

POWTRAN | 普传科技

POWTRAN

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Powtran technology

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

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POWTRAN | 普传科技



PI7600 / 7800 series



Powtran AC Drives

More information please enter www.powtran.com

More Professional
More Intensive
More Efficient

www.powtran.com

ABOUT POWTRAN

Shenzhen Powtran Technology Co., Ltd. is a Hi-Tech enterprise invested by several shareholders, establishing the networks of development, production, logistics and service that extend to the whole country from Shenzhen and Dalian. Integrating the advanced technology from Japan, Europe, America and Taiwan area, based on the research capacities of Tsinghua University, Dalian Maritime University and ours, with advanced manufacture and test equipment, Powtran supply customers automatic and driving products with multi-functions, such as frequency inverters, motor soft starters, servo numerical control systems, servo motor/drives, motor environment-protection energy-saving machines, special power supplies, and automatic control systems of product lines. Our products enjoy a good sale in European and American countries, as well as Southeast Asian countries. (Frequency inverter, AC Drives, frequency converter, energy saving product, environment protection product, VFD, AC frequency drive, energy saver, AC motor control system, variable frequency drive, variable speed drive, inverter, soft starter, high-voltage frequency inverter, medium voltage frequency inverter, low voltage frequency inverter, VSD, energy saver, AC motor control system, brake units, servo drives/motor and related spare parts, including the EMI filter and AC Choke and so on.)

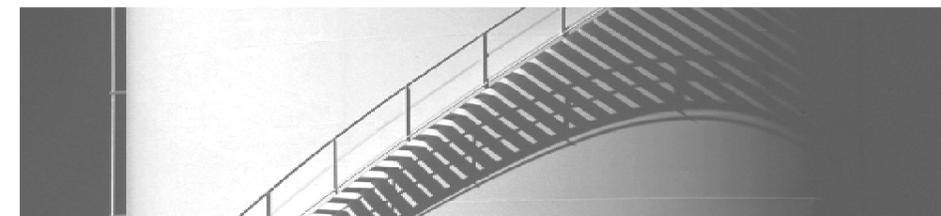
- We are the special enterprise devoting to the development, design and manufacture of motors and control and driving products.
- Being a Chinese inverter manufacturer, we have been taking the lead to attend Hannover Fair in Germany continuously for 7 years.
- We are the first standing director of Inverter Institute of China Electrical Equipment Industry.
- We are the member unit of China Standardization-Technology Committee of complete switch and control equipment follow-tension.
- We are the member unit of China automation academy electric automatization Committee.
- We are the director company of small and medium motor branch of China Institute of Electrical Equipment Industry.
- China "Enter Credit Evaluate" AAA Credit Enterprise.



PRODUCT FEATURES

PI7600/7800 series frequency inverter is a newly-updated product meeting the market requirement. With advanced space voltage vector. SPWM control technology, high-powered IGBT and DSP chip. Built-in current control-loop, achieve high-accuracy closed loop control. Reaches high accuracy requirement on output voltage & frequency. Also brand-new production craft and perfect testing equipments, which ensure the high working stability. PI7600/7800 inverter will offer you better motor control solution.

- Brand-new software & hardware design.
- Excellent feature upgrade
- Higher quality insurance
- Fashionable industrialized appearance
- DSP-base IGBT, achieve high-efficiency & high-powered control.
- V/F, V/F+PG, vector + PG --3 control functions
- 3 types of space voltage vector Wave produce mode
- Dead zone compensation function, achieves low frequency high power output
- Automatic slip compensation
- 10 methods to set frequency, imitation terminals can accept user defined signal with in 0~10V, 0~20A.
- Maximum 7 sections speed and 8 sections acceleration control.
- 6 programmable output control terminals
- Build-in PID control function, achieves high-powered close loop control.
- Supports 0~10V, 1~5V, 0~20Ma, 4~20mA return signal.
- PID based DC brake.
- Speed pursue starting and restart after momentary power loss
- Strong communication function, supports standard RS485 and Can Bus, remote keyboard input function as well.
- Human-based display list, LCD display with LED, displays 3 status parameter in the mean time.
- Particular IGBT temperature rise supervising function, adjusts the fan, and reduce the motor noise and temperature rise duly.
- High-efficiency failure checking and recording function, facilitates removal of fault.
- Parameter protect function
- Unique design to reduce the pollution to power



POWTRAN

The technology and products from Powtran got a wide application, such as petrochemical industry, coal, mine, metallurgy, paper mill, concrete, injection machine, textile, electric, public works, water supply, sewage treatment. Besides "G" (general) type, we also design some special types of PI7600/7800 series inverter according to different applications.

- **VFD special for multi-pump constant water supply**

Advanced control theory, build-in PID and multi-pump operation control logic controller, can adjust pump speed and pump switching automatically according to the variation of pipe network pressure, then achieves Constant pressure Control of the pipe network.

- **Inversion power special for motor**

While sudden electricity failure, it connects to the load circuit at first time, and outputs the motor-required voltage and frequency via motor speed following function, then makes the motor continue running stably, when some loads can't stop, it ensure the production proceeds constantly and safely in time.

- **VFD special for machine tool**

When motor runs in low speed, and requires high torque and speed accuracy, Auto-Detect motor dynamic running parameter and adjust according, to ensure the motor run under high efficiency.

- **VFD special for compressor**

Super strong over-load and over-current capacity, Easily meets the compressor heavy load and auto- constant pressure requirement. Various input & output ports, can receive various pressure return signal, achieves close-loop control via PID adjustment.

- **VFD special for injector**

Super strong over-load and over-current capacity, Easily meets the injector frequently and rapidly start and brake.. Various input & output ports, facilitates the combination with injector controller, easily achieve automatic control.

- **Motor Pro-environment Energy Saving machine**

Got a wide application, such as petrochemical industry, coal, mine, metallurgy, paper mill, concrete, injection machine, textile, electric, public works, water supply, sewage treatment, for motor speed adjustment and energy saving.

- **Power & control system special for metallurgy mixer**

DSP control close-loop self-regulation function, various working mode such as constant mixing/positive-reverse alternative mixing. Can set or adjust output frequency and output current independently. Widely applied in many filed such as metallurgy continuous casting and special steel and aluminum smelting etc..

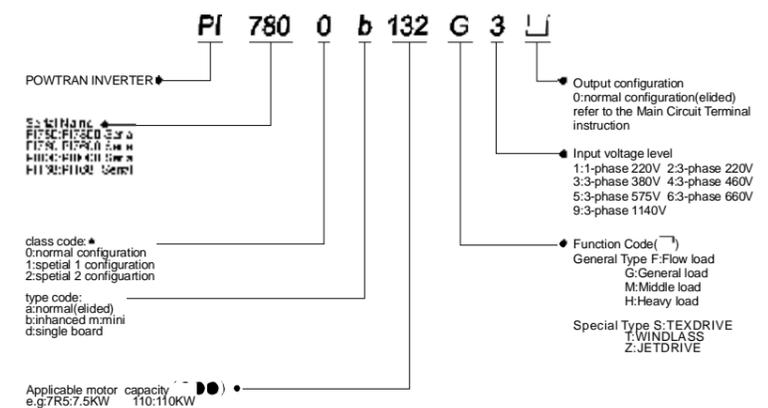
Industry Application

- **Steel:** converter trending, lance lifting, crystal concussion, rollgang of cold machine, automatically charging of electric arc stove, continuous casting...
- **Port:** bucket coal-whipper, shock absorption for oil dock screw pump, bridge lifting device...
- **Municipal administration:** Boiler system, central air conditioner system, sewage disposal, water supply and drainage engineering...
- **Coal mine:** Main fan blower in the entrance of mine, gas concentration control in mine, heavy medium in coal washery...
- **Chemical industry:** chemical reaction heating calcination furnace, filter separator, first ammonia pump...
- **Textile:** scale linkage, mucilage glue filature, braiding machine, printing machine...
- **Oil field:** offshore platform oil electric pump, pump jack, oil conveying system
- **Machine:** food machinery, packing machinery, printing machinery, frequency converter air conditioner, plastic machinery...
- **Electric power:** boiler mill exhaustor, boiler system, coal transportation...
- **Pharmacy:** fermentation tank control, stirring control, correlative blower and bump control...
- **Building:** cement plant rotary kiln, blade type crusher, plastic screw extruding...
- **Paper making:** rewinder, calender, pulp pump...

Instructions on nameplate:

AC Motor Drivers Modle	➤	TYPE: PI7800 132G3
Input Spec.	➤	SOURCE: 3Φ 380V 50-60Hz
Out Spec.	➤	OUTPUT: 132KW 250A 0.00-800.0Hz
Serial No. & Bar Code	➔	 Z0801A00001 POWTRAN TECHNOLOGY CO., LTD. HTTP://WWW.POWTRAN.COM MADE IN SHENZHEN CHINA

Model designation:



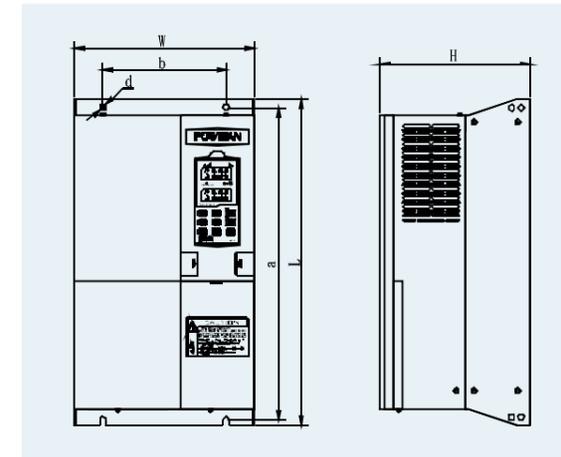
Standard Specification:

items		specifications
Voltage and frequency		Single-phase 200-240V,50/60Hz Three-phase 200-240V,50/60Hz Three-phase 380-415V,50/60Hz Three-phase 440-460V,50/60Hz Three-phase 575V,50/60Hz Three-phase 660V,50/60Hz Three-phase 1140V,50/60Hz
Allowable Fluctuation range		voltage: ±15% frequency: ±5%
Control system		high performance vector control inverter based on DSP
Output frequency		G/F/Z/S/T/M:0.00-800.0Hz,the maximum frequency range is 10.00-800.0Hz H:0.00-2000.0Hz,the maximum frequency range is 10.00-2000.0Hz.
control method		V/F control, V/F+ PG control, vector + PG control
waveform produce methods		asynchronous space vector PWM, step less and subsection synchronous space vector PWM,2 phase optimized vector PWM
Auto torque boost function		Realize low frequency (1Hz) and large output torque control under the v/f control mode.
Accelerate /decelerate control		Acceleration/Deceleration S curve subsection set mode. The maximum running time is 26 hours.
Program running control		7 step speed program running, the maximum running time is 88 hours.
frequency setting accuracy		Digital references:0.01Hz(300 Hz and below),0.1 Hz(above 300 Hz)Analog references:0.05Hz/60Hz
frequency accuracy		Speed control tolerance 0.01%(25℃ ±10℃)
V/F curve mode		Linear,square,8 V/F curve set by user
Over load capability		G/S:150% for one minute, 200% for 0.1 second F:120% for one minute, 150% for 0.1 second Z/M/T:180% for one minute, 250% for 0.1 second H:250% for one minute, 300% for 0.1 second
slip compensation		0-10% automatic slip compensation
Input signal	running method	Keypad/Terminal/Communication mode
	frequency setting	There are 11 frequency setting modes, including DC 0-10V,DC 0-20mA, DC 4-20mA, potentiometer on the keyboard.
	start signal	forward, reverse
	Multi-segment speed	can set 7 steps speed at most(using multi-function or program running)
	Multi-segment acceleration	At most 8 steps acceleration can be set (using multi function terminals or program running.)
	instant stop	Interrupt controller's output.
	traverse running	Program control running
	jog	running in low speed
	fault reset	When the protection function is affective, system can reset fault state automatically.
	PID feedback	DC 0-10V, DC 1-5V, DC 0-20mA, DC 4-20mA
Output signal	running state	motor state display, stop, accelerate/decelerate, seven-speed,program running state
	fault output	relay fault output: AC 250V 5A, DC 30V 5A
	analog output	2 analog output, 8 signals could be selected:frequency,current,voltage,temperature,etc,the output signal range is 0-10V/0-20mA.
	output signal	6 output signals, each one with 32 signals for option.
running function		Limit frequency, skip frequency, torque difference compensate, reverse protection, automatic adjustment, PID control
DC brake		On base of non-OC, internal PID can regulate braking current to ensure enough braking torque.
inverter protection		Over voltage, under voltage, over current, over load, overheat, over current stall, over voltage stall, phase loss (options), external fault, communication fault, PID feedback abnormality, PG fault.
IGBT temperature display		Display of current IGBT temperature
inverter fan control		Temperature of starting the fan can be set. (options)
restart after momentary power loss		less than 15ms:continue running .ore than 15ms:automatic inspection of motor's speed, restart after transient power down.
speed starting pursue mode		inverter pursue motor speed automatically before starting
parameter protection function		protect inverter's parameter by setting password and decode
LCD English Display + LED keyboard	running message	Totally 66 running monitor objects: set frequency, actual frequency, actual current, actual current percentage, DC bus voltage, actua output voltage, actual motor's speed, total running time, IGBT temperature, PID set value, PID feedback value, motor output power percentage, excitation heft set value, excitation heft actual value, torque heft set value, torque heft actual value. Display of 3parameters simultaneity at most: set frequency + actual frequency+ the monitored running message. Select by F00, F65, F66.
	fault message	Store 5 fault messages at most, and can inquire about fault style, voltage, current, frequency and the work state at the same time
Rs485		Completely isolated RS485 communication module (options),realizes the communication with the host computer.
CAN BUS		CAN BUS module(options)
environment temperature		-10℃-40℃
storage temperature		-20℃-65℃
environment humidity		Less than 90 % RH
Height / libration		less than 1,000 m, less than 5.9m/s ² (=0.6g)
application place		where there is no rust gas, no flammability gas, no grease and dust
cooling methods		Forced air cooling and natural cooling

Installation dimension

PI7800 series

(3-phase 380v-415v 50/60HZ)



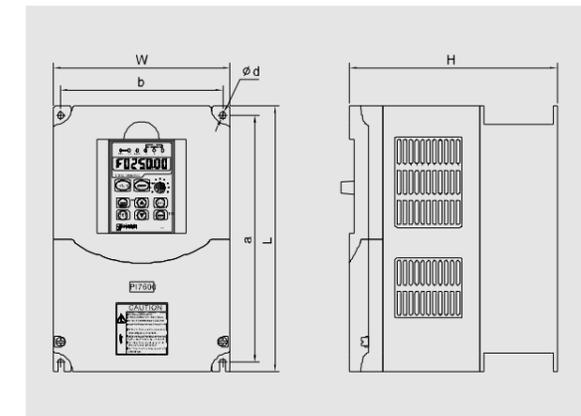
2.3N1

Type	(kW)	Structure item	Shape			Installation dimension			Net weight kg	Gross weight kg	Keypad
			L	W	H	a	b	d			
F	200-250	3N1	1540	515	443	465	367	Ø13	160	190	JP6E7800
G	187-220										
M	160-187										
H	132-160										

3.3N2

Type	(kW)	Structure item	Shape			Installation dimension			Net weight kg	Gross weight kg	Keypad
			L	W	H	a	b	d			
F	280-400	3N2	1700	850	492	640	260	Ø13	280	350	JP6E7800
G	250-355										
M	200-280										
H	187-250										

PI7600 series:



1)1N2

Type	(kW)	Structure item	Shape			Installation dimension			Net weight kg	Gross weight kg	Keypad
			L	W	H	a	b	d			
F	11-18.5	1N2	360	235	207	340	150	Ø10	10	11	JP6E7800
G	7.5-15										
M	5.5-11										
H	5.5-11										

2)1N3

Type	(kW)	Structure item	Shape			Installation dimension			Net weight kg	Gross weight kg	Keypad
			L	W	H	a	b	d			
F	22-30	1N3	410	264	242	390	165	Ø10	14	15.5	JP6E7800
G	18.5-22										
M	15-18.5										
H	11-15										

3)2N1

Type	(kW)	Structure item	Shape			Installation dimension			Net weight kg	Gross weight kg	Keypad
			L	W	H	a	b	d			
F	37-45	2N1	560	300	243	540	200	Ø10	22	23.5	JP6E7800
G	30-37										
M	22-30										
H	18.5-22										

4)2N2

Type	(kW)	Structure item	Shape			Installation dimension			Net weight kg	Gross weight kg	Keypad
			L	W	H	a	b	d			
F	55-93	2N2	660	365	293	640	250	Ø10	40	48	JP6E7800
G	45-75										
M	37-55										
H	30-45										

5)2N3

Type	(kW)	Structure item	Shape			Installation dimension			Net weight kg	Gross weight kg	Keypad
			L	W	H	a	b	d			
F	110-132	2N3	710	455	293	690	350	Ø10	57	68	JP6E7800
G	93-110										
M	75-93										
H	55-75										

6)2N4

Type	(kW)	Structure item	Shape			Installation dimension			Net weight kg	Gross weight kg	Keypad
			L	W	H	a	b	d			
F	160-187	2N4	910	480	342	890	350	Ø10	72	86	JP6E7800
G	132-160										
M	110-132										
H	93-110										

1)4N2B

Power grade	Type	(kW)	Structure item	Shape			Installation dimension			Net weight kg	Gross weight kg	Keypad
				L	W	H	a	b	d			
3phase 380v	F	1.5-2.2	4N2B	170	125	162	160	112	Ø5	2	2.4	JP5E7800
	G	0.75-2.2										
	M	0.75-2.2										
	H	0.75-2.2										

2)4N3B

Power grade	Type	(kW)	Structure item	Shape			Installation dimension			Net weight kg	Gross weight kg	Keypad
				L	W	H	a	b	d			
3phase 380v	F	4-5.5	4N3B	220	150	178	205	138	Ø5.5	3	3.5	JP5E7800
	G	4-5.5										
	M	4-5.5										
	H	4										

3)4N4B

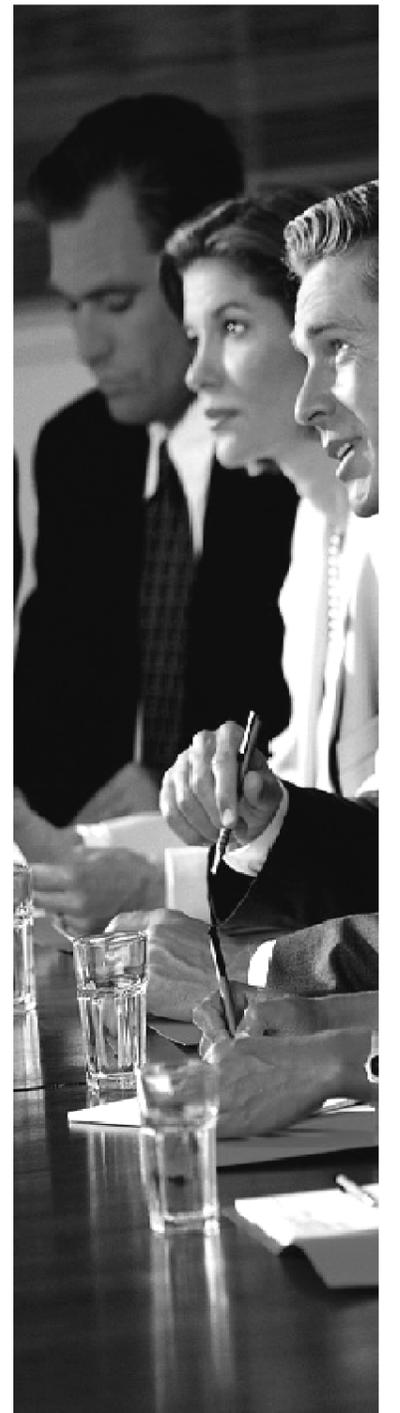
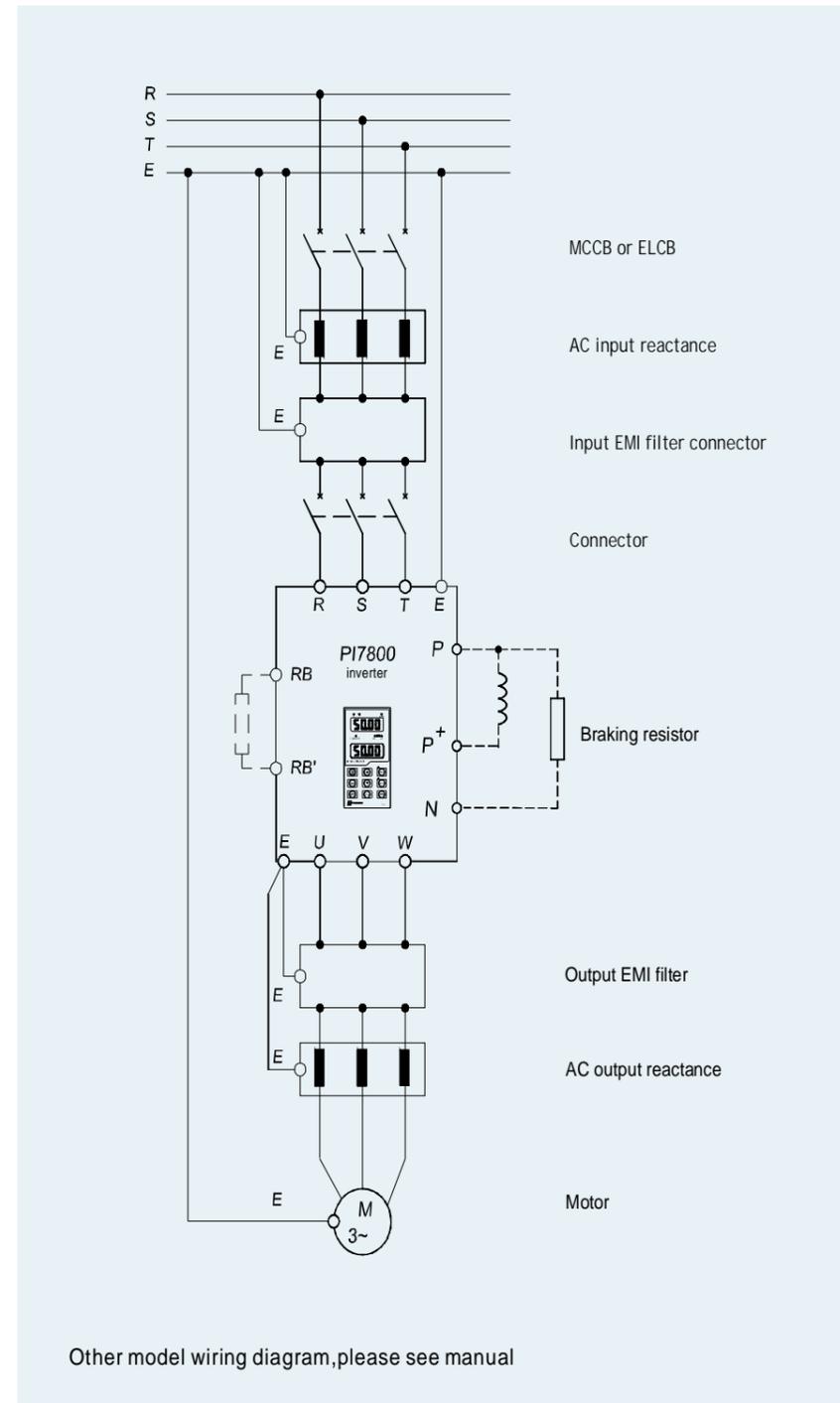
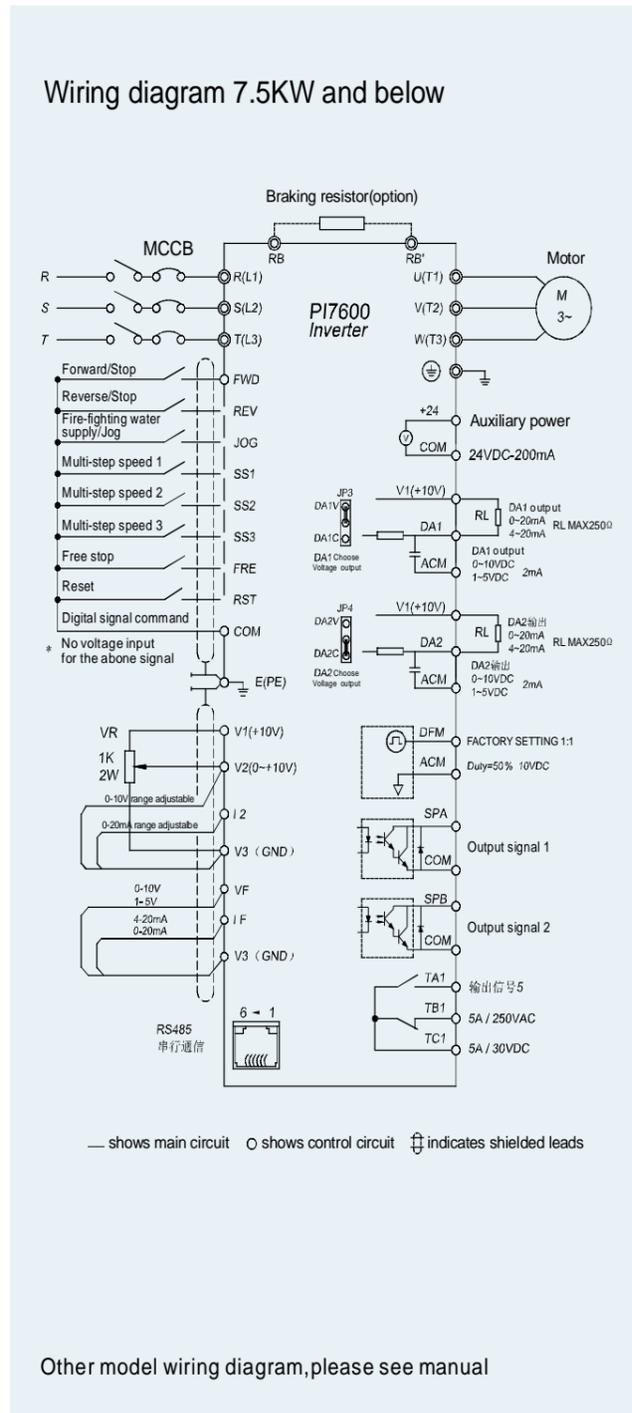
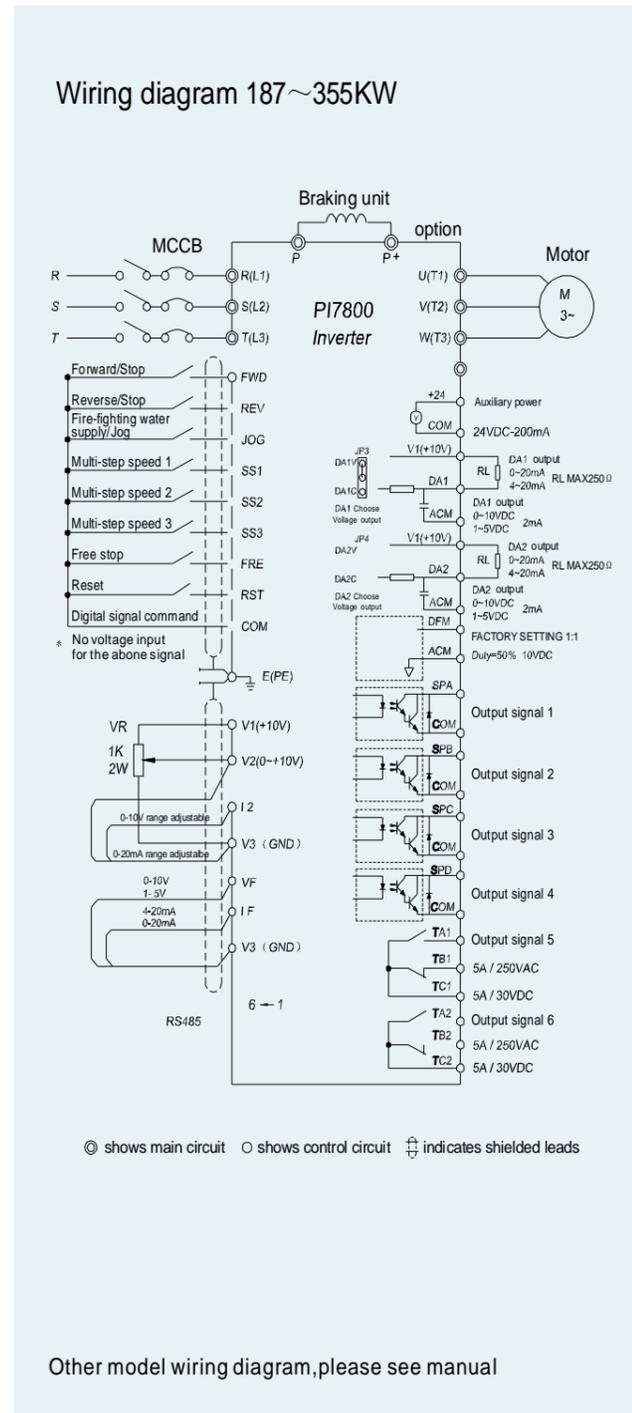
Power grade	Type	(kW)	Structure item	Shape			Installation dimension			Net weight kg	Gross weight kg	Keypad
				L	W	H	a	b	d			
3phase 380v	F	7.5-11	4N4B	300	218	212	288	203	Ø6.5	6	7	JP6E7800
	G	7.5										
	M	7.5										
	H	5.5-7.5										



PI7800 Wiring diagram

PI7600 Wiring diagram

The series can acquire the peripheral equipment by user because of the different using condition and requirement. See the wiring diagram as below:



Motor soft starter

● Standard specification

- Advanced five kinds of startup modes: Voltage slope startup mode; current limiting startup mode; trip and current limiting startup mode; trip and increase voltage startup mode; current slope startup mode; double close-loop startup model.
- Braking mode: voltage slope soft braking and free braking.
- Main circuit is 3 lines input and 6 lines output, which can realize automatic monitoring.
- Programmable delay startup mode, programmable interlocks control and programmable malfunction junction point output.
- The startup and braking time can be revised by program.
- Comprehensive protection functions: over current, over load, over heat and Default Phase of input and output.
- There relay and one analog output.
- Automatic discerns phase sequence and protection function.
- Special compact design.
- High reliability.



● Nameplate specification

POWTRAN® CE

TYPE:	PJR2 017
SOURCE:	3Q380V 50Hz
OUTPUT:	17KW 35A

20906800001
POWTRAN TECHNOLOGY CO., LTD
http://www.powtran.com MADE IN SHENZHEN CHINA

Soft starter mode: P JR 2 017-3- G
 G represents bypass
 Rated voltage: 3 → 380V
 Standard motor capacity 017 → 17KW
 Series No. 500-500KW
 AC soft starter
 POWTRAN

Remark: G series has matched with breaker, bypass contactor Customer just need to connect power and motor.



Standard specification

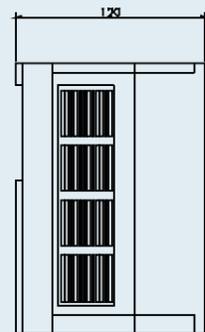
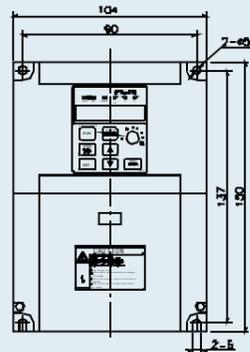
MOTOR	Voltage (V)	Power (KW)	Current (A)	keyboard Model	G. W (KG)	N. W (KG)	Size L/W/H(mm)	Installation A/B/C (mm)
PJR2-05	380	5.5	12	PJR2	5	3	145/270/167	128/205/φ7
PJR2-07	380	7.5	17	PJR2	5	3	145/270/167	128/205/φ7
PJR2-11	380	11	22	PJR2	5	3	145/270/167	128/205/φ7
PJR2-15	380	15	32	PJR2	5	3	145/270/167	128/205/φ7
PJR2-18	380	17	38	PJR2	5	3	145/270/167	128/205/φ7
PJR2-22	380	22	47	PJR2	5	3	145/270/167	128/205/φ7
PJR2-30	380	30	62	PJR2	5	3	145/270/167	128/205/φ7
PJR2-37	380	37	75	PJR2	5	3	145/270/167	128/205/φ7
PJR2-45	380	45	88	PJR2	5	3	145/270/167	128/205/φ7
PJR2-55	380	55	110	PJR2	5	3	145/270/167	128/205/φ7
PJR2-75	380	75	140	PJR2	5	3	145/270/167	128/205/φ7
PJR2-90	380	90	170	PJR2	18	15	260/385/241	210/350/φ9
PJR2-110	380	110	210	PJR2	18	15	260/385/241	210/350/φ9
PJR2-132	380	132	250	PJR2	18	15	260/385/241	210/350/φ9
PJR2-160	380	160	320	PJR2	18	15	260/385/241	210/350/φ9
PJR2-200	380	200	410	PJR2	18	15	260/385/241	210/350/φ9
PJR2-250	380	250	480	PJR2	28	27	290/445/280	235/400/φ9
PJR2-320	380	320	590	PJR2	28	27	290/445/280	235/400/φ9
PJR2-400	380	400	790	PJR2	28	27	290/445/280	235/400/φ9
PJR2-500	380	500	1000	PJR2	28	27	290/445/280	235/400/φ9

Standard specification

Meet standard:		PJR2 developed electronic soft startup and stop device and passed Feature testment and meet national standard: (GB1404842-1998).	
3phase power voltage	V	208-10% ...240+10%	380-15% ...415+10%
Frequency	Hz	440-15% ...500+10%	50
Rated Current	A	10...1000total 20kinds rated rated value	
Motor power	KW	5.5...500	
Motor rated Voltage	V	208...240	380...415
Adjusted current		440...500	
Startup mode		Motor rated current In can be adjusted between 0.5-1.3times of rated current.	
Stop Mode	free stop Soft stop Brake stop	limited startup current is 5In Factory Reset: torque integrate is 16S, standard load is 3In: When torque integrate 15S, heavy load is 3.5In. 4S soft stop Programmable adjust 0.5—60S programmable adjust 0.5—60S(according to protocol)	
Display and keyboard		Working status can display working current(or current percentage). Malfunction status can display default reason. The key can set parameter, junction and interlock.	
Output relay (2pcs)	Contactor type	JR	JM
	Factory reset	1 "N.O" + "1N.C"	1 "N.O" + "1N.C"
	Max working power—220V	VA	Startup power 1200, maintain power 120.
	Min switching capacity	A	100mA-24V
	Standard working current	A	0.5 Grade AC-14, AC-15(240V AV) and DC-13(48VDC)
	Standard heat current	V	5
Max working Vlotage		~400V	
Machine lifespan		0.5billion operation	
Protection	Main power protection	Integrated protection of motor and starter Default phase protection and unbalance phase protection, indicated by relay.	
Option of starter		According to motor rated power and load to choose PJR2 model Starter power can match with standard load and heavy load	

PI7550 Frequency inverter

As a professional frequency inverter manufacturer based on technique of motor design and motor manufacture, POWTRAN design PI7600 and PI7800 series of inverters by applying DSP control which now enjoying good popularity by customers in current market, in the meantime, we put onto market a new series PI7550 for small power inverters. The power range for this new series is 0.75KW~1.5KW, and the voltage grade is 220V~460V.



- PI7550 series of inverters don't only inherit POWTRAN product's advantages of stable performance and multi-function, but also specialize in its compact plastic-housing, smart and unique design, advanced technique and flexible settings. It is easy to handle and operation with great performance and competitive price, providing a practical and effective solution of motor control for customers.
- PI7550 series of inverters putting on market enrich Powtran's production line for POWTRAN "7" series.
Application filed: various of industries such as textile, printing, dye, paper mill, package mill, foodstuff s factory, medicine, etc.

Application filed

Steel, Port, Municipal administration, Coal mine, Chemical industry, Textile, Oil field, Machine, Electric power, Pharmacy, Paper making

Powtran Energy Consuming Brake Unit

● Application field

Powtran Brake Unit mainly suits to the status when the inverter decelerates because of the load inertia, kinetic energy will turn into electric energy which is saved on the DC bus. To consume such regenerated energy is by using brake unit (resistor), otherwise frequency inverter will trip OU or be faulted.

● Function

- For all brands inverter;
- 200V/380V/440V/480V;
- It could be paralleled connected, no capacity limited; Unit range 0.75-30KW/37-55KW/75-110KW(400V)
- Allowable for the occasion with electricity fluctuation;
- Special design, the ordinary resistor could be used so no need to use senseless resistor. Resistor box could be specially ordered;
- Ensure the brake IGBT in saturation;
- Protection: short-circuit, low voltage, over voltage, fast fuse, over heated, etc;

