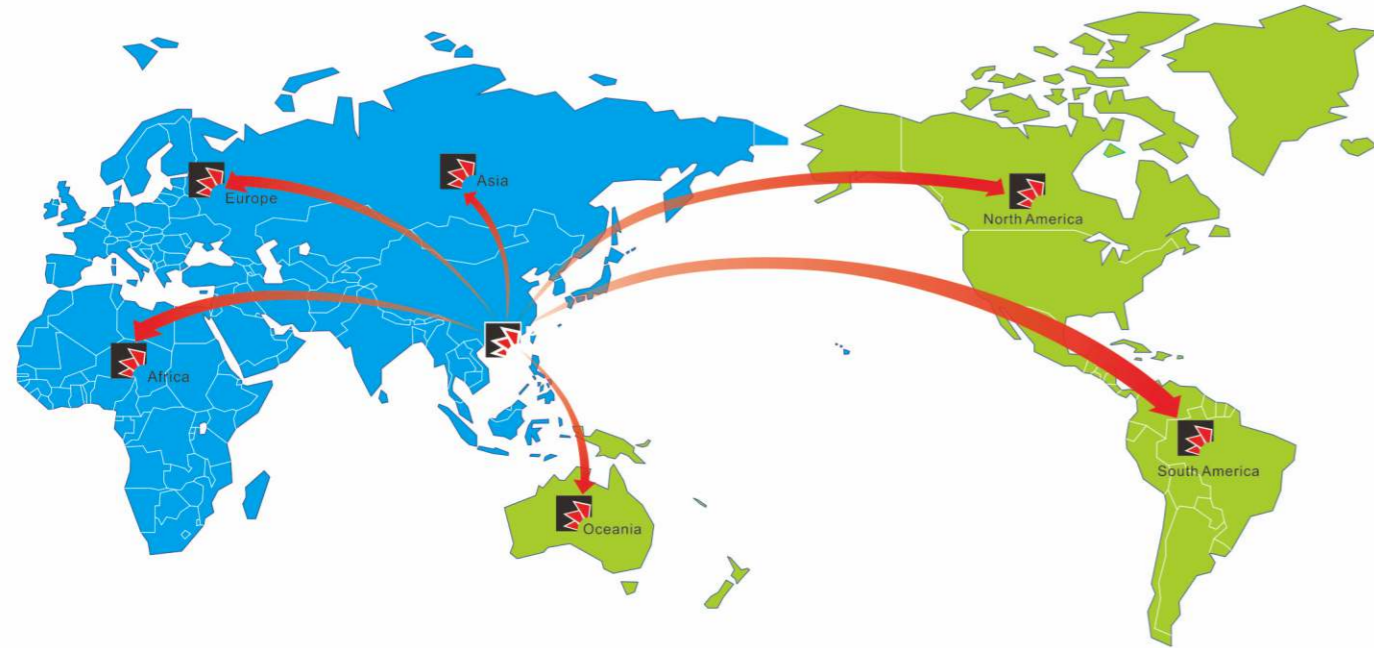


Service Network: //

201702EV3.0



PI500 series

High-performance
vector control inverter

Powtran technology

Professional manufacturer of frequency inverter based on the motor design and manufacture.

Contact

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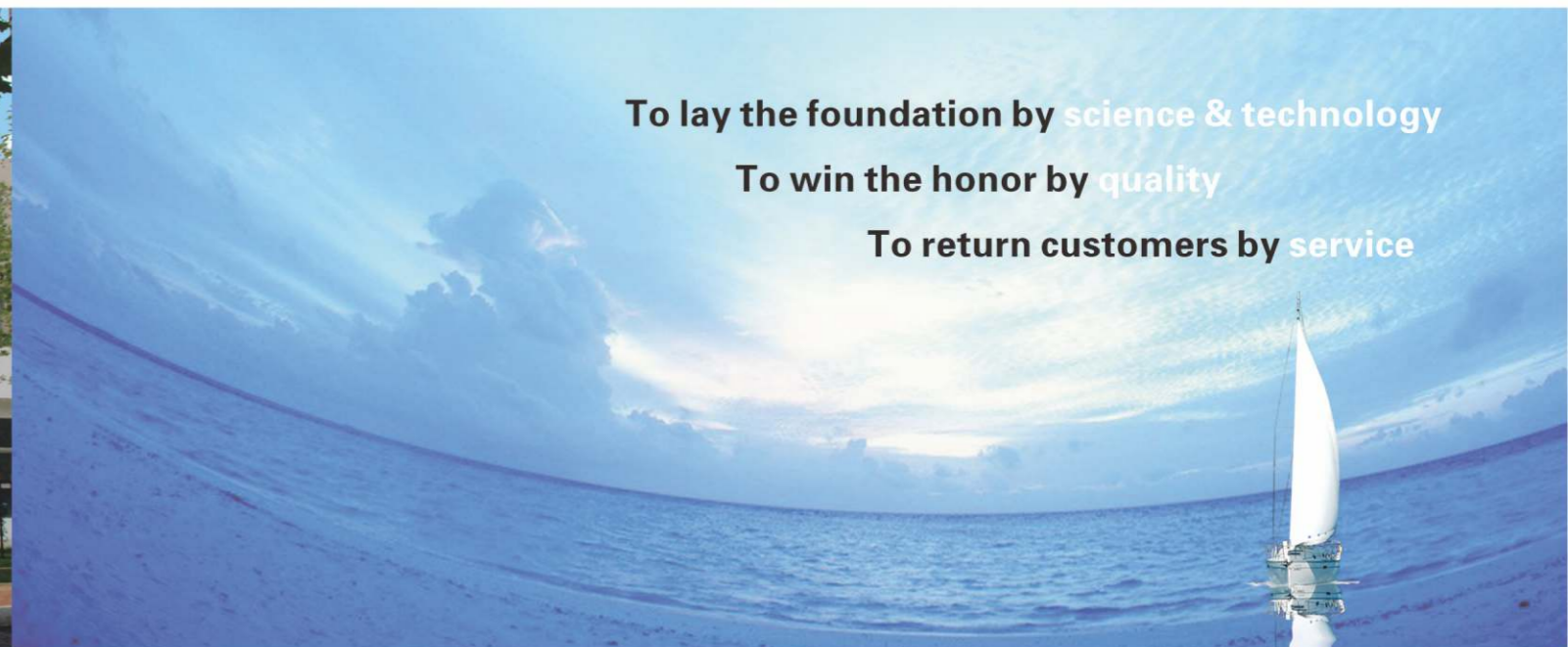
Contents

| | |
|-------------------------------|-------|
| Contents..... | 01 |
| Product Overview..... | 02 |
| About Powtran..... | 03-04 |
| Company Profile..... | 03 |
| Honor..... | 03 |
| Certificates..... | 04 |
| Product Performance..... | 05-12 |
| Nameplate Instruction..... | 13 |
| Technical Features..... | 14 |
| Standard Specification | 15-16 |
| Keypad Instruction..... | 17 |
| Installation Instruction..... | 18 |
| Main Circuit Terminal | 19 |
| Optional Parts..... | 20 |
| Applications..... | 21-22 |

Product Overview

PI500 series high-performance vector control inverter is based on the company's many years of design, production, sales experience, suitable for all kinds of industrial machinery, fan & water pump drive control and heavy industry such as medium frequency grinding. Products in duct design, hardware configuration, software functions, installation design has greatly improved the customer ease of use and environmental adaptability, function optimization, application is more flexible, more stable performance, greatly improve the product reliability.





Company Introduction

Powtran Technology as a national high-tech enterprise, set up Wuxi, Guangzhou and more than 30 offices with the center of Shenzhen and Dalian cities and established a worldwide network of R & D, production, logistics and service. Composing the advanced technology from Japan Toshiba and Taiwan brand, Powtran provides a series of energy saving and automatic & drive control products. such as frequency inverters(including special power supply), soft starters, AC servo drive system, energy saver, vehicle motor drive system. Powtran products are verified by international authoritative organizations and now export to more than 100 countries.

Company History

- 2015: "30 years of the most influential brand"
- 2014: TUV factory-examining certification company .The standards that Powtran took part in drafting already implemented.
- 2013: PI9000 series new product has passed the EU CE security certification.
- 2012: Continuous 6 years of holding the "low voltage converter top ten domestic brand"
- 2011: Provincial electric drive engineering research center
- 2010: Ministry of science and technology innovation fund for the project
- 2009: National Top-new technical enterprise
- 2008: "The ten major energy conservation projects"
- 2007: The vice chairman of the association of frequency converter enterprise; PS7000 motor environmental protection energy efficient appliances, PI7900 electromagnetic stirring power be inspected by national authoritative organization
- 2006: Bear "Torch Plan", 863 Plan Projects , PI7000 series inverter passed GB12668 inspection and Provincial scientific and technological achievements appraisal
- 2005: America ABS approve; National authoritative organization verification
- 2004: ISO9001 Quality Certificate

Certifications



Technical Features

Superior performance in motor drive



Advanced motor drive technology

- A variety of motor drive technology: no matter asynchronous motor or synchronous motor, it can implement high-performance current vector control. (eg: normal asynchronous motor Y2 series, Frequency conversion motor with encoder or W/O encode, asynchronous servo motor, permanent magnet synchronous motor etc).

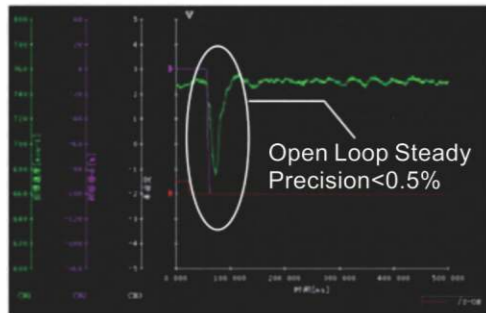
Technical Features

| Rotary self learning | Static self learning |
|---|---|
| the learning must release load, it is suitable for requiring high control precision | it is suitable for motor can't release load occasions, to avoid can't rotate self-learning after installation |

Precise motor parameter self learning

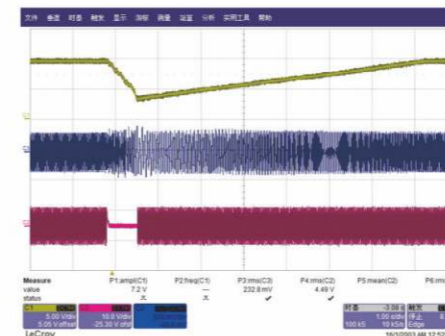
- Motor parameters can be comprehensive self-study (rotary self learning) or still learning (motor) with the occasion of the load cannot escape, convenient debugging, simple operation, provide higher control accuracy and response speed.

Steady speed precision, wide speed range



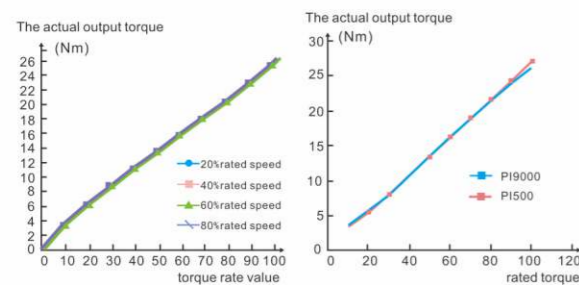
- Open-loop steady speed precision < 0.5%
- High steady speed precision, wide adjust speed range
- Steady speed precision: $\pm 0.5\%$ (open-loop vector control)
- $\pm 0.02\%$ (close-loop vector control)
- Adjust speed range: 1:100 (open-loop vector control), 1:1000 (close-loop vector control),
- Torque response: < 20ms < 20ms (open-loop vector control)
- < 5ms (close-loop vector control)
- Heavy load overload capacity : 110% rate stable operation (110% continuously operation)

150% rate load 1Min
180% rate load 5S.



Instantaneous power off don't stop function

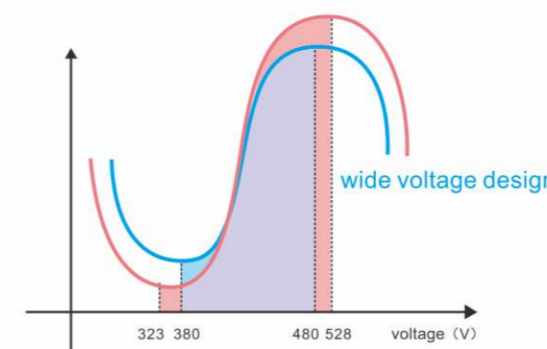
- When grid instantaneous drops or outages, inverter can borrow feedback energy and keep running without stop in effective time, especially suitable for the equipments which needs higher continuity, such as textile production line, chemical fiber.



Low speed with high torque small torque ripple

- stable Torque output , high torque with low frequency , to realize the stable load of low speed 0.01 Hz, torque mode and speed mode can be convenient to switch
- In close-loop vector control , linear torque linearity deviation within 3%.

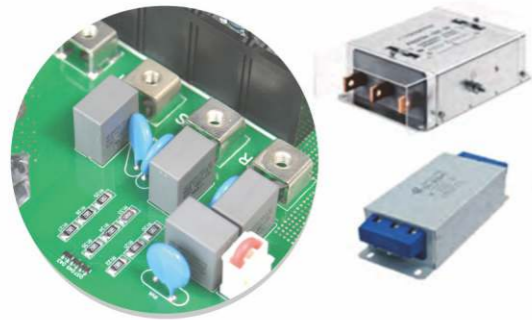
reliable design



Meet the international standard of wide voltage input range

- Rated voltage: 3phase 380-480v 50Hz/60Hz
- Allow voltage float range: rated voltage $\pm 15\%$.

Technical Features

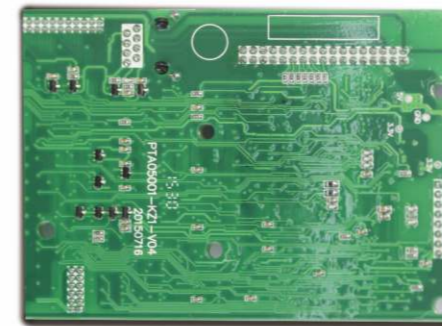


EMC Design specifications Improved

- EMC built-in a set of safety capacitance, optional external capacitance group, simple filter, optional filter schaffner can meet C2 international standards
- Using professional grounding pile design, convenient grounding and weaken the electromagnetic interference
- At the scene of the bad to actual application provides EMC filter, common mode rejection, simple filter configuration of a complete set of plan, optimize the environment of EMC electric field devices

Remark: optional filter match CE approve, C2 EMC standard, recommend SCHAFFNER & JIA NLI model.

Technical Features



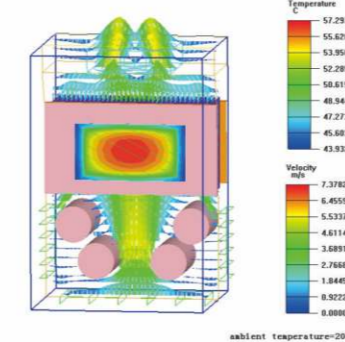
Anti-corrosion paint spraying process

- High protection design, use the import anti-corrosion paint, moisture proof, dustproof, oil proof, corrosion resistance, improve the product reliability, 3D painting, no dead Angle



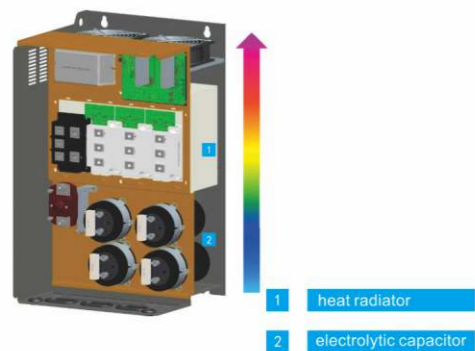
Meet a number of certification standards

- Product is suitable for Euro < Technical coordination and standardization methods > requirements.
EMC directive 2004/108/CE Electromagnetic compatibility directive and LVD directive
2006/95/EC low voltage directive IEC61000-2-2:2002, IEC61000-4-2:2008, IEC61000-4-3:2008; IEC61800-5-1:2007 etc.
- Meet the ROHS directive



Thermal reliability of the machine

- Adopted high precision thermal simulation platform software, ensuring the thermal reliability of the machine.
PI500 series inverter, all must go through thermal simulation test. Thermal design is scientific simulation tested, good accuracy, quick efficiency, good stability, especially in the condition of limit test, thermal simulation can replace the actual load test simulation, equivalent to more than a layer of scientific thermal test



Independent air duct design

- Independent air duct design, the effect of heat dispelling is better, improve the reliability, which can effectively prevent dust into the converter internal to avoid a short-circuit fault etc
- Select longevity's deadly air cooling fan, effectively reduce the temperature rise of frequency converter, inverter reliable and stable operation



Machine temperature rise test

- The full series of frequency converter had done the rated load temperature rise test and overload temperature rise test, test results accord with thermal design safety margin, ensure safe and stable operation of the converter

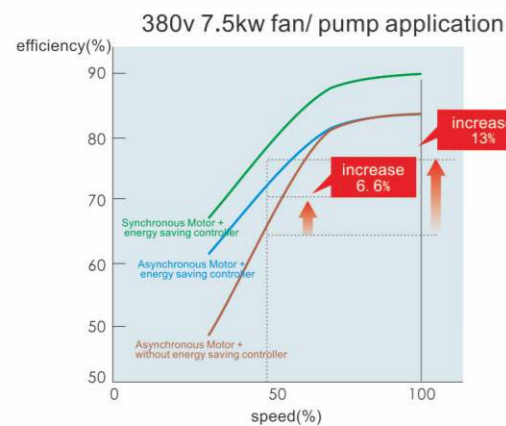
Technical Features



Long life design

- Adopting the first class manufacturers of rectifier bridge and IGBT, higher configure, greater device selection, and monitor all the temperature rise of key components and pcb board;
- Big temperature rise range, longer life;
- Vibration test to make sure the safety of transportation design;
- Internal logistic management(bar code technology, RF technology);
- Sheet Metal design, adopting Cold-rolled steel and galvanized sheet and powder spraying process on the cover

Great environment friendly function



New generation energy saving running

- Adopt the advanced energy control technology
- With the energy control technology to realize the high efficient running of motor;
- Super energy saving while running with synchronous motor;
- Super energy saving while running with synchronous motor, better than asynchronous motor, realize the super energy saving
- ROHS approved, all components are environment friendly, no harm to people, no pollution..

PI500 energy saving for example

Before using controller, the fan of air conditioner 7.5kw*100 sets, price of electricity is RMB 0.7/kwh, 365days of 1 year.

- | Configuration | Electricity cost (kwh) | Cost money (RMB million) |
|---|------------------------|--------------------------|
| A Asynchronous Motor + energy saving controller | about 3,568,313 | RMB2.4975 million |
| B Synchronous Motor + energy saving controller | about 3,289,875 | RMB2.3025 million |
- Annual energy saving efficiency: Electricity: 278,438kwh
Money saving: RMB0.195 million

Remark: above example just for reference. real energy saving will be influenced by running condition, load, price of electricity, motor character etc.

Technical Features

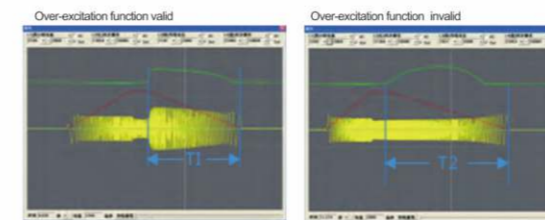
The advanced function of changing the class of machines



The compact design to improve the speed of realizing machines minimizing

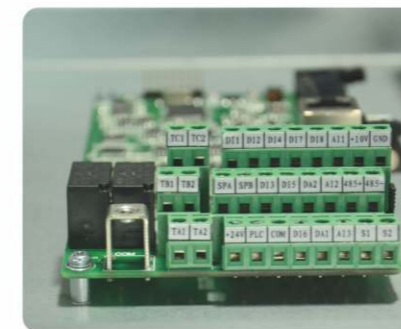
- Collect the minimum frequency inverter with small and light synchronous motor to speed up the machines minimizing;
- Selecting the long life, big wind cooling fans, new generation IGBT module technology ,high efficiency of power, reducing the temperature rise of frequency inverter efficiently, make sure the frequency inverter run steadily.

Over-excitation function



- Fast braking and easy operating without any other periphery braking resistor, etc;
- Inhibit the increasing of DC-bus voltage while deceleration, avoid the frequent err, and fast braking, fast stop.

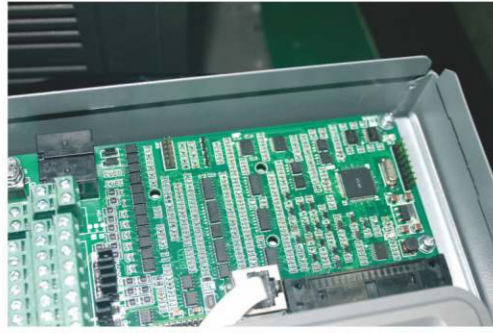
Various kinds of terminals functions, easier for operation



- There are 51kinds of multi-function terminals DI , 41 kinds of DO, and 16kinds of AO logical function choice, and meet general purpose frequency inverter normal requirements.
- AI can be used as multi-function terminals'DI freely;
- AI1~AI3 can be set 4 respectively polylines and five kinds of curves corresponding relationship separately, support the client to adjust the EXW parameters with the site, expanded AI3 is isolated inputs, support PT100 or ± 10 v input,easily operation;
- Good5groups of built-in analog DI and DO function choice, reducing external DI/DO cables,D15 high-speed pulse input terminal and FM high-speed pulse output terminal support the highest 100khz pulse.A

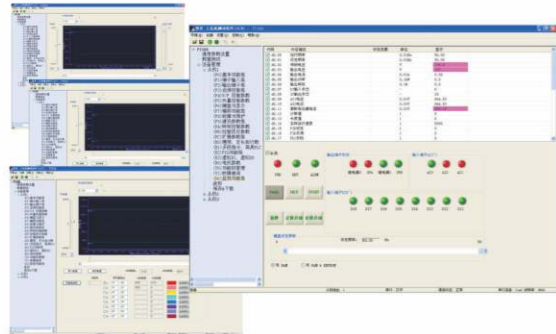
Technical Features

Built in self-adjusting PID function module



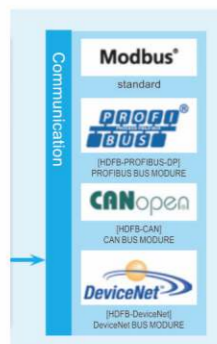
- Built in two groups of PID parameters, it is changeable automatically according to the deviation, DI terminal ,frequency ;
- various given and feedback source, variable and practical type
- PID feedback lost inspection function, it is convenient for user to inspect the fault function;
- Setting factory parameters for special fields to meet the requirements, such as Printing and package, drawing machine, cables etc ,these sites are influenced by changeable diameters, simplify the debugging process ,and easy to maintain the device.

Easy to use PC software



- Easy to use PC monitoring software, enables tracking and fault location, and with oscilloscope function, it's more convenient for clients to program, debug, real time monitoring is very good for analyzing and management.

Communication interface application is very flexible



- Support Modbus RTU,CANopen,Profibus-DP bus Protocol;
- Through a dedicated distribution point of the inverter parameters, to realize a good multi-level load distribution, multi-machine control applications drop.

Technical Features

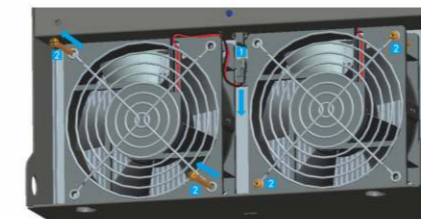
Supporting various kinds of installation ways



- Wall-mounted, flange installation is available for 7.5-110kw (flange mounting needs peripheral accessories);
- Wall-mounted, flange installation, floor installation is available for 132-220kw(flange mounting, floor installation needs peripheral accessories);
- Wall-mounted, floor installation is available for 250-400kw (floor installation needs peripheral accessories);
- Floor-mounted is available for 450-630kw

Simple maintenance

- Fan can be disassembled, easy to install, clean and replace.



Improve the production efficiency!
Reduce the enterprise integrated energy costs

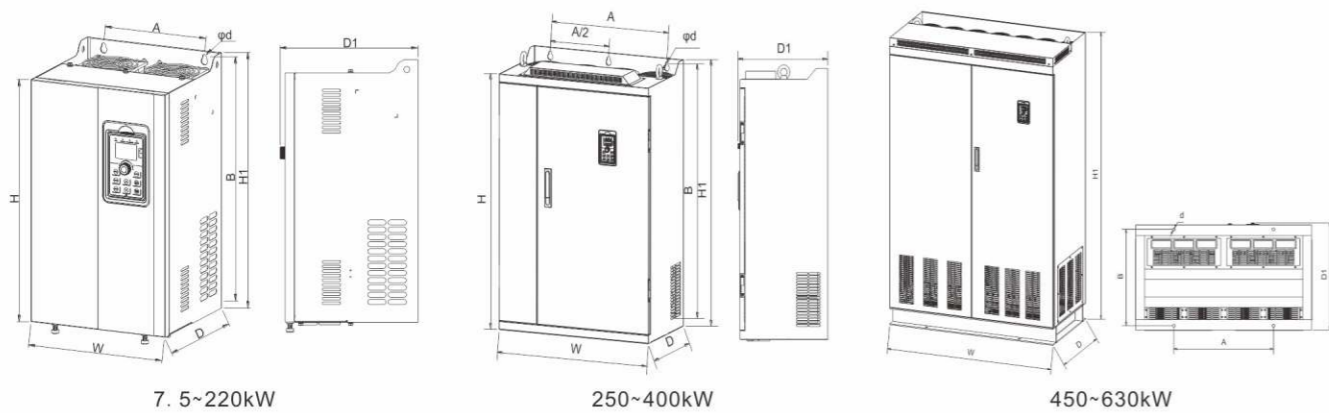
Nameplate instruction

| | | |
|-----------------------|---|---|
| Inverter model | → | MODEL: Pi500 045G3 |
| Output rating | → | POWER: 45kW |
| Input rating | → | INPUT: AC 3PH 380V(-15%)-440V(+10%) 50Hz/60Hz |
| Output specifications | → | OUTPUT: AC 3PH 0V-Vin 90A 0-400Hz |
| Bar code | → | |
| Serial No. | → | ZPB1A8888888 |
| Manufacturer address | → | DALIAN POWTRAN TECHNOLOGY CO.,LTD. |

| | |
|----------------|---------------------|
| PI 500 018 G 3 | Input voltage level |
| PI | 1: single phase220V |
| 500 | 2: three phase220V |
| 018 | 3: three phase380V |
| G | 4: three phase480V |
| 3 | 6: three phase690V |

| | |
|--------------------|-----------------|
| Rated output power | Function code |
| 045:45KW | F: light load |
| 132:132KW | G: General load |

Technical Specification



| Inverter model | Output power (kW) | Input current (A) | Output current (A) | Dimension(H1xWxD1mm) | | | | | Installation (AxB dmm) | | |
|-------------------|-------------------|-------------------|--------------------|----------------------|-----|-----|-----|-----|------------------------|-----|----|
| | | | | H | H1 | W | D | D1 | A | B | d |
| PI500-5R5G1 | 5.5 | 50 | 2.5 | 280 | 300 | 190 | 190 | 198 | 140 | 285 | 6 |
| PI500-5R5G2 | 5.5 | 28 | 25 | 280 | 300 | 190 | 190 | 198 | 140 | 285 | 6 |
| PI500-7R5G2 | 7.5 | 37.1 | 32 | 330 | 350 | 210 | 190 | 198 | 150 | 335 | 6 |
| PI500-011G2 | 11 | 49.8 | 45 | 380 | 400 | 240 | 215 | 223 | 180 | 385 | 7 |
| PI500-015G2 | 15 | 65.4 | 60 | 500 | 520 | 300 | 275 | 283 | 220 | 500 | 10 |
| PI500-018G2 | 18.5 | 81.6 | 75 | 550 | 575 | 355 | 320 | 328 | 250 | 555 | 10 |
| PI500-022G2 | 22 | 97.7 | 90 | 695 | 720 | 400 | 360 | 368 | 300 | 700 | 10 |
| PI500-030G2 | 30 | 122.1 | 110 | 790 | 820 | 480 | 360 | 368 | 370 | 800 | 11 |
| PI500-037G2 | 37 | 157.4 | 152 | 940 | 980 | 705 | 380 | 388 | 550 | 945 | 13 |
| PI500-045G2 | 45 | 185.3 | 176 | 280 | 300 | 190 | 190 | 198 | 140 | 285 | 6 |
| PI500-055G2 | 55 | 214 | 210 | 330 | 350 | 210 | 190 | 198 | 150 | 335 | 6 |
| PI500-075G2 | 75 | 307 | 304 | 380 | 400 | 240 | 215 | 223 | 180 | 385 | 7 |
| PI500-093G2 | 93 | 383 | 380 | 500 | 520 | 300 | 275 | 283 | 220 | 500 | 10 |
| PI500-110G2 | 110 | 428 | 426 | 550 | 575 | 355 | 320 | 328 | 250 | 555 | 10 |
| PI500-132G2 | 132 | 467 | 465 | 695 | 720 | 400 | 360 | 368 | 300 | 700 | 10 |
| PI500-160G2 | 160 | 522 | 520 | 790 | 820 | 480 | 360 | 368 | 370 | 800 | 11 |
| PI500-7R5G3/011F3 | 7.5/11 | 20.5/26 | 17/25 | 940 | 980 | 705 | 380 | 388 | 550 | 945 | 13 |
| PI500-011G3/015F3 | 11/15 | 26/35 | 25/32 | 280 | 300 | 190 | 190 | 198 | 140 | 285 | 6 |
| PI500-015G3/018F3 | 15/18.5 | 35/38.5 | 32/37 | 330 | 350 | 210 | 190 | 198 | 150 | 335 | 6 |
| PI500-018G3/022F3 | 18.5/22 | 38.5/46.5 | 37/45 | 380 | 400 | 240 | 215 | 223 | 180 | 385 | 7 |
| PI500-022G3/030F3 | 22/30 | 46.5/62 | 45/60 | 500 | 520 | 300 | 275 | 283 | 220 | 500 | 10 |
| PI500-030G3/037F3 | 30/37 | 62/76 | 60/75 | 550 | 575 | 355 | 320 | 328 | 250 | 555 | 10 |
| PI500-037G3/045F3 | 37/45 | 76/91 | 75/90 | 695 | 720 | 400 | 360 | 368 | 300 | 700 | 10 |
| PI500-045G3/055F3 | 45/55 | 91/112 | 90/110 | 790 | 820 | 480 | 360 | 368 | 370 | 800 | 11 |
| PI500-045G3/075F3 | 55/75 | 112/157 | 110/150 | 940 | 980 | 705 | 380 | 388 | 550 | 945 | 13 |
| PI500-075G3 | 75 | 157 | 150 | 280 | 300 | 190 | 190 | 198 | 140 | 285 | 6 |
| PI500-093F3 | 93 | 180 | 176 | 330 | 350 | 210 | 190 | 198 | 150 | 335 | 6 |
| PI500-93G3/110F3 | 93/110 | 180/214 | 176/210 | 380 | 400 | 240 | 215 | 223 | 180 | 385 | 7 |
| PI500-110G3/132F3 | 110/132 | 214/256 | 210/253 | 500 | 520 | 300 | 275 | 283 | 220 | 500 | 10 |
| PI500-132G3/160F3 | 132/160 | 256/307 | 253/304 | 550 | 575 | 355 | 320 | 328 | 250 | 555 | 10 |
| PI500-160G3/187F3 | 160/187 | 307/345 | 304/340 | 695 | 720 | 400 | 360 | 368 | 300 | 700 | 10 |
| PI500-187G3/200F3 | 187/200 | 345/385 | 340/380 | 790 | 820 | 480 | 360 | 368 | 370 | 800 | 11 |
| PI500-187G3/200F3 | 200/220 | 385/430 | 380/426 | 940 | 980 | 705 | 380 | 388 | 550 | 945 | 13 |
| PI500-220G3 | 220 | 430 | 426 | 280 | 300 | 190 | 190 | 198 | 140 | 285 | 6 |
| PI500-250F3 | 250 | 468 | 465 | 330 | 350 | 210 | 190 | 198 | 150 | 335 | 6 |
| PI500-250G3/280F3 | 250/280 | 468/525 | 465/520 | 380 | 400 | 240 | 215 | 223 | 180 | 385 | 7 |
| PI500-280G3/315F3 | 280/315 | 525/590 | 520/585 | 500 | 520 | 300 | 275 | 283 | 220 | 500 | 10 |
| PI500-315G3/355F3 | 315/355 | 590/665 | 585/650 | 550 | 575 | 355 | 320 | 328 | 250 | 555 | 10 |
| PI500-355G3/400F3 | 355/400 | 665/785 | 650/725 | 695 | 720 | 400 | 360 | 368 | 300 | 700 | 10 |
| PI500-400G3 | 400 | 785 | 725 | 790 | 820 | 480 | 360 | 368 | 370 | 800 | 11 |
| PI500-450F3 | 450 | 883 | 820 | 940 | 980 | 705 | 380 | 388 | 550 | 945 | 13 |
| PI500-450G3/500F3 | 450/500 | 883/920 | 820/860 | 280 | 300 | 190 | 190 | 198 | 140 | 285 | 6 |
| PI500-500G3/560F3 | 500/560 | 920/1010 | 860/950 | 330 | 350 | 210 | 190 | 198 | 150 | 335 | 6 |
| PI500-560G3/630F3 | 560/630 | 1010/1160 | 950/1100 | 380 | 400 | 240 | 215 | 223 | 180 | 385 | 7 |
| PI500-630G3/700F3 | 630/700 | 1160/1310 | 1100/1250 | 500 | 520 | 300 | 275 | 283 | 220 | 500 | 10 |

Remark: After installing the screw rings ,the height dimensions is :H1+15mm.

Standard specification

| Item | Function | Specification |
|-----------------------------------|---|--|
| Power | Rated voltage level | AC 3PH 380V(-15%)-440V(+10%) |
| | Input frequency | 50Hz/60Hz |
| | Allowable fluctuation | Voltage continued volatility $\pm 10\%$ input frequency volatility: $\pm 5\%$ Voltage unbalance rate less than 3% Distortion meet IEC 61800-2 standard |
| Control System | Control system | High performance vector control inverter based on DSP |
| | 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 16kHz; automatically adjust carrier frequency according to the load characteristics. |
| | Input frequency resolution | Digital setting: 0.01Hz Analog setting: maximum frequency $\times 0.1\%$ |
| | 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: $\leq \pm 0.5\%$ (rated synchronous speed) Vector control W/ PG: $\leq \pm 0.02\%$ (rated synchronous speed) | |
| Torque response | $\leq 40\text{ms}$ (vector control W/O 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: 0.0-100.0s | |
| Jogging control | Jog Frequency Range: 0.00Hz to max. frequency; Jog Ac/deceleration time: 0.0s-6500.0s | |
| 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. | |
| 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 | 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 6500m). |

Standard specification

| Item | Function | Specification | |
|----------------------------------|----------------------------------|---|---|
| Running | Input signal | Running method | Keyboard/terminal/communication |
| | | Frequency setting | 10 frequency setting available, including adjustable DC 0-10V / -10-+10V , adjustable DC 0-20mA , panel potentiometer |
| | | 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 |
| | | Wobble run | Process control run |
| | Output signal | 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) |
| | | Running status | Motor status display, stop, ac/deceleration, constant speed, program running status. |
| | | Fault output | Contact capacity: normal-closed contact 3A/AC 250V; normal-opened contact 5A/AC 250V; 1A/DC 30V. |
| Protection function | 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 4-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 10 frequency sources: digital, analog voltage, analog current, multi-speed and serial port. They can be switched through a variety of ways. | |
| | Input terminals | 8 digital input terminals, compatible with active PNP or NPN input mode, one of them can be for high-speed pulse input(0-100Hz square wave); 3 analog output terminals, AI1 and AI2 can choose 0-10V or 0-20mA input, AI3 voltage is -10-+10V 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. | |
| | Inverter protection | Overvoltage protection, undervoltage protection, overcurrent protection, overload protection, overheat protection, overcurrent stall protection, overvoltage stall protection, losing-phase protection (optional), external fault, communication error, PID feedback signal abnormalities, PG failure and short circuit to ground protection. | |
| | Display | 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 | |
| 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. |
| Communication | | Parameters copy | Can uploading or downloading the function code information of frequency inverters, do the parameter copy quickly. |
| | Key lock and function selection | Lock part or all of keys, define the function scope of some keys to prevent misuse. | |
| Environment | RS485 | The optional completely isolated RS485 communication module can communicate with the host computer. | |
| | 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 | Does not exceed 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. | |
| Product standard | Altitude | Below 1000m | |
| | Pollution degree | 2 | |
| | IP degree | IP20 | |
| Product standard | Product adopts safety standards. | IEC61800-5-1:2007 | |
| | Product adopts EMC standards. | IEC61800-3:2005 | |
| | Cooling method | Forced air cooling | |

Operating keyboard (button key description)

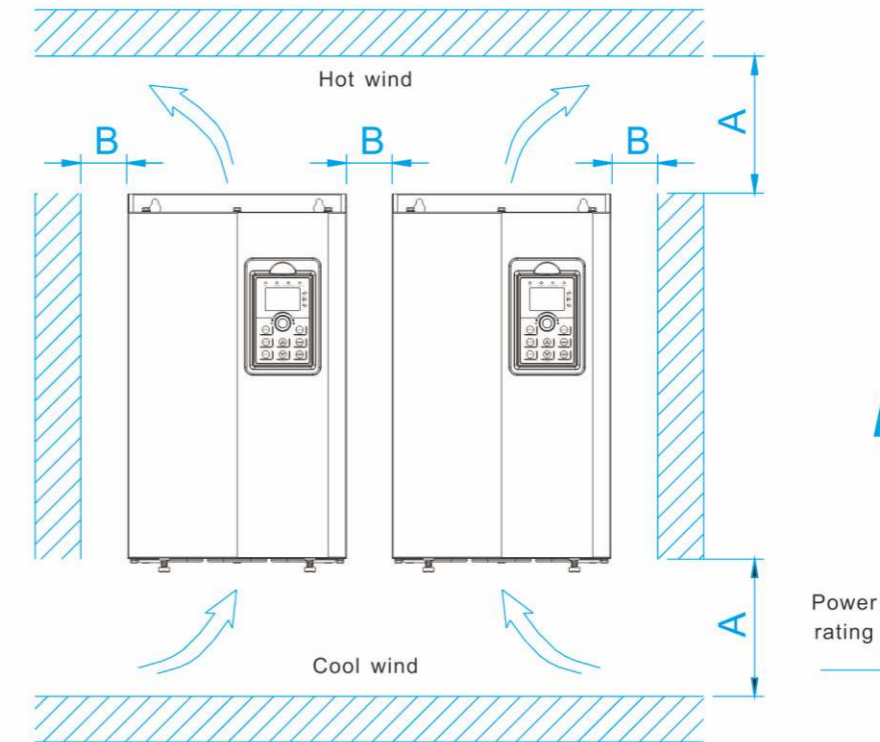


| Sign | Name | Function |
|------|-----------------------------|--|
| | Parameter Setting/ Exit Key | *Enter top menu parameter change status *Exit from function option change *Return to status display menu from sub-menu or function option menu |
| | Shift Key | *Select circularly parameters under run or stop interface; *Select parameters when modifying the parameters. |
| | Ascending Key | *UP key setted by parameter F6.18 |
| | Decending Key | *DOWN key setted by parameter F6.19 |
| | Run Key | *Used for running operation in the keyboard mode. |
| | Stop/Reset Key | *For stopping running in the running status; for resetting the operation in fault alarm status. *The function of the key is subject to F6.00 |
| | Enter Key | *Enter into levels of menu screen, confirm settings. |
| | Quick multifunction key | *This key function is determined by the function code F6.21. |
| | Keyboard encoder | *In query status: functional items increasing and decreasing *In modify status: function feagues or editing increasing or decreasing *In monitoring status: setting frequency increasing or decreasing |

Installation

Installation direction and Vacancy

PI500 series inverter according to different power rating, the requirements of around installation and reserved space is different, specifically as shown below:



| Mounted vertically upwards | Dimension requirement |
|----------------------------|-----------------------|
| 7.5~22KW | A ≥ 200mm; B ≥ 10mm |
| 30~75KW | A ≥ 200mm; B ≥ 50mm |
| 93~400KW | A ≥ 300mm; B ≥ 50mm |

Pi500 Series frequency inverter heat radiator circulated from bottom to top, when more than one inverter work together, usually mounted side by side. In the case of the need to install them by upper and lower rows, due to the heat of the lower inverters rising to the upper equipment, fault maybe caused, heat insulation deflector and other objects to be installed.

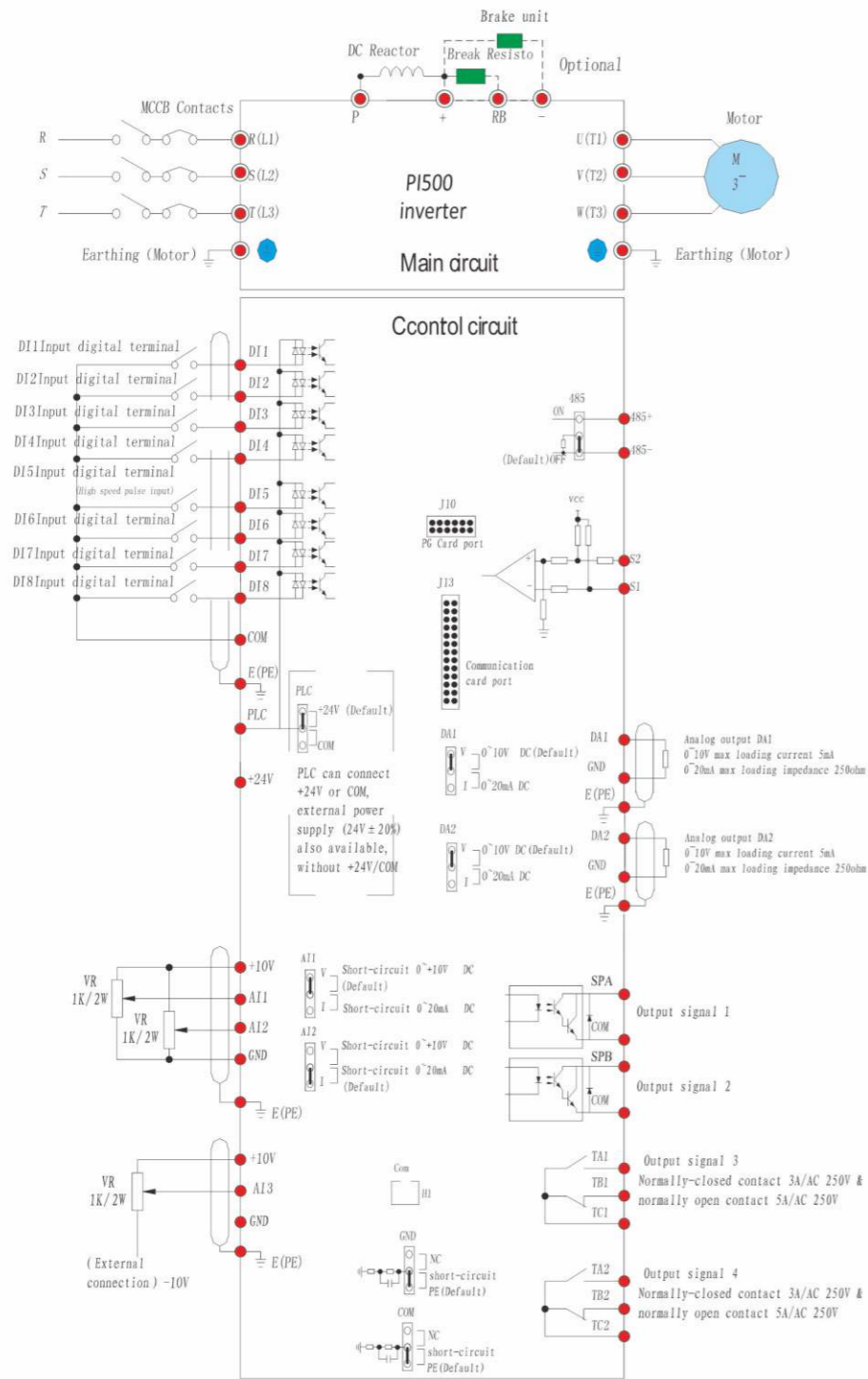
Use of the environment

1. Environmental temperature -10°C to 50°C Above 40°C, the capacity will decrease 3% by each 1°C. So it is not advisable to use inverter above 50°C
2. Prevent electromagnetic interference, and away from interference sources.
3. Prevent the ingress of droplets, vapor, dust, dirt, lint and metal fine powder.
4. Prevent the ingress of oil, salt and corrosive gases.
5. Avoid vibration, Maximum amplitude is less than 5.9m/s (0.6g).
6. Avoid high temperature and humidity or exposure to rain, humidity shall be less than 90% RH (non-condensing). In the presence of corrosive gas, maximum relative humidity is no more than 60%.
7. Altitude below 1000 meters.
8. Never use in the dangerous environment of flammable, combustible, explosive gas, liquid or solid.

Wiring

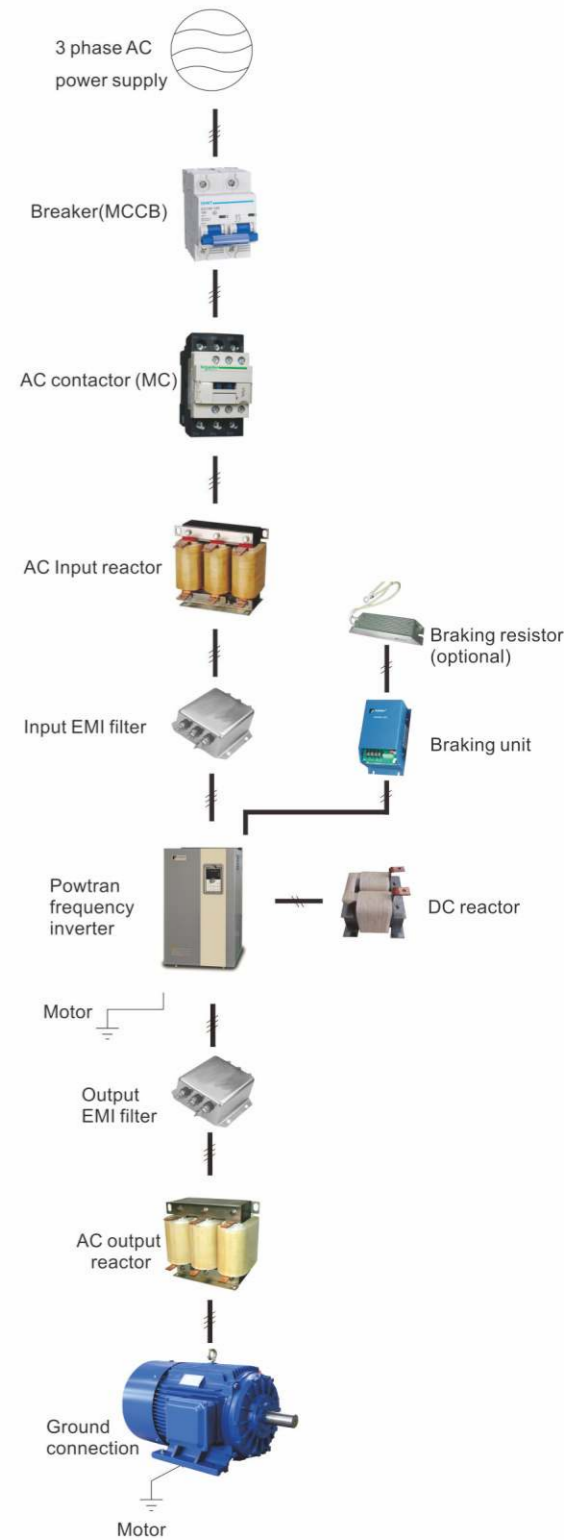
Frequency inverter wiring is divided by main circuit and control circuit. Users must properly connect frequency inverter in accordance with the wiring connection diagram showing below.

Wiring diagram



Peripheral equipment

| Purpose | Name | Specification |
|---|--|---|
| Protect frequency inverter wiring | Wiring breaker or leakage protector | To protect frequency inverter connection, please set wiring breaker or leakage protector by the side of power supply. Please use preventing ultra-harmonics leakage protector. |
| Prevent braking resistor burning-out | AC contactor | To prevent braking resistor burning-out when connecting, please set AC contactor, meanwhile, please connect surge absorber on the coil. |
| Preventing switching surge leaking out | Surge absorber | Surge absorber absorbing electromagnetic contactor and control relay switching surge, please install surge absorber on the electromagnetic contactor and control relay of frequency inverter. |
| Insulation input/output signal | Isolator | Due to frequency inverter insulation input/output signal, isolator can reduce inductive interference effectively |
| Improve frequency inverter input power factor | DC reactor/AC reactor | Apply to improve frequency inverter input power factor, please set DC reactor or AC reactor, when using large capacity power supply (above 600kW) |
| Reduce noise disturbance | Input noise filter | Input wiring can reduce noise flow into frequency inverter input power supply system. Please install the filter close to frequency inverter. |
| | Output noise filter | From frequency inverter output wiring reduce noise, please install the filter close to frequency inverter. |
| Machine stop running on setting time | Braking resistor | Braking unit will consume machine regenerated energy, which will reduce decrease time |
| | Braking unit | Braking unit and braking resistor combined using on machine, this will reduce motor decrease time. |
| Control frequency inverter operation from outside | Operator (small plastic -made device) | Control frequency setting and operation/stop operation by analog quantity instructions from distance. |
| | Operator (standard nickel clad made) | Control frequency setting and operation/stop operation by analog quantity instructions from distance. |
| Ensure frequency inverter sudden power failure compensation | Sudden power failure/compensate unit | To control power supply sudden failure compensation. |
| Setting and monitoring frequency and voltage from outside | Frequency meter | Outside setting and monitoring frequency device. |
| | Frequency setting device | |
| | Output voltmeter | Outside setting output volt device is PWM frequency inverter specialized voltmeter. |
| Adjust frequency instruction input and frequency meter, ampere meter full scale | Frequency instruction using thyrecotor baseboard | Install and control circuit terminal, input frequency instruction. |
| | Frequency meter full scale adjust resistor | Adjust frequency meter and ampere meter full scale. |



Some application cases



Coal Mining Industry

- engine analyzer, slag pot carrier, feeding machine iron ladle motor, fireproof door motor ore washing pump, suction fan in the pit, air supply system, hauling machine



Fan Industry

- centrifugal compressor, axial-flow compressor centrifugal blower, roots blower centrifugal fan, axial flow fan enke blower

Machine Tool Industry

- ncelectro-spindle, vertical lathe spindle, surface grinder spindle, boring machine spindle, sawing machine



Injection Molding Machine

- extruding machine, injection machine, disc refiner, internal mixer, granulate machine



Hoisting Industry

- mine hoist, mining electric locomotive port hoist, builders' lift, pile driver, large crane motor, tower crane lifting



Petroleum Industry

- plunger pump, beam pumping unit, oil transfer pump, gas transmission pipeline system compressor,



Chemical Industry

- vacuum kneader (agitator), dryer film blowing machine, plastic mill, pulverizer drafting device for short fiber, high speed spinning machine for chemical fiber feedstock pump for oil refinery, pump for coking unit



Iron And Steel Industry

- winding engine for iron-smelting blast furnace, dust removing blower for blast furnace, air blower for blast furnace gas blanketing blowing engine, roots blower for digital thermometer, variable frequency exhaust fan for steel furnace roasting and purifying fan, hot rolling machine, cold tandem rolling mill, feeding system, mill exhauster, vibrating sieving machine, wire drawing machine, winding machine, blender mixer, drying machine, slime pump, draining pump, water supply pump, unbender, pipemaking machine, ladle crane motor



Power Industry

- boiler blower, induced draft fan, boiler feeding pump, circulating water pump, low pressure drain pump, condensate pump, cooling water pump, mortar pump, coal feeder.



Textile Industry

- spinning machine, fagoting machine, pounding machine, knitting machine, centrifugal dehydrator, spinning frame, aeration machine for print works, tentering and thermo-fixing machine, high temperature dyeing machine, decorating machine, bleaching machine, dyeing jiggers

Photovoltaic

- microwave relay station, optical cable communication system, wireless paging station, satellite communication and satellite television receiving system. computerized telephone system in countryside, communication system in troops, railway and highway signalling system, lighthouse and beacon light, meteorological station, seismic station



Compressor

- piston compressor, screw compressor, centrifugal compressor, linear compressor



Pump

- petroleum pump, metallurgical pump, chemical pump, fishing pump, mining pump, power pump, water conservancy pump, sewage pump, food pump, brewing pump, pharmacy pump, beverage pump, fuel pump, condiment pump, paper pump, textile pump, printing and dyeing pump, ceramic pump, paint conveyer pump, agricultural chemical pump, fertilizer pump, sugar-syrup pump, methanol pump, spary pump, salt pump, beer pump, starch pump, feed pump



Winding Machine

- lithium battery winding machine, capacitor core winding machine, textile winding machine



Conveyor Belt

- belt-type conveyer, plate conveyer, car type conveyer, escalator, passenger conveyer, scraper conveyer, embedded scraper conveyer, bucket conveyer, bucket elevator, underslung conveyer, underslung conveyer



Heating System

- constant pressure water supply system for boiler, mill exhauster, belt conveyer for coal, coal breaker, air blower, induced draft fan, cold-rolling mill

