Service Network:

PWT Technology—Professional manufacturer of frequency inverter.

PWT power technology

Di-ME

PWT-V series

High-performance standard vector control inverter

Product Overview

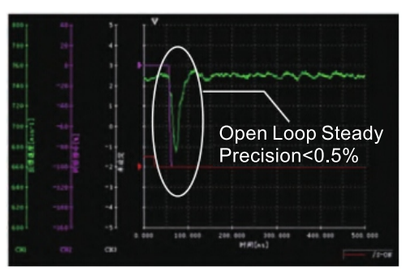
PWT-V series high-performance vector control inverter is based on the company's many years of design, production, sales experience, suitable for all kinds of industrial machinery, fan& water pump drive control and heavy industry such as medium frequency grinding. Products in duct design, hardware configuration, 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.

Technical Features

Superior performance in motor drive

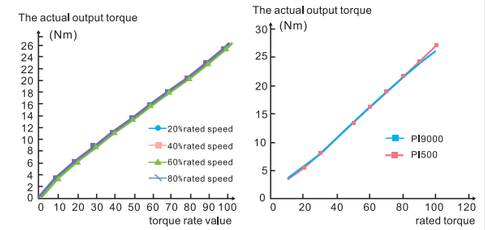
Advanced motor drive technology

- 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).



Steady speed precision, wide speed range

- Open-loop steady speed precision <0.5%
  High steady speed precision, wide adjust speed range
  Steady speed precision: ±0.5% (open-loop vector control)
  ±0.02% (close-loop vector control)
  Adjust speed range: 1:100 (open-loop vector control),
  1:1000 (close-loop vector control),
  Torque response: <40ms(open-loop vector control)
- Heavy load overload capacity :110% rate stable operation
  (110% continuously operation)
  150% rate load 1Min
  180% rate load 2S.



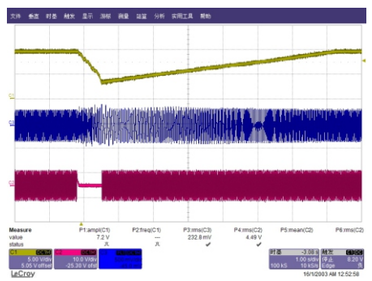
Low speed with high torque small torque ripple

- 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%.

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

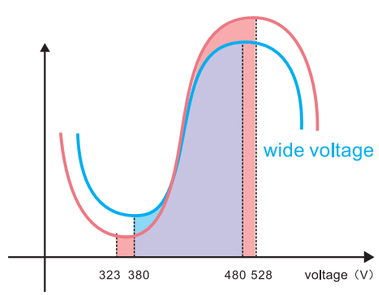
- Motor parameters can be comprehensive self-study (rotary self learning) or still learning (motor) with the occasion of the load cannot escape, convenient debugging, simple operation, provide higher control accuracy and response speed.



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.

reliable design

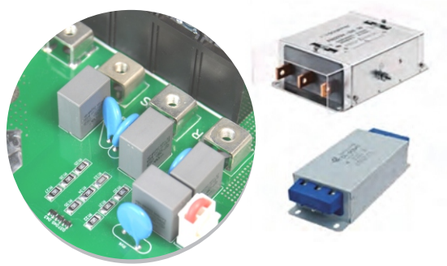


Meet the international standard of wide voltage input range

- Rated voltage: AC 3phase 220V(-15%)-440V(+10%)

  Allow voltage float range: rated voltage ±10%.

Technical Features



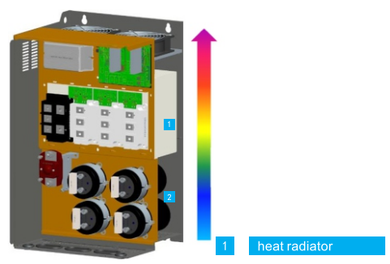
EMC Design specifications Improved

- 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.

Meet a number of certification standards

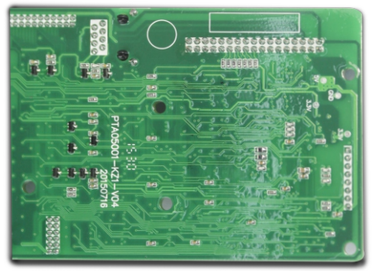
- Product is suitable for Euro < Technical coordination and standardization methods> requirements.
  EMC directive 2004/108/CE Electromagnetic compatibility directive and LVD directive
  2006/95/EC low voltage directive IEC61000-2-2:2002, IEC61000-4-2:2008, IEC61000-4-3:2008; IEC61800-5-1:2007 etc.
-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



Independent air duct design

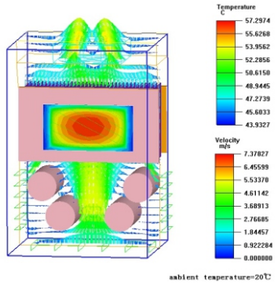
- Independent air duct design, the effect of heat dispelling is better, improve the reliability, which can effectively prevent dust into the converter internal to avoid a short-circuit fault etc
- Select longevity's deadly air cooling fan, effectively reduce the temperature rise of frequency converter,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

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



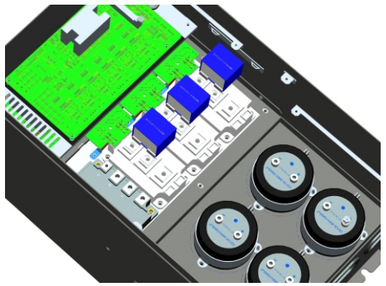
Thermal reliability of the machine

- 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

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

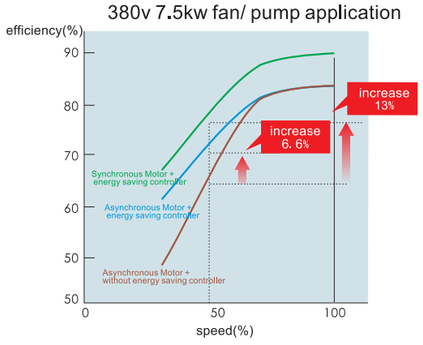
Technical Features



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
- ROSH approved, all components are environment friendly, no harm to people, no pollution..

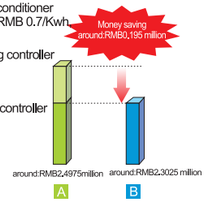
PI500 energy saving for example

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

A Asynchronous Motor + energy saving controller
Electricity cost: about 3,568,313 kwh
cost money: RMB2.4975 million

B Synchronous Motor + energy saving controller
Electricity cost: about 3,289,875 kwh
cost money: RMB2.3025 million

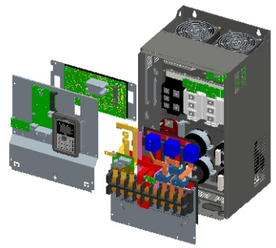
Annual energy saving efficiency
Electricity: 278,438kwh
Money saving: RMB0.195 million



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

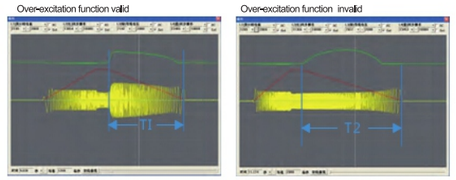
Technical Features

The advanced function of changing the class of machines



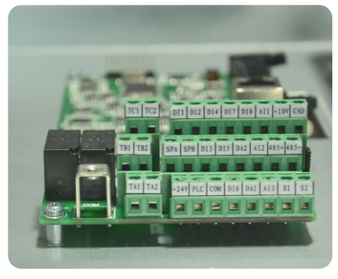
The compact design to improve the speed of realizing machines minimizing

- 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

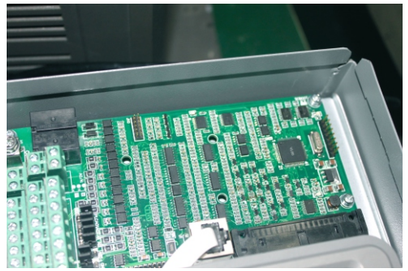
- Fast braking and easy operating without any other periphery braking resistor, etc;
- Inhibit the increasing of DC-bus voltage while deceleration, avoid the frequent err, and fast braking, fast stop.



Various kinds of terminals functions, easier for operation

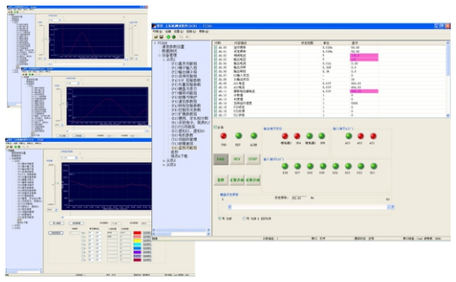
- There are 51 kinds of multi-function terminals DI ,41 kinds of DO, and 16kinds of AO logical function choice, and meet general purpose frequency inverter normal requirements.
- AI can be used as multi-function terminals'DI freely;
- AI1~AI3 can be set 4 respectively polylines and3 kinds of curves corresponding relationship separately, AI3 support ±10%input,easily
- support PT100
- Good5groups of built-in analog DI and DO function choice, reducing external DI/DO cables,DI5 high-speed pulse input terminal and SPB high-speed pulse output terminal support the highest 100khz pulse.A

Technical Features



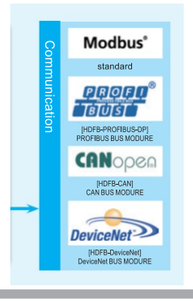
Built in self-adjusting PID function module

- 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

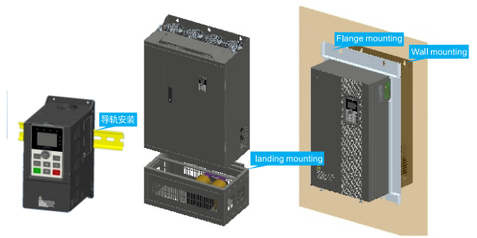
- Easy to use PC monitoring software, enables tracking and fault location, and with oscilloscope function, it's more convenient for clients to program, debug, real time monitoring is very good for analyzing and management.



Communication interface application is very flexible

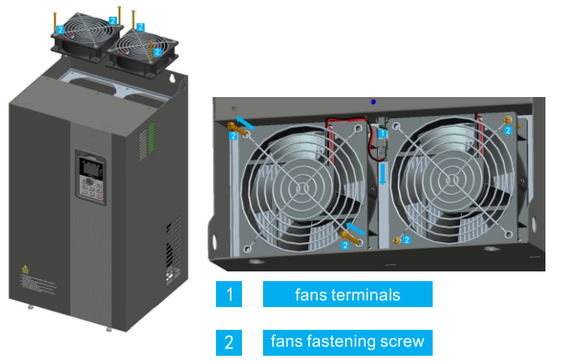
- Support Modbus RTU,CANopen,Profibus-DP bus Protocol;
- Through a dedicated distribution point of the inverter parameters, to realize a good multi-level load distribution, multi-machine control applications droop.

Technical Features



Supporting various kinds of installation ways

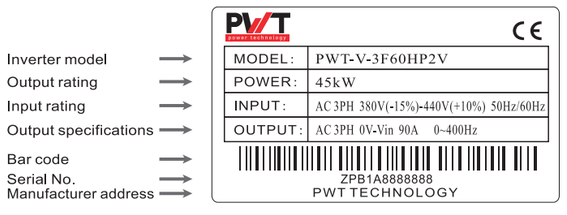
- Wall-mounted, flange installation is available for 7.5-110kW (flange mounting needs peripheral accessories);
  Wall-mounted, flange installation, floor installation is available for 132-220kW(flange mounting, floor installation needs peripheral accessories);
  Wall-mounted, floor installation is available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

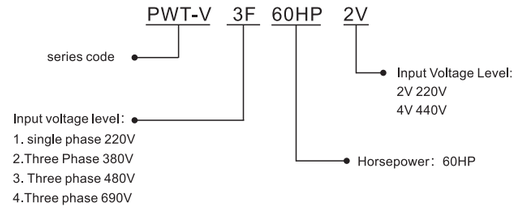


Simple maintenance

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

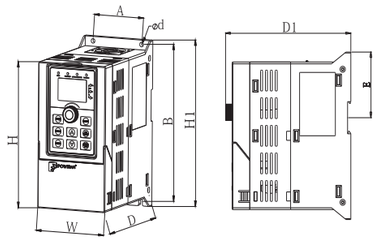
Nameplate instruction



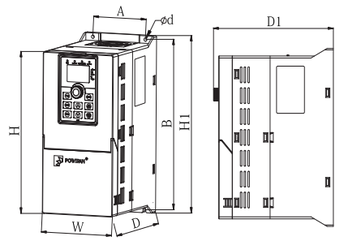


power technology

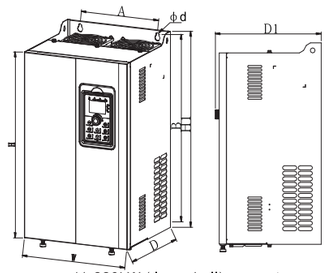
Technical Specification



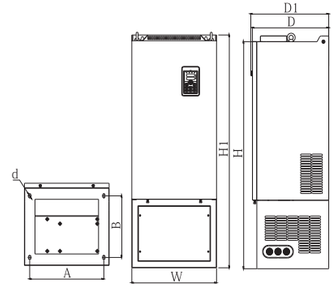
0.75-4kW (plastic shell)
support Guide rail installation



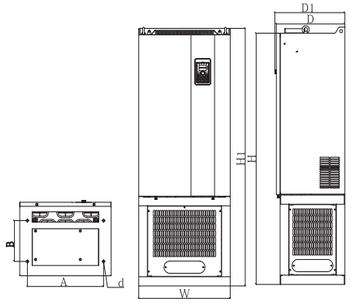
5.5-7.5kW (plastic shell)
support Wall-Hang Installation



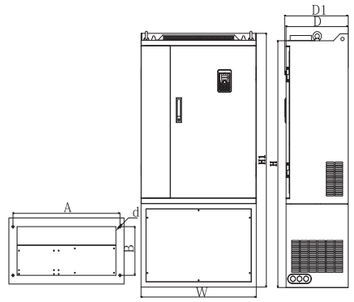
11-220kW (Iron shell) support
Wall-Hang Installation and Flange installation



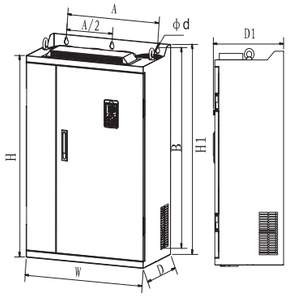
132kW (Iron shell)with DC reactor base



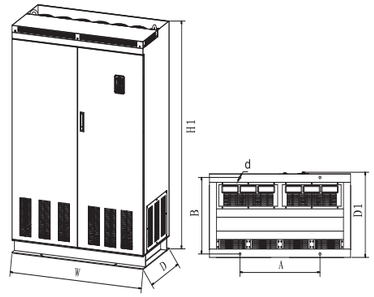
160-220kW (Iron shell)with DC reactor base



250-400kW (Iron shell) with DC reactor base



250-400kW (Iron shell)support
Wall-Hang Installation and Floor Installation



450-630kW(Iron shell) support Floor Installation

Inverter model	Output power (kW)	Input current (A)	Output current (A)	Dimension(H1xWxD1mm)					Installation (AxB dmm)			N.W (KG)
				H	H1	W	D	D1	A	B	d	
PWT-VS-1F1HP2V	0.75	4	8.2	163	185	90	146	154	65	174	5	1.6
PWT-VS-1F2HP2V	1.5	7	14	163	185	90	166	174	65	174	5	1.8
PWT-VS-1F3HP2V	2.2	10	23									
PWT-VS-1F5HP2V	4	16	35	238	260	120	182	190	90	250	5	2.7
PWT-VS-3F1HP2V	0.75	4	5.3	163	185	90	146	154	65	174	5	1.6
PWT-VS-3F2HP2V	1.5	7	8									
PWT-VS-3F3HP2V	2.2	10	11.8	163	185	90	166	174	65	174	5	1.8
PWT-VS-3F5HP2V	4	16	18.1	238	260	120	182	190	90	250	5	2.7
PWT-VS-3F1HP4V	0.75	2.5	4.3	163	185	90	146	154	65	174	5	1.6
PWT-VS-3F2HP4V	1.5	3.8	5									
PWT-VS-3F3HP4V	2.2	5.1	5.8									
PWT-VS-3F5HP4V	4	9	10.5	163	185	90	166	174	65	174	5	1.8
PWT-VS-3F7HP4V	5.5	13	14.6	238	260	120	182	190	90	250	5	2.7
PWT-VS-3F10HP4V	7.5	17	20.4									
PWT-VS-3F15HP4V	11	25	26									

Inverter model	Output power (kW)	Input current (A)	Output current (A)	Dimension(H1xWxD1mm)					Installation (AxB dmm)			N.W (KG)
				H	H1	W	D	D1	A	B	d	
PWT-V-1F7HP2V	5.5	50	25	280	300	190	190	198	140	285	6	7.2
PWT-V-1F10HP2V	7.5	74	32	330	350	210	190	198	150	335	6	9.5
PWT-V-1F15HP2V	11	84	45									
PWT-V-1F20HP2V	15	115	60	380	400	240	215	223	180	385	7	13
PWT-V-1F25HP2V	18.5	144	75									
PWT-V-1F30HP2V	22	169	90	500	520	300	275	283	220	500	10	41.2
PWT-V-1F40HP2V	30	220	110									
PWT-V-1F50HP2V	37	276	152									
PWT-V-1F60HP2V	45	325	176	550	575	355	320	328	250	555	10	58
PWT-V-1F75HP2V	55	380	210									
PWT-V-3F7HP2V	5.5	28	25	280	300	190	190	198	140	285	6	7.2
PWT-V-3F10HP2V	7.5	37.1	32									
PWT-V-3F15HP2V	11	49.8	45	330	350	210	190	198	150	335	6	9.5
PWT-V-3F20HP2V	15	65.4	60	380	400	240	215	223	180	385	7	13
PWT-V-3F25HP2V	18.5	81.6	75									
PWT-V-3F30HP2V	22	97.7	90	500	520	300	275	283	220	500	10	41.2
PWT-V-3F40HP2V	30	122.1	110									
PWT-V-3F50HP2V	37	157.4	152									
PWT-V-3F60HP2V	45	185.3	176	550	575	355	320	328	250	555	10	58
PWT-V-3F75HP2V	55	214	210									
PWT-V-3F100HP2V	75	307	304	695	720	400	360	368	300	700	10	72.5
PWT-V-3F125HP2V	93	383	380	790	820	480	390	398	370	800	11	108
PWT-V-3F150HP2V	110	428	426									
PWT-V-3F175HP2V	132	467	465	940	980	705	410	418	550	945	13	190
PWT-V-3F215HP2V	160	522	520									
PWT-V-3F7HP4V	5.5	14.6	13	238	260	120	182	190	90	250	5	2.7
PWT-V-3F10HP4V	7.5	20.5	17									
PWT-V-3F15HP4V	11	26	25	280	300	190	190	198	140	285	6	7.2
PWT-V-3F20HP4V	15	35	32									
PWT-V-3F25HP4V	18.5	38.5	37	330	350	210	190	198	150	335	6	9.5
PWT-V-3F30HP4V	22	46.5	45									
PWT-V-3F40HP4V	30	62	60	380	400	240	215	223	180	385	7	13
PWT-V-3F50HP4V	37	76	75									
PWT-V-3F60HP4V	45	91	90	500	520	300	275	283	220	500	10	41.2
PWT-V-3F75HP4V	55	112	110									
PWT-V-3F100HP4V	75	157	150									
PWT-V-3F125HP4V	93	180	176	550	575	355	320	328	250	555	10	58
PWT-V-3F150HP4V	110	214	210									
PWT-V-3F175HP4V	132	256	253	695	720	400	360	368	300	700	10	72.5
PWT-V-3F215HP4V	160	307	304	790	820	480	390	398	370	800	11	108
PWT-V-3F250HP4V	187	345	340									
PWT-V-3F265HP4V	200	385	380									
PWT-V-3F295HP4V	220	430	426									
PWT-V-3F335HP4V	250	468	465	940	980	705	410	418	550	945	13	190
PWT-V-3F375HP4V	280	525	520									
PWT-V-3F420HP4V	315	590	585									
PWT-V-3F475HP4V	355	665	650									
PWT-V-3F535HP4V	400	785	725									
PWT-V(R)-3F175HP4V	132	256	253	995	1020	400	360	368	350	280	13*18	190
PWT-V(R)-3F215HP4V	160	307	304	1230	1260	480	390	398	400	200	13	153
PWT-V(R)-3F250HP4V	187	345	340									
PWT-V(R)-3F265HP4V	200	385	380									
PWT-V(R)-3F295HP4V	220	430	426									
PWT-V(R)-3F335HP4V	250	468	465	1419	1460	705	410	418	620	240	13	249.4
PWT-V(R)-3F375HP4V	280	525	520									
PWT-V(R)-3F420HP4V	315	590	585									
PWT-V(R)-3F475HP4V	355	665	650									
PWT-V(R)-3F535HP4V	400	785	725									
PWT-V(R)-3F600HP4V	450	883	820	/	1700	1200	600	612	680	550	17	/
PWT-V(R)-3F665HP4V	500	920	860									
PWT-V(R)-3F750HP4V	560	1010	950									
PWT-V(R)-3F850HP4V	630	1160	1100									

★ Note: PWT-V series freqquency inverter PWT-V(R)-3F175HP4V to PWT-V(R)-3F850HP4V,"R" stand for "built-in DC choke';
After installing the screw ring, the height dimensions is H1+15mm.

Standard specification

Item	Function	Specification
Power	Rated voltage level	AC 3PH 480V(-10%)~480V(+10%) AC 3PH 380V(-15%)~440V(+10%) AC 1PH 220V(-15%)~240V(+10%) AC 3PH 220V(-15%)~240V(+10%)
	Input frequency	50Hz/60Hz
	Allowable fluctuation	Voltage continued volatility ±10% input frequency volatility:±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×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: ≤±0.5% (rated synchronous speed) Vector control W/ PG: ≤±0.02% (rated synchronous speed)
	Torque response	≤40ms (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.
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.
	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).

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
		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 capacity: normal-closed contact 3A/AC 250V; normal-opened contact 5A/AC 250V; 1A/DC 30V.
		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 switchedthrough 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-speedpulse 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 to20mA or 0 to 10V),they can be used to set frequency, output frequency, speed and other physicalparameters.
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.
	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.
Communication	RS485		The optional completely isolated RS485 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		Does not exceed 90% R.H, no condensation of moisture
	Vibration		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
	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

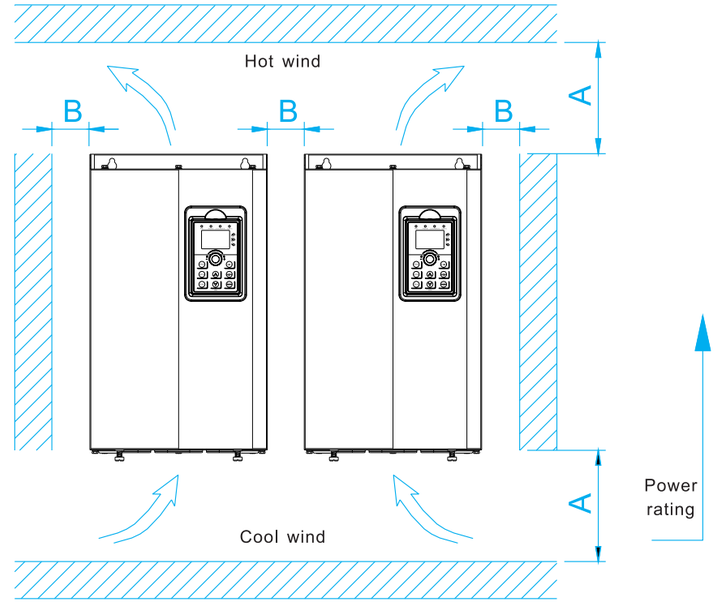
Operating keyboard(button key description)

Sign	Name	Function
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	*UP key setted by parameter F6.18
▼	Decending Key	*DOWN key setted by parameter F6.19
RUN	Run Key	*Used for running operation in the keyboard mode.
STOP RST	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	Enter Key	*Enter into levels of menu screen,confirm settings.
QUICK	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

PWT-V 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
0.75～7.5KW	A≥100mm;B≥10mm
11～22KW	A≥200mm;B≥10mm
30～75KW	A≥200mm;B≥50mm
93～400KW	A≥300mm;B≥50mm

PWT-V 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.

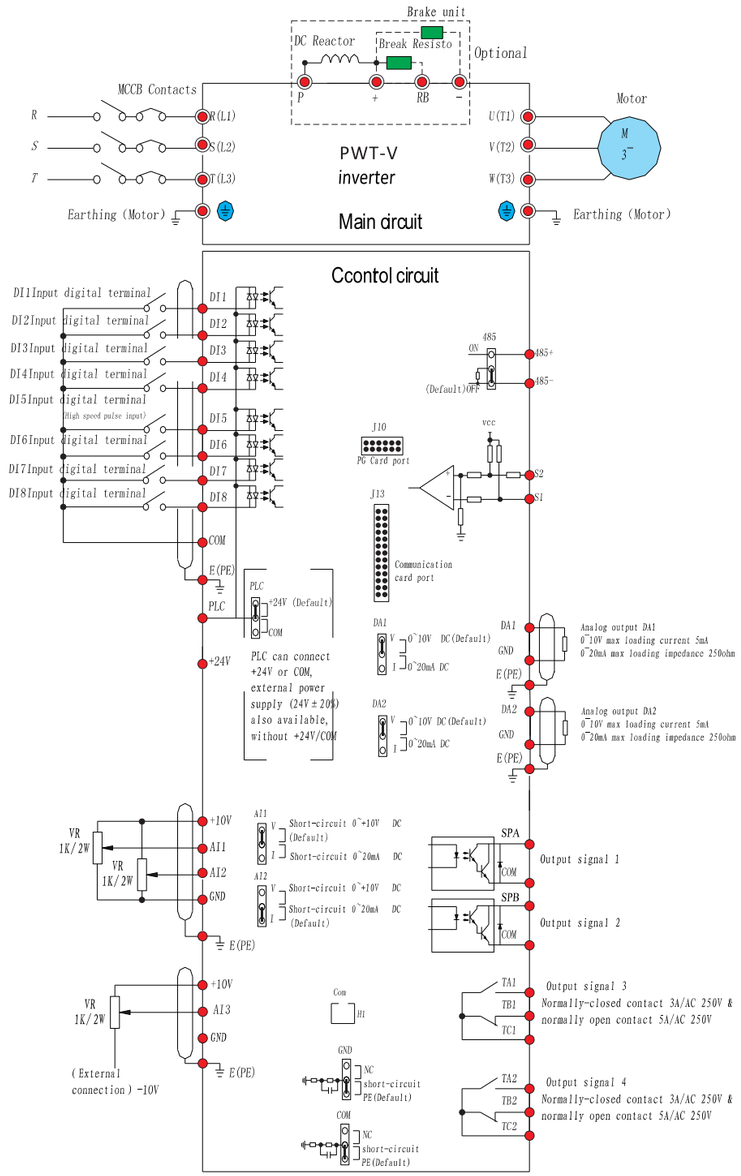
Use of the environment

1. Environmental temperature -10℃ to 50℃ Above 40℃, the capacity will decrease 3% by each 1℃.So it is not advisable to use inverter above 50℃
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 than5. 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

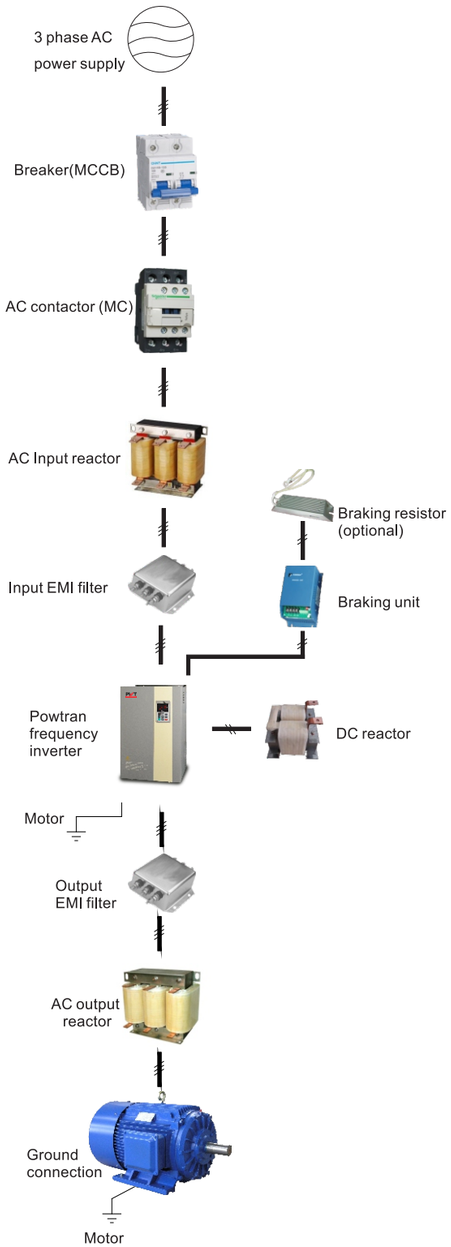
Frequency inverter wiring is divided by main circuit and control circuit. Users must properly connect frequency inverter in accordance with the wiring connection diagram showing below.

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	
	Frequency setting device knob	
	Output voltmeter	Outside setting output volt device is PWM frequency inverter specialized voltmeter.
Adjust frequency instr-uction input and frequ-ency 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.



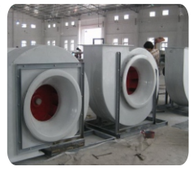
Some application cases

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

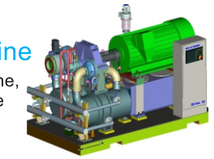


Coal Mining Industry

- 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

Injection Molding Machine

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



Hoisting Industry

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

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

Petroleum Industry

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

Winding Machine

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

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

Conveyor Belt

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

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 purifing 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

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

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.

Compressor

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

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