

DX100 Series

Vector Control Universal Inverter



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TO BE OUTSTANDING AUTOMATION PRODUCT AND SOLUTION PROVIDER

We are devoted to be remarkable automation product and solution provider



Enterprise Mission

to creat value for customers

Enterprise Vision

to be outstanding automation product and solution provider

Enterprise Spirit

Innovation and enterprising

Core Value

Integrity, win-win, pragmatic, dedication

Business Philosophy

People oriented and common progress

★ Headquarter

📍 Oversea sales network

○ Domestic sales network

5 Regions

15 Overseas sales network

35 Offices

Timely response to the customer requirements

www.simphoenix.com



Established in 2004, Shenzhen Simphoenix Electric Technology Co., Ltd. is committed to becoming an outstanding provider of automation products and solutions. The company specializes in the development, production, sales and service of industrial automation products, the main products are servo drive, inverter, permanent magnet synchronous motor, PLC, HMI and so on.

After more than ten years of development, Simphoenix has become a well-known brand with complete product structure and strong r&d strength among domestic industrial automation brands.



Introduction

DX100

Series Vector Control Universal Inverter

Dx100 series is a universal open-loop vector inverter developed based on a new software and hardware platform. It has the characteristics of high performance, compact size, rich functions, convenient debugging, complete protection, and wide coverage of the power range of the model. It can be widely used in machine tool spindles, wood carving, glass edging, textile machinery, cable machinery and other automation equipment.



Typical Applications

Machine tool, Cable Petrochemical, Textile, Food packaging, Elution equipment, Centrifuges



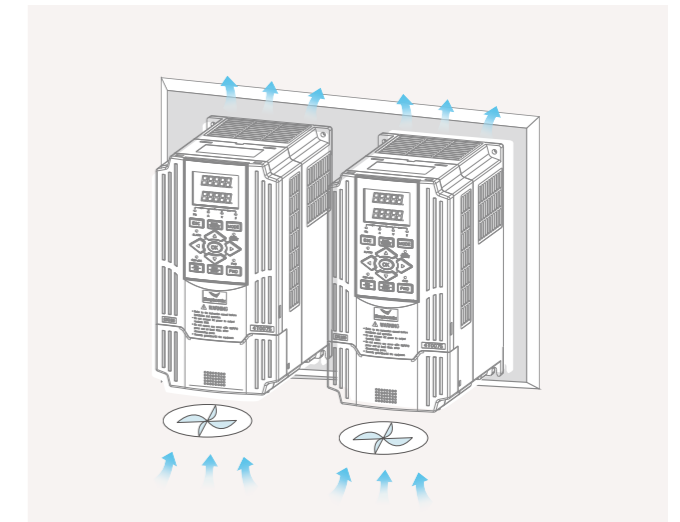
Product Features

Innovations

- Small and compact design, improves space utilization.
- Modular design with higher stability
- With secondary development interface, can be customized functions.

Structure

- The body is compact and easy to assemble.
- Independent air duct and lower air blowing scheme design, improve internal heat dissipation effect.
- Closed shell, exquisite three-proof paint technology, dust proof and moisture-proof, high stability.

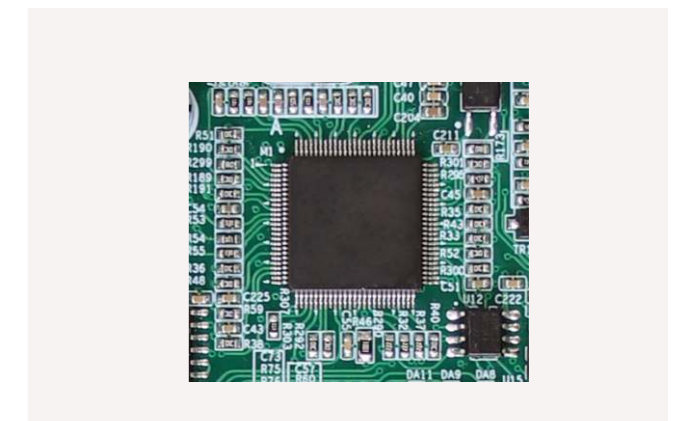
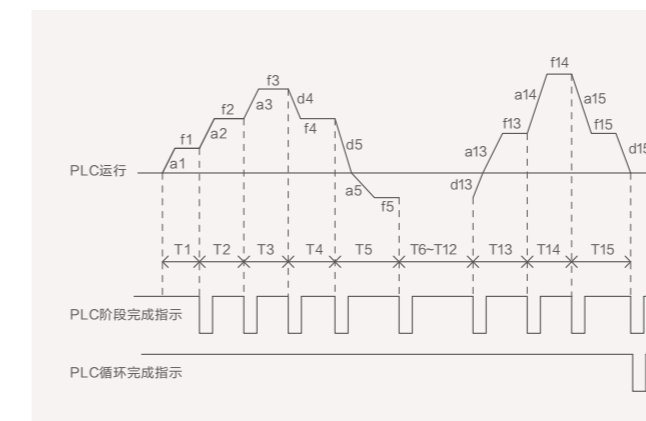


Software

- Equipped with linkage synchronization control function.
- Integrate multiple control algorithms such as V/F and current open loop vector and SVC.
- Various frequency setting channels and start-stop methods.
- Complete fault detection and protection functions.
- Simple programmable multi-stage operation.

Performance

- Passed stringent international EMC standard tests
- High-performance MCU with fast response speed, high speed stabilization accuracy, and high frequency resolution.
- Support multiple field buses, standard RS485 communication interface supports Modbus RTU communication.



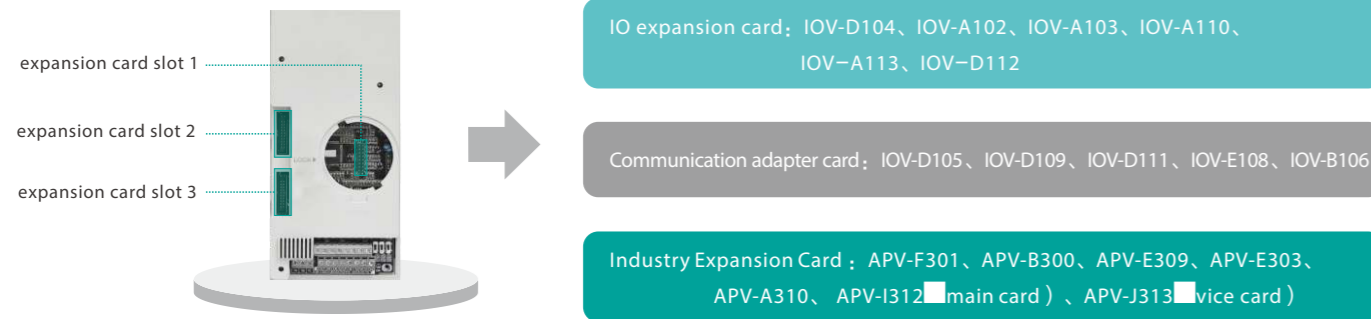
conducted immunity test
freq. range 150KHz~80MHz)

10V (e.m.f)

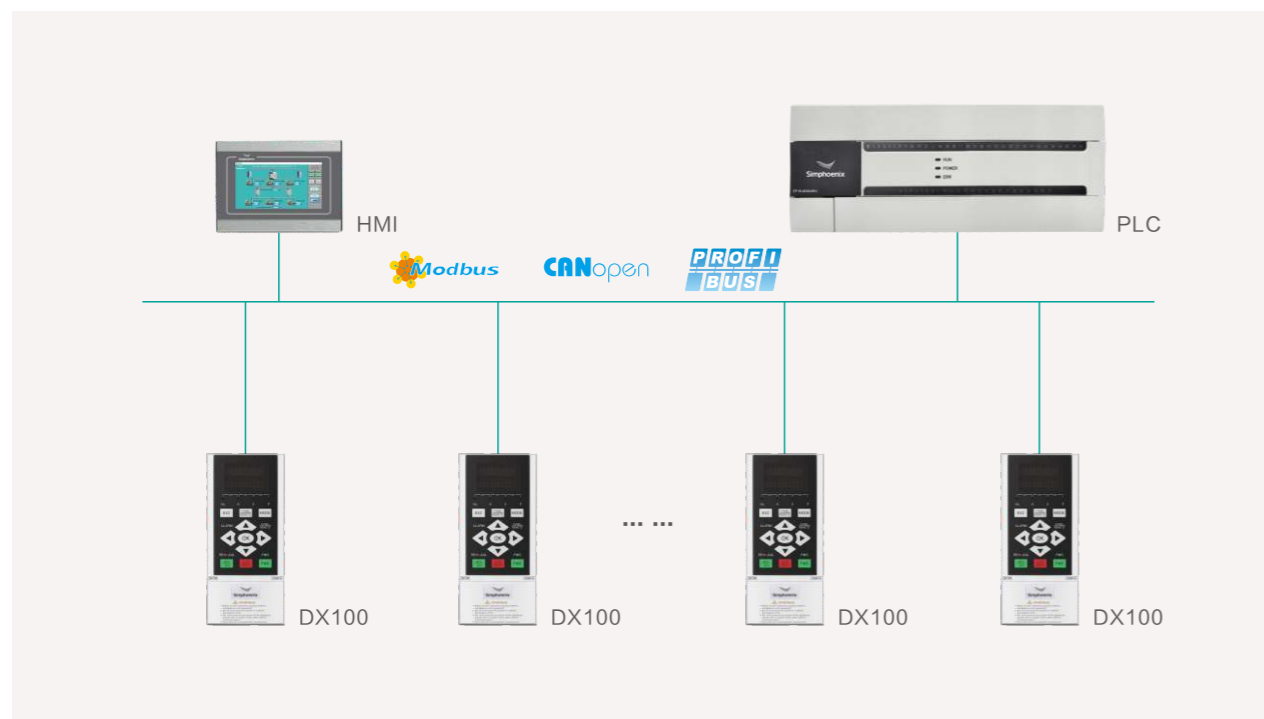
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Product upgrades and change

◆ More abundant I/O interface for Industry 4.0



◆ Support Modbus-RTU, Profibus-DP, CANopen bus protocol



Note: CANopen and Profibus-DP communication are only available for DX100-4T0110 and above models.

Structure

- Use DC fan for heat dissipation, good heat dissipation effect, stable performance, easy to disassemble and clean
- Enhanced double-layer conformal coatings to ensure the safety and reliability of the circuit part

Modular assembly mode, structure more compact and smaller



Removable DC fan for easy cleaning

The keyboard extension cord can be pulled out, and the keyboard is optional when the extension cord is pulled out to install.

Naming Rule

DX100-4 T 0015 (B)

model
DX100 series vector universal inverter

voltage classes
4 AC-380V
2 AC-220V

power phase
T three phase
S single phase

derivative model
B with brake unit (above 4T0075)

adpater motor (kW)
0007 0.75
0011 1.1
0015 1.5
...
1100 110

Specifications

input and output	Rated voltage	single-phase(2S#)220V(±10%)	Three-phase (4T#) 380~415V(±10%)
	frequency	50/60Hz(±5%)	
	output voltage	0~input voltage	
	Output frequency	Low frequency running mode: 0.00~300.00Hz high frequency running mode: 0.00~1000.00Hz	
	Digital input	<ul style="list-style-type: none"> ● Below DX100-250040/4T0075: 5digital inputs are standard (DI) ● Above DX100-4T0110: 6 digital inputs are standard (DI) , can be expanded to 16 channels (optional expansion components) 	
	Digital output	2 digital outputs are standard (DO)	
	Pulse input	Above DX100-4T0110: 0 ~ 100.0KHz pulse input, connected to NPN type OC output (optional)	
	Pulse output	Above DX100-4T0110: 0 ~ 100.0KHz pulse NPN type OC output (optional), can choose PWM output mode to expand the analog output port	
	Analog input	Standard configuration: 0 ~ 10V voltage input/0 ~ 20mA current input optional configuration: -10 ~ 10V input (above 4T0110)	
	Analog output	Below DX100-250040/4T0075: 1 channel 0 ~ 10V analog output signal (0 ~ 20mA current output mode can be selected) Above DX100-4T0110: 2 channels 0 ~ 10V analog output signal (0 ~ 20mA current output mode can be selected)	
Contact output	Standard set of AC 250V/2A normally open, normally closed contacts, expandable 1 to 6 groups of normally open, normally closed contacts		
RS485	7.5kW and below models are standard	11 kW and above models optional	
control characteristics	Control method	Open loop vector control	V/F control
	Starting torque	0 speed 180%	0 zero 180%
	Speed range	1: 200	1: 100
	Stable speed accuracy	±0.2%	±0.5%
	Torque control accuracy	±5%	---
	Torque response time	≤25ms	---
	Frequency accuracy	Low frequency mode: 0.01Hz; high frequency mode: 0.1Hz	
	Frequency resolution	<ul style="list-style-type: none"> ●Low frequency mode: digital setting—0.01Hz、analog setting—maximum frequency×0.1% ●high frequency mode:digital setting—0.1Hz、analog setting—maximum frequency×0.1% 	
	Load capacity	110%--long time; 150%--60 sec; 180%--2.5 sec	
	Carrier frequency	Three-phase voltage vector synthesis mode: 1.5~8KHz; 1.5~8KHz; Two-phase voltage vector synthesis mode: 1.5~12KHz; 1.5~12KHz; The specific carrier frequency is related to the power level	
	Acc and dec time	0.01~600.00Sec. / 0.01~600.0Min	
	Flux brake	By increasing the motor flux (30~120% can be set), the motor can be quickly decelerated and braked	
	DC braking/holding brake	DC brake/brake initial frequency: 0.0~upper limit frequency, brake/brake injection current 0.0~100.0%	
	Start frequency	0.0~50.0Hz	

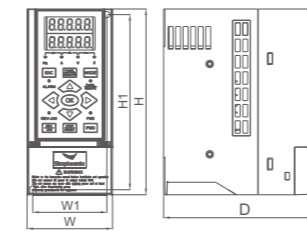
typical function	Multi-stage operation	16-segment frequency/speed operation, each segment's running direction, time, acceleration and deceleration are independently set; 7-segment process PID setting	
	Built-in PID	Built-in PID controller, which can be used independently by external equipment	
	Wake up to sleep	Built-in PID has simple sleep and wake-up functions	
	MODBUS	Standard MODBUS communication protocol, flexible parameter reading and writing mapping function	
	Dynamic braking	Operating voltage: 340~400/650~800V, braking rate: 50~100%	
special function	General function	Power failure restart, fault self-recovery, motor parameter dynamic/static self-identification, start permission enable, run permission enable, start delay, overcurrent suppression, overvoltage/undervoltage suppression, V/F custom curve, analog input Curve correction, disconnection detection, textile machinery disturbance (swing frequency) operation	
	Virtual I/O port	With 8 one-to-one corresponding virtual output and input ports No need for external wiring to easily realize complex project site applications	
	Communication linkage synchronization	Easily realize multi-machine synchronous transmission and can freely choose to realize multi-machine linkage balance according to current, torque, and power	
	Load balancing	It can also realize the dynamic balance of multi-machine load (not limited to communication linkage), and realize the characteristics of torque motor	
	Strong starting torque	For loads with large inertia and high static friction, a super starting torque can be set for a certain period of time	
	Set priority	Users can freely select the priority order of various frequency/speed setting channels, suitable for combined applications in various occasions	
	Set combination	Up to hundreds of combinations of frequency, speed, torque and other settings	
	Timer	3 built-in timers: 5 types of clocks, 5 types of start trigger modes, Multiple gating signals and working modes, 7 output signals	
	counter	2 built-in counters: clock edge selection, 4 types of start trigger modes, 7 output signals	
	Macro parameter	Application macro: Conveniently set and partially solidify a variety of commonly used group parameters, simplifying parameter settings for general applications System macro: It is convenient to switch the working mode of the equipment (such as high and low frequency operation mode switching), And automatically redefine local parameters	
	Parameter debugging	ny unstored parameter in the field debugging can be stored or discarded and restored to the original value with one key	
	Parameter display	Automatically shield the parameters of unused function modules, or selectively display modified, stored, and changed parameters	
	protection	power supply	Undervoltage protection
		Run protection	Overcurrent protection, overvoltage protection, inverter overheating protection, inverter overload protection, motor overload protection, output phase loss protection, IGBT drive protection
Equipment abnormal		Current detection abnormality, EEPROM memory abnormality, control unit abnormality, motor overheating, temperature acquisition loop failure	
Motor connection		The motor is not connected, the three-phase parameters of the motor are unbalanced, and the parameter identification is wrong	
Environment	Expansion Card	Detect and protect whether the expansion card is compatible or conflict	
	Installation Environment	Indoor vertical installation, no direct sunlight, no dust, corrosive, flammable gas, no oil mist, water vapor, no dripping water or salt	
	Altitude	0~1000 meters; 1000~3000 meters is recommended for derating, and the output current capacity is derated by 10% for every 1000 meters	
	Ambient temperature	Working environment temperature: -10℃ ~ +45℃ (45℃~50℃ derating use)	
	Storage temperature	-20℃ ~ +60℃	
	Humidity	Below 95%, no condensation of water droplets	
	vibration	< 6m/s ²	
	Environmental pollution level	2	
Protection level	IP20		

Model table

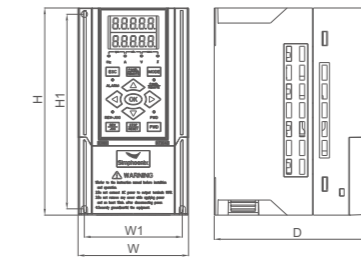
voltage class	model	rated capacity (KVA)	adapter motor (kW)	rated output current (A)
single phase 220V	DX100-2S0007(B)	1.9	0.75	5.0
	DX100-2S0015(B)	2.9	1.5	7.5
	DX100-2S0022(B)	3.8	2.2	10.0
	DX100-2S0030(B)	5.3	3.0	14.0
	DX100-2S0040(B)	6.3	4.0	16.5
three phase 380V~415V(±10%)	DX100-4T0011(B)	2.0	1.1	3.0
	DX100-4T0015(B)	2.4	1.5	3.7
	DX100-4T0022(B)	3.6	2.2	5.5
	DX100-4T0040(B)	6.3	4.0	9.5
	DX100-4T0055(B)	8.6	5.5	13.0
	DX100-4T0075(B)	11.2	7.5	17.0
	DX100-4T0110	16.5	11	25
	DX100-4T0150	21.7	15	33
	DX100-4T0185	25.7	18.5	39
	DX100-4T0220	29.6	22	45
	DX100-4T0300	39.5	30	60
	DX100-4T0370	49.4	37	75
	DX100-4T0450	62.5	45	95
	DX100-4T0550	75.7	55	115
	DX100-4T0750	98.7	75	150
	DX100-4T0900	116	90	176
	DX100-4T1100	138	110	210
	DX100-4T1320※	171	132	260
	DX100-4T1600※	204	160	310
	DX100-4T1850※	237	185	360
DX100-4T2000※	253	200	385	
DX100-4T2200※	276	220	420	
DX100-4T2500※	313	250	475	
DX100-4T2800※	352	280	535	
DX100-4T3150※	395	315	600	

Note: ※represents the model under development

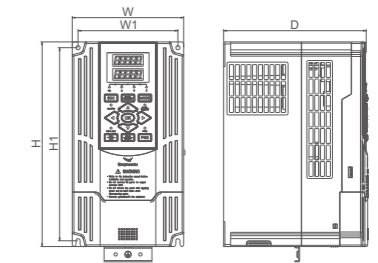
Mounting dimension



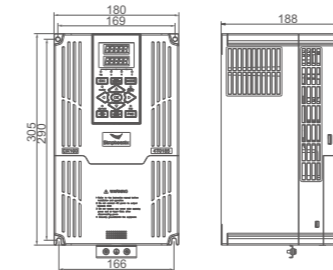
Class I applicable model
DX100-4T0011(B)~ DX100-4T0015(B)
DX100-2S0007(B)~ DX100-2S0015(B)



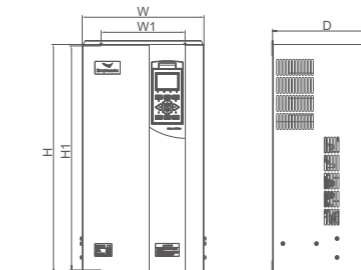
Class II applicable model
DX100-2S0022(B)~ DX100-2S0040(B)
DX100-4T0022(B)~ DX100-4T0075(B)



Class II applicable model
DX100-4T0110~DX100-4T0450



Note :two special models :
DX100-4T0185~DX100-4T0220



Class IV applicable model
DX100-4T0550~DX100-4T1100

model	W1 (mm)	W (mm)	H1 (mm)	H (mm)	D (mm)	screw specification
DX100-2S0007(B)	59	68	139	148	130	M4
DX100-2S0015(B)						
DX100-4T0011(B)						
DX100-4T0015(B)						
DX100-2S0022(B)						
DX100-2S0030(B)	78	88	155	165	133	M4
DX100-4T0022(B)						
DX100-4T0040(B)						
DX100-2S0040(B)	99	109	199	209	155	M4
DX100-4T0055(B)						
DX100-4T0075(B)	121	135	234	248	175	M4
DX100-4T0110						
DX100-4T0150						
DX100-4T0185	169	180	290	305	188	M5
DX100-4T0220						
DX100-4T0300	160	210	387	405	211	M6
DX100-4T0370						
DX100-4T0450						
DX100-4T0550	200	290	525	545	260	M8
DX100-4T0750						
DX100-4T0900						
DX100-4T1100	230	330	603	625	280	M10

Wiring diagram

