equipment to ensure the product is more stable and reliable applications.

Technical Features:

- Central control module based on DSP (32 bits digital signal processor), achieves high-speed and high-performance control

-Control Mode: Sensorless vector control (SVC), Sensor vector control (SVC), V/F Control

-Automatic recognize the parameter of the motor, Intelligent tuning to the best control mode

-Dead zone compensate function and automatic slip compensate function, 180% torque output can be achieved below 0.25Hz frequency

-Simple PLC function, at most 15 segments speed control and 8 segments acceleration control can be realized

-“One key to shuttle” keyboard, swirling free, two-way custom buttons with the demand for expansion

-Multi-language, humanization display menu, highlight OLED simultaneous display 3 groups of state parameters

-Keyboard is hot-pluggable and can restore or copy 4 groups of running parameter programs

-Powerful communication function which can support standard RR485 and Modus, Meanwhile provide remote keyboard control

-Unique EMC design minimizes pollution to the power

-All strengthen the coating can work in various bad environment

POWTRAN®
PI9000 series
High-performance vector control inverter
www.powtran.com

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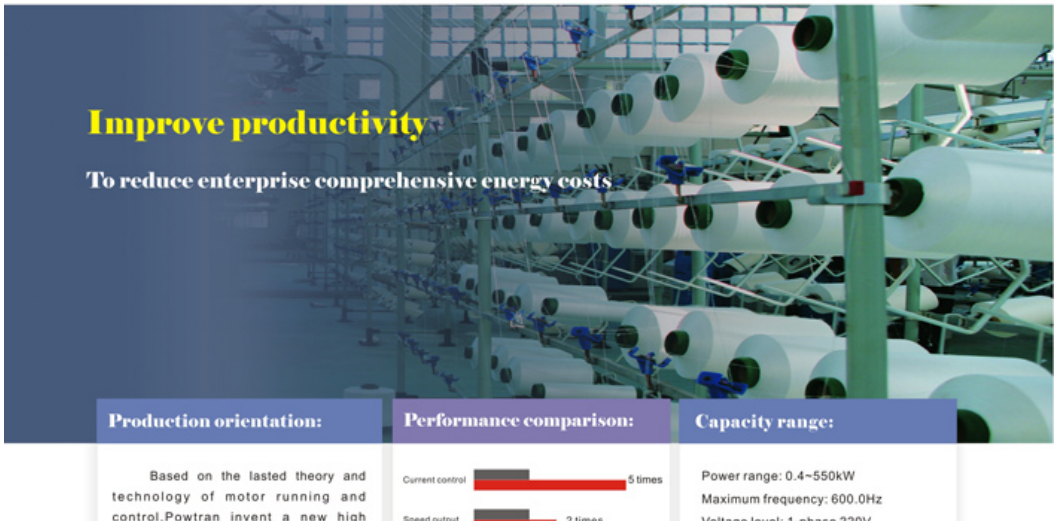
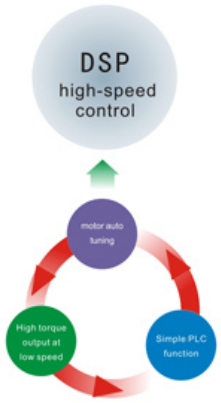

Improve productivity
To reduce enterprise comprehensive energy costs
Production orientation:
Based on the lasted theory and technology of motor running and
Performance comparison:
Current control
5 times
Capacity range:
Power range: 0.4~550kW
Maximum frequency: 600.0Hz

performance vector control frequency inverter .Through decoupling the motor flux current and torque current , it can achieve high rapid response and high accuracy torque control , gain high precision with more wider range control in speed control and torque control as well .



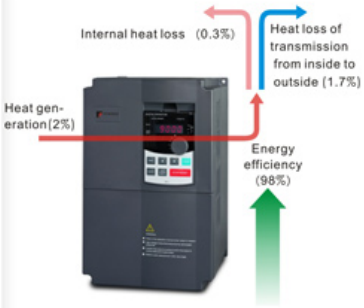
Voltage level: 1-phase 220V
3-phase 220V
3-phase 380V
3-phase 480V
3-phase 690V

Application field:

Metallurgy, petroleum, chemical, textile, building material, coal, medicine, food, paper making, plastic, printing, hoist, washing, water supply, sewage treatment, etc

Machine industry:

Wire drawing machine, mixer, compressor, extruder, pump, air blower, grinder, conveyor, lifting machine, etc



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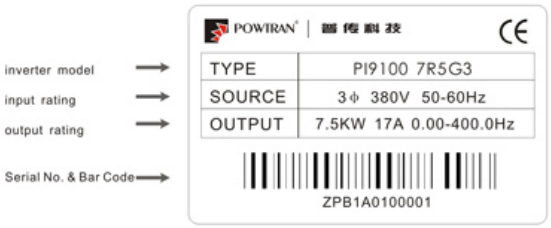
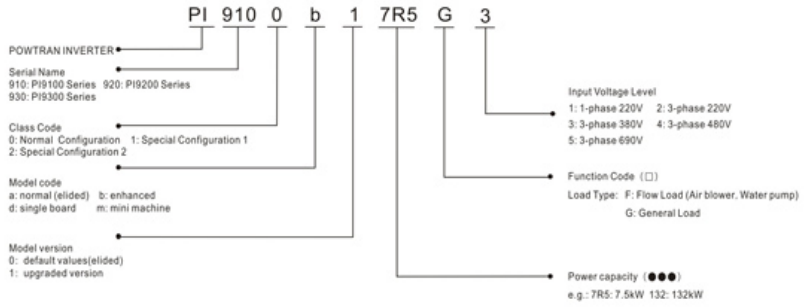
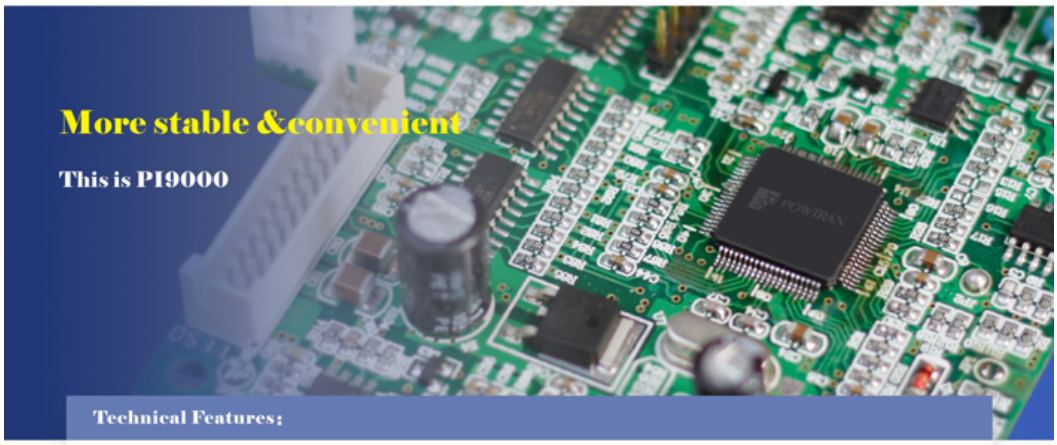
Nameplate instruction:



Model Description:



PI9000 series



Technical Features:

1.Based on 32-bit DSP and adopt an advanced vector control algorithm to realize a high-performance control.	2.Mode of speed control: Senseless Vector Control, Sensor Close Loop Vector Control, V/F control	3.Vector control in asynchronous and permanent synchronous motor is available feature motor parameter auto- tuning.	4.150% torque when at low speed (0.5) running in the sensorless vector control mode.
5.Built in simple PLC function ,16 sections speed is available.	6.Multi-language OLED could display 3 parameter groups at the same time	7.Rotating freely with "one key shuttle keyboard"	8.Optimized ventilation design
9.Reliable insulation design, ensure the safety of inverter	10.Support the standard Modbus communication protocol	11.Strengthened coating, adapt to tough environment	12.Unique EMC design, minimized the radiating interference to power grid.

08

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Standard specification:

Item		Specification
Power	Voltage and frequency levels	Single-phase 220,50/60Hz Three-phase 220V,50/60Hz Single-phase 380,50/60Hz Three-phase 480V,50/60Hz Three-phase 690V,50/60Hz
	Allowable fluctuation	Voltage:±15% Frequency:±5%
Control system	Control system	High performance vector control inverter based on DSP
	Output frequency	Vector control:0 to 300Hz V/F control:0 to 3200Hz
	Control method	V/F control, vector control W/O PG, vector control W/ PG
	Automatic torque boost function	Realize low frequency (1Hz) 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 F type:rated current 120% - 1 minute, rated current 150% - 2 seconds
	Maximum frequency	Vector control:0 to 300Hz V/F control:0 to 3200Hz
	Carrier Frequency	0.5 to 15kHZ;automatically adjust carrier frequency according to the load characteristics.
	Input frequency resolution	Digital setting: 0.01Hz Analog setting: maximum frequency×0.025%
	Start torque	G type: 0.5Hz/150% (vector control W/O PG) F type: 0.5Hz/100% (vector control W/O PG)
	Speed range	1:100 (vector control W/O PG) 1:1000 (vector control W/ PG)
	Steady-speed precision	Vector control W/O PG: ≤ ± 0.5% (rated synchronous speed) Vector control W/ PG: ≤ ± 0.02% (rated synchronous speed)
	Speed control accuracy	Vector control W/O PG ≤ ± 0.3% (rated synchronous speed)
	Torque response	≤ 40ms (vector control W/O PG) ≤ 5ms (W/ PG)
	Torque boost	Automatic torque boost; manual torque boost(0.1% to 30.0%)
	DC braking	DC braking frequency: 0.0Hz to max. frequency, braking time: 0.0 to 36.0 seconds, braking current value: 0.0% to 100.0%
	Jogging control	Jog Frequency Range: 0.00Hz to max. frequency; Jog Ac/deceleration time: 0.0s to 3600.0s
	Multi-speed operation	Achieve up to 16-speed operation through the control terminal
	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	"Excavator" feature - torque is automatically limited during the operation to prevent frequent overcurrent trip;the closed-loop vector mode is used to control torque.
Persona-lization 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.
	Cycle-by-cycle current limiting	The current limiting algorithm is used to reduce the inverter overcurrent probability, and improve whole unit anti-interference capability.
	Timing control	Timing control function: time setting range(0h to 65535h).

PI9000 series

Standard specification:

Item			Specification
Running	input signal	Running method	Keyboard/terminal/communication
		Frequency setting	10 frequency settings available, including adjustable DC(0 to 10V),adjustable DC(0 to 20mA), panel potentiometer, etc.
		Start signal	Rotate forward/reverse
		Multi-speed	At most 16-speed can be set(run by using the multi-function terminals or program)
		Emergency stop	Interrupt controller output
		Wobbulate run	Process control run
		Fault reset	When the protection function is active, you can automatically or manually reset the fault condition.
		PID feedback signal	Including DC(0 to 10V), DC(0 to 20mA)
	output signal	Running status	Motor status display, stop, ac/deceleration, constant speed, program running status.
		Fault output	Contact output - AC 250V 5A, DC 30V 5A
		Analog output	Two-way analog output, 16 signals can be selected such as frequency,current,voltage and other, output signal range (0 to 10V / 0 to 20mA).
		Output signal	At most 3-way output,there are 40 signals each way
	Run function		Limit frequency,jump frequency,frequency compensation,auto-tuning, PID control
	DC current braking		Built-in PID regulates braking current to ensure sufficient braking torque under no overcurrent condition.
	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 5 frequency sources: digital,analog voltage,analog current, multi-speed and serial port. They can be switched through a variety of ways.
	Input terminals		6 digital input terminals, compatible with active PNP or NPN input mode, one of them can be for high-speed pulse input(0 to 100KHZ square wave); 2 analog input terminals for voltage or current input.
	Output terminals		2 digital output terminals, one of them can be for high-speed pulse output(0 to 100KHZ square wave); one relay output terminal; 2 analog output terminals respectively for optional range (0 to 20mA or 0 to 10V),they can be used to set frequency, output frequency, speed and other physical parameters.
Protection function	Inverter protection		Overvoltage protection, undervoltage protection, overcurrent protection, overload protection, overheat protection, overcurrent stall protection, overvoltage stall protection, losting-phase protection (optional), external fault, communication error, PID feedback signal abnormalities, PG failure and short circuit to ground protection.
	IGBT temperature display		Displays current temperature IGBT
	Inverter fan control		Can be set
	Instantaneous power-down restart		Less than 15 milliseconds: continuous operation. More than 15 milliseconds: automatic detection of motor speed, instantaneous power-down restart.
	Speed start tracking method		The inverter automatically tracks motor speed after it starts
	Parameter protection function		Protect inverter parameters by setting administrator Password and decoding
display	LED/OLED display keyboard	Running information	Monitoring objects including : running frequency, set frequency, actual motor current, DC bus voltage, output voltage, actual motor speed, cumulative running time, IGBT temperature, PID reference value, PID feedback value, input terminal status, output terminal status, analog AI1 value, analog AI2 value, current stage of multi-speed, torque set value.
		Error message	At most save 3 error message, and the time, type, voltage, current, frequency and work status can be queried when the failure is occurred.
	LED display		Display parameters
	OLED display		Optional, prompts operation content in Chinese/English text.
	Copy parameter		Quickly copy parameters by using the special keyboard(only for OLED)
	Key lock and function selection		Lock part or all of keys, define the function scope of some keys to prevent misuse.
Communication	RS485/RS232		The optional completely isolated RS485/RS232 communication module can communicate with the host computer.
Environment	Environment temperature		-10 ~ to 40 ℃ (temperature at 40 ℃ to 50 ℃, please derating for use)
	Storage temperature		-20 ℃ to 65 ℃
	Environment humidity		Less than 90% R.H, does not exceed 90% R.H
	Height and vibration		Below 1000m, below 5.9m/s² (= 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		Below 1000m
	Pollution degree		2
Product standard	Product adopts safety standards.		IEC61800-5-1:2007
	Product adopts EMC standards.		IEC61800-3:2005
	Cooling method		Forced air cooling and natural air cooling

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Technical specifications:

Inverter model	input voltage	rated output power	rated input current	rated output current	match motor	Housing No
PI9100-0R4G2	3 phase220V ±15%	0.4	3.4	2.1	0.4	9S2
PI9100-0R7G2		0.75	5	3.8	0.75	9S2
PI9100-1R5G2		1.5	5.8	5.1	1.5	9S2
PI9100-2R2G2		2.2	10.5	9	2.2	9S3
PI9100-3R7G2		3.7	14.6	13	3.7	9S3
PI9200-5R5G2		5.5	26	25	5.5	9L1
PI9200-7R5G2		7.5	35	32	7.5	9L1
PI9200-011G2		11	46.5	45	11	9L1
PI9200-015G2		15.0	62	60	15.0	9L2
PI9200-018G2		18.5	76	75	18.5	9L2
PI9200-022G2		22.0	91	90	22.0	9L3
PI9200-030G2		30.0	112.0	110	30.0	9L3
PI9200-037G2		37.0	157	152	37.0	9L3
PI9200-045G2		45.0	180	176	45.0	9L4
PI9200-055G2		55.0	214	210	55.0	9L4
PI9200-075G2		75	307	304	75	9L4
PI9100-0R7G3	3 phase380V ±15%	0.75	3.4	2.1	0.75	9S2
PI9100-1R5G3		1.5	5.0	3.8	1.5	9S2
PI9100-2R2G3		2.2	5.8	5.1	2.2	9S2
PI9100-3R7G3		3.7	10.5	9	3.7	9S3
PI9100-5R5G3/ PI9100-5R5F3		5.5	14.6	13	5.5	9S3/9S3
PI9100-7R5G3/ PI9100-7R5F3		7.5	20.5	17	7.5	9S4/9S4
PI9200-011G3/PI9200-011F3/ PI9200-015F3		11/11/15	26/26/35	25/25/32	11/11/15	9L1/9L1/9L1
PI9200-015G3/ PI9200-018F3		15/18.5	35/38.5	32/37	15/18.5	9L1/9L1
PI9200-018G3/ PI9200-022F3		18.5/22	38.5/46.5	37/45	18.5/22	9L2/9L2
PI9200-022G3/ PI9200-030F3		22/30	46.5/62	45/60	22/30	9L2/9L2
PI9200-030G3/ PI9200-037F3		30/37	62/76	60/75	30/37	9L3/9L3
PI9200-037G3/ PI9200-045F3		37/45	76/91	75/90	37/45	9L3/9L3
PI9200-045G3/ PI9200-055F3		45/55	91/112	90/110	45/55	9L4/9L4
PI9200-055G3/ PI9200-075F3		55/75	112/157	110/150	55/75	9L4/9L4
PI9200-075G3/ PI9200-090F3		75/90	157/180	150/176	75/90	9L4/9L4
PI9200-090G3/ PI9200-110F3		90/110	180/214	176/210	90/110	9L5/9L5
PI9200-110G3/ PI9200-132F3		110/132	214/256	210/253	110/132	9L5/9L5
PI9200-132G3/ PI9200-160F3		132/160	256/307	253/304	132/160	9L6/9L6
PI9200-160G3/PI9200-187F3		160/187	307/345	304/340	160/187	9L6/9L6
PI9300-187G3/ PI9300-200F3		187/200	345/385	340/380	187/200	9C1/9C1
PI9300-187G3/ PI9300-200F3		187/200	345/385	340/380	187/200	9C2/9C2
PI9300-200G3/ PI9300-220F3		200/220	385/430	380/426	200/220	9C1/9C1
PI9300-200G3/ PI9300-220F3		200/220	385/430	380/426	200/220	9C2/9C2
PI9300-220G3		220	430	426	220	9C1
PI9300-220G3/ PI9300-250F3		220/250	430/468	426/465	220/250	9C2/9C2
PI9300-250G3/ PI9300-280F3		250/280	468/525	465/520	250/280	9C3/9C3
PI9300-280G3/ PI9300-315F3		280/315	525/590	520/585	280/315	9C3/9C3
PI9300-315G3/ PI9300-355F3		315/355	590/665	585/650	315/355	9C3/9C3
PI9300-355G3/ PI9300-400F3		355/400	665/785	650/725	355/400	9C3/9C3

PI9000 series

Technical specifications:

Inverter model	input voltage	rated output power	rated input current	rated output current	match motor	Housing No
PI9100-0R7G4	3 phase480V ±15%	0.75	3.4	2.1	0.75	9S2
PI9100-1R5G4		1.5	5.0	3.8	1.5	9S2
PI9100-2R2G4		2.2	5.8	5.1	2.2	9S2
PI9100-3R7G4		3.7	10.5	9	3.7	9S3
PI9100-5R5G4/ PI9100-5R5F4		5.5	14.6	13	5.5	9S3/9S3
PI9100-7R5G4/ PI9100-7R5F4		7.5	20.5	17	7.5	9S4/9S4
PI9200-011G4/PI9200-011F4/ PI9200-015F4		11/11/15	26/26/35	25/25/32	11/11/15	9L1/9L1/9L1
PI9200-015G4/ PI9200-018F4		15/18.5	35/38.5	32/37	15/18.5	9L1/9L1
PI9200-018G4/ PI9200-022F4		18.5/22	38.5/46.5	37/45	18.5/22	9L2/9L2
PI9200-022G4/ PI9200-030F4		22/30	46.5/62	45/60	22/30	9L2/9L2
PI9200-030G4/ PI9200-037F4		30/37	62/76	60/75	30/37	9L3/9L3
PI9200-037G4/ PI9200-045F4		37/45	76/91	75/90	37/45	9L3/9L3
PI9200-045G4/ PI9200-055F4		45/55	91/112	90/110	45/55	9L4/9L4
PI9200-055G4/ PI9200-075F4		55/75	112/157	110/150	55/75	9L4/9L4
PI9200-075G4/ PI9200-090F4		75/90	157/180	150/176	75/90	9L4/9L4
PI9200-090G4/ PI9200-110F4		90/110	180/214	176/210	90/110	9L5/9L5
PI9200-110G4/ PI9200-132F4		110/132	214/256	210/253	110/132	9L5/9L5
PI9200-132G4/ PI9200-160F4		132/160	256/307	253/304	132/160	9L6/9L6
PI9200-160G4/PI9200-187F4		160/187	307/345	304/340	160/187	9L6/9L6
PI9300-187G4/ PI9300-200F4		187/200	345/385	340/380	187/200	9C1/9C1
PI9300-187G4/ PI9300-200F4		187/200	345/385	340/380	187/200	9C2/9C2
PI9300-200G4/ PI9300-220F4		200/220	385/430	380/426	200/220	9C1/9C1
PI9300-200G4/ PI9300-220F4		200/220	385/430	380/426	200/220	9C2/9C2
PI9300-220G4		220	430	426	220	9C1
PI9300-220G4/ PI9300-250F4		220/250	430/468	426/465	220/250	9C2/9C2
PI9300-250G4/ PI9300-280F4		250/280	468/525	465/520	250/280	9C3/9C3
PI9300-280G4/ PI9300-315F4		280/315	525/590	520/585	280/315	9C3/9C3
PI9300-315G4/ PI9300-355F4		315/355	590/665	585/650	315/355	9C3/9C3
PI9300-355G4/ PI9300-400F4		355/400	665/785	650/725	355/400	9C3/9C3
PI9200-055G6/ PI9200-075F6	3 phase690V ±15%	55/75	70/90	62/85	55/75	9L4/9L4
PI9200-075G6/ PI9200-090F6		75/90	90/105	85/102	75/90	9L4/9L4
PI9200-090G6/ PI9200-110F6		90/110	105/130	102/125	90/110	9L5/9L5
PI9200-110G6/ PI9200-132F6		110/132	130/170	125/150	110/132	9L5/9L5
PI9200-132G6/ PI9200-160F6		132/160	170/200	150/175	132/160	9L6/9L6
PI9200-160G6/PI9200-187F6		160/187	200/210	175/198	160/187	9L6/9L6
PI9300-187G6/ PI9300-200F6		187/200	210/235	198/215	187/200	9C2/9C2
PI9300-200G6/ PI9300-220F6		200/220	235/247	215/245	200/220	9C2/9C2
PI9300-220G6/ PI9300-250F6		220/250	247/265	245/260	220/250	9C2/9C2
PI9300-250G6/ PI9300-280F6		250/280	265/305	260/299	250/280	9C3/9C3
PI9300-280G6/ PI9300-315F6		280/315	305/350	299/330	280/315	9C3/9C3
PI9300-315G6/ PI9300-355F6		315/355	350/382	330/374	315/355	9C3/9C3
PI9300-355G6/ PI9300-400F6		355/400	382/435	374/410	355/400	9C3/9C3
PI9300-400G6/ PI9300-450F6		400/450	435/490	410/465	400/450	9C3/9C3
PI9300-450G6/ PI9300-500F6		450/500	490/595	465/550	450/500	9C3/9C3
PI9300-500G6		500	595	550	500	9C3
PI9300-550G6		550	605	590	550	9C3

POWTRAN®

Fast return on investment, Low Maintenance cost.

Remarkable enhancement on reliability and continuously running

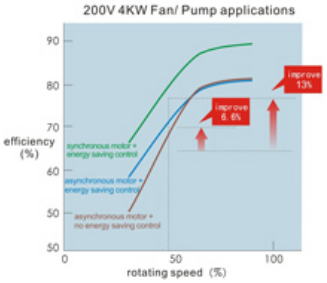
Energy-saving:

Advanced energy saving technology

Use energy saving control of frequency converter to realize high efficient running of asynchronous motor

Saving much more energy on synchronous motor

The energy saving control of the inverter combine with high efficient synchronous motor together can gain super energy saving compare to asynchronous motor .



Pi9000 Energy-saving effect sample

100 sets ,4 KW fan service in air condition application.
Electricity price is 0.11USD/KWH, Service time :365 days per year.

A asynchronous motor + frequency inverter control
Energy consumption about 1,903,100 KWH
Cost of energy about 211,428 USD.

B synchronous motor + frequency inverter control
Energy consumption about 1,754,600 KWH
Cost of energy about 194,929USD.

energy saving per year
energy saving : about 148,500KWH.
Saving cost of energy about 16,499USD.

Environmental resistance:

Corrosion resistance,resistance to dust, resistance to vibration and resistance to environment, the strengthening of the product and meanwhile with dust, drip-proof type taking protection structure.

Pass ROSH

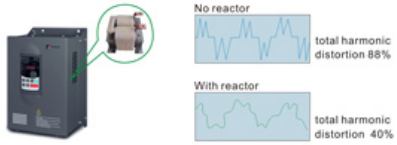
Standard product pass ROHS(European specific harmful substance use restrictions).

Reduce noise

Use Swing PWN to inhibition of electromagnetic interference and reduce the harsh noise

Suppress the high order harmonic in grid.

Built in DC reactor use for suppress high order harmonic.
(Optional from 22KW to 160KW, standard built in from 187KW and above)



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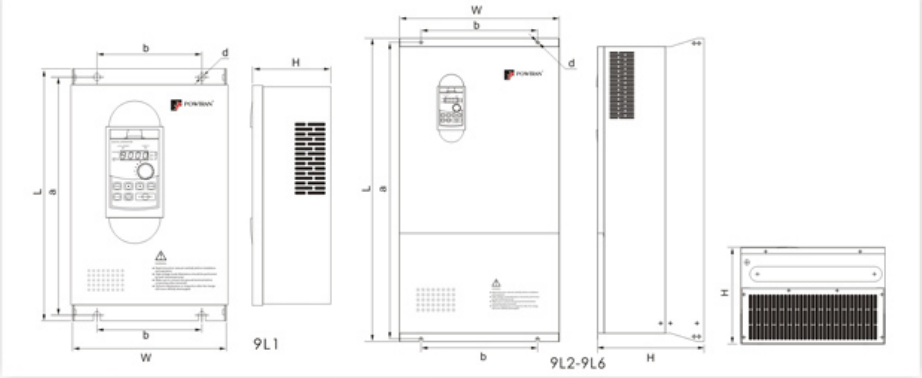
Specification:

(wall-mounted metal housing, wring layout from left to right 9L1—9L6)

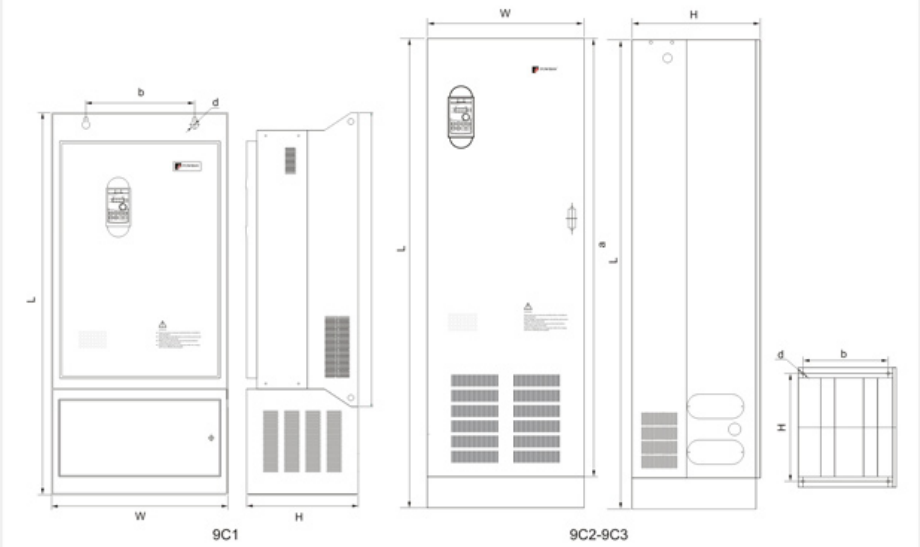


Model	Power(KW)	Voltage(V)	Current(A)	Shape dimensions(L*W*Hmm)	Installation dimensions(a*b*dmm)
9L1	5.5~11	3 phase220	25~45	360 x 220 x 210	340 x 150 Ø10
	11~15	3 phase380	25~32		
	11~18.5	3 phase480	25~37		
9L2	15~18	3 phase220	60~75	435 x 225 x 242	415 x 165 Ø10
	18.5~22	3 phase380	37~45		
	18.5~22	3 phase480	37~45		
9L3	22~37	3 phase220	90~152	480 x 296 x 246	460 x 200 Ø10
	30~37	3 phase380	60~75		
	30~37	3 phase480	60~75		
9L4	45~75	3 phase380	90~150	660 x 364 x 280	640 x 250 Ø10
	45~75	3 phase480	90~150		
	55~75	3 phase690	62~85		
9L5	90~110	3 phase380	176~253	710 x 453 x 280	690 x 350 Ø10
	90~110	3 phase480	176~214		
	90~110	3 phase690	102~125		
9L6	132~160	3 phase380	253~304	910 x 480 x 323	890 x 350 Ø10
	132~160	3 phase480	253~304		
	132~160	3 phase690	150~175		

PI9000 series

Specification:

(floor type with metal housing , wring layout from left to right 9C1—9C3)



Model	Power(KW)	Voltage(V)	Current(A)	Shape dimensions(L*W*Hmm)	Installation dimensions(a*b*dmm)
9C1	200~220	3 phase380	380~426	1300 × 600 × 380	550 × 280 Ø13
	200~220	3 phase480	380~426		
9C2	200~220	3 phase380	380~426	1540 × 525 × 421	464.5 × 367 Ø13
	200~220	3 phase480	380~426		
	200~220	3 phase690	215~245		
9C3	250~355	3 phase380	465~650	1698 × 851 × 470	640 × 260 Ø13
	250~400	3 phase480	465~725		
	250~550	3 phase690	260~590		

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Operating keyboard: button key description

Sign	name	function
PRG	Parameter Setting/ Exit Key	Enter top menu parameter change status Exit from function option change Return to status display menu from sub-menu or function option menu
SHIFT	Shift Key	Select circularly parameters under run or stop interface; select parameters when modifying the parameters.
▲	Ascending Key	Data or function code ascending
▼	Decending Key	Data or function code decending
RUN	Run Key	Used for running operation in the keyboard mode.
STOP/RESET	Stop/Reset Key	Press the key to stop running in running status; press the key to reset in fault alarm status, can be used to reset the operation, the key is subject to function code U7.00.
ENTER	Enter Key	Enter into levels of menu screen,confirm settings.
	Keyboard potentiometer	U0.03 is set to 4,keyboard potentiometer is used to set the running frequency.

PI9000 series

Quality and R&D management:

Quality management operation standard: ISO9001

Quality control management system: Research and development of quality management, supplier quality management, manufacturing quality management, service quality management

Information management system: Kingdee K3 WISE V13.0 enterprise resource planning management system, CRM customer management system, PLM product life cycle management system, Bar code management product quality traceability System, OA collaborative work system, Electronic post office management system

Motor control laboratory

constant temperature experimental facilities

Vibration test bench

Electronic measuring instrument

600MHz oscilloscope

Power analyzer and dynamometer controller

Fluke thermal imager

DC test

Semi-automatic test

aging test

automatic test with load

PCB burn-in test

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