Simphoenix

VFD / Servo / PLC / HMI

www.simphoenix.com

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CONTENTS

About Simphoenix

Shenzhen Simphoenix Electric Technology Co., Ltd is a privately operated high-tech enterprise in Shenzhen, as approved by the state and also a software enterprise recognized by Shenzhen Science and Information Bureau.

Established in Feb. 2004, Simphoenix is committed to be a reliable industrial automation product and solution provider in China, Simphoenix is specialized in R&D, manufacturing and sales of automation control products, our main products include low voltage ac drives,servo system, PLC, HMI. Through 12 years of development, Simphoenix has developed to be one of the most professional industrial solution provider in china.

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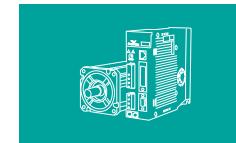
PLATFORM ADVANTAGES

R&D

- Around 50 engineers.
- Invest estimated 4 million USD cost in 2016.
- Masters and doctors accounts for 15%.
- Simulation analysis of drive algorithm and heat design.
- Strong-electricity finite elements analysis platform.

Testing

- EMC labs equipped with advanced testing equipment.
- IGBT vibration and LOW / HIGH temperatures.
- Strict testing methods.
- Wish leading electric low voltage stations.

Manufacture Center

- Over 10,000 square meter of production area.
- Annual output value can achieve 85 million USD.
- 6 automatic production lines imported from Germany.
- Flexible manufacturing.
- Reliable quality.
- Fast delivery.

E280 Series Gereral Vector AC Drive

E280 is developed on the basis of our E series AC drive which originally launched in 2004. Through field test of more than 1.2 million AC drives and continuous improvement and optimization of four generation products, stability and reliability has become the key character of our E series products.

Typical Applications

- Machine tool
- Textile machinery
- Cable machinery
- Petrochemical processing
- Construction
- Transmission

Features

- Strong torque at low frequency. 200% start torque at 0Hz under VC control, 180% start torque at 0Hz under SVC control.
- Standard 5-digit two-line LED panel display and LCD keypad optional.
- Intuitive real-time monitering to know nearly hundred kinds of parameters, like usage of electricity, running time, input & output voltage and current, error record etc.
- Built-in several system macro and application macro, and it simplifies parameter setting by micro parameter calling.
- Hundreds of combinations of torque and revolution.
- Programmable 16-segment speed running, indepedent setting of running time, acceleration & deceleration time and moving direction of each segment.
- Flexible configuration of priorities of frequency or rotate speed setting channels.
- Software virtual I/O function with simple parameter setting, it configures virtual I/O flexibly that reduce external interference and simplify wiring.
- Abundant warning and protection functions.

Functions

Typical Function		
	Multi-step running	15 frequency / speed running, each running direction, time, acc or dec set independently. 7 process PID set (PID control function cancel or not)
	Built-in PID	Built-in PID controller, able to be used by external equips.
	Awakening sleep	Built-in PID with simple sleep and awakening function
	MODBUS Communication	Standard MODBUS communication protocol (optional), flexible parameter read-write mapping function
	Dynamic Braking	Acting voltage: 650~760V, braking rate: 50~100%
	General Function	Reset after power stop, recovery with failure, motor parameter dynamic / static self-identification, start enable, running enable, start delay, over-current inhibit, over-voltage / low-voltage inhibit, V/F self-defined curve, analog input wave rectification, power-off test, textile machine disturbance (swing frequency) operation
	Communication Linkage Synchronization	It is easy to achieve synchronous drive for several equips with free selection based on current, torque, power to reach linkage balance.
	Overload Dynamic Balance	It can achieve multi-equips overload dynamic balance (not limit to communication linkage) to reach torque motor characteristics.
	Strong Start Torque	For the load with strong inertia, static friction, it can set super strong start torque for certain time.
	Setting Priority	User can select priority sequence for all kinds of frequency / rotate speed setting channels freely which is suitable for kinds of combined applications.
	Setting Combination	Hundreds of setting combination of frequency, rotate speed, torque etc.

Unique Function		
	Timer	Built-in 3 timers with 5 kinds of clock and 6 kinds of startup trigger modes Several door control signals and working modes, 7 output signals
	Counter	2 inner counter, 3 counting pulse edge selection, 6 start trigger modes, 7 output signals
	Macro Parameter	Application macro:Easy for setting and partial solidifying several usual parameter groups, simple parameter setting for general applications.
		System macro:Convenient for switching equip.'s running mode (ex. Switching with high and low frequency running mode), Self-defined partial parameters
	Parameter Debugging	Adjust any non-stock parameters with one button stock or give up and recovery
	Parameter Display	Shield non-use parameter modules automatically, or display revised, stock, changed parameters selectively.

Protection Function		
	Running Protection	Over-current protection, over-voltage protection, short circuit protection, inverter over-heat protection, inverter overload protection, motor overload protection, output lack of phase protection
	Equip Abnormal	Current check abnormal, EEPROM storage abnormal, control unit abnormal, motor over-heat, temperature collection loop failure
	Motor Connection	Motor non-connection, motor 3 phase parameter unbalance, parameter identification wrong
	Extension Card	Test and protect extension card compatible or conflict

E280 Series

Specifications

Input and Output

|	
Input Rated Voltage	3AC 380V ±20%;3AC 220V ±20%;
Input Frequency	50/60 Hz ±20%
Output Voltage	0 V ~ input rated voltage
Output Frequency	Low frequency running mode: 0.00~300.00Hz; High frequency running mode: 0.00~400.00Hz;
Digital Input	E280-4T0040 and below units (extension unable, optional): Standard built-in 5 digital input (DI) E280-4T0055 and above units (extension available): Standard built-in 6 digital input (DI) Extension to 9, one is for high-speed digital input (extension set optional)
Digital Output	E280-4T0040 and below units: Standard built-in 1 digital output (DO) E280-4T0055 and above units: Standard built-in 2 digital input (DO) Be able to extend 1 high-speed DO output (0~100kHz)
Pulse Input	0 ~ 100.0kHz pulse input. Connect NPN type OC output (optional)
Pulse Output	0 ~ 100.0kHz pulse NPN type OC output (optional)
Analog Input	E280-4T0040 and below units (extension unable, optional): Standard built-in: 0 ~ 10V voltage input (Ai1), 0 ~ 20mA current input (AI2); E280-4T0055 and above units (extension available): Standard built-in: 0 ~ 10V voltage input (Ai1), 0 ~ 20mA current input (AI2); Be able to extend 1 AI (-10V~10V dual polarity voltage input);
Analog Output	E280-4T0040 and below units (extension unable, optional): Standard built-in: 1 0 ~ 10V analog output signal (0 ~ 20mA current output mode optional) E280-4T0055 and above units (extension available): Standard built-in: 2 0 ~ 10V analog output signal (0 ~ 20mA current output mode optional)
Contact Output	Standard one set AC 250V/1A normal open, normal contact, able to extend 1-6 sets normal open and normal close contact.

Control Characteristics

Control Mode	Closed-loop Vector Control	Open-loop Vector Control	V/F Control
Start Torque	0 Speed 200%	0 Speed 180%	0 Speed 100%
Speed Adjustment Range	1:1000	1:200	1:100
Stable Speed Accuracy	±0.02%	±0.02%	±0.5％
Torque Control Accuracy	±1%	±5%	——
Torque Responding Time	≤5ms	≤25ms	——
Frequency Resolution	Low frequency running mode: 0.01Hz;High frequency running mode: 0.1Hz		
Frequency Accuracy	Low frequency running mode: digital set—0.01Hz, analog set—highest frequency x 0.1% High frequency running mode: digital set—0.1Hz, analog set—highest frequency x 0.1%		
Overload Capability	G type: 110%--long term; 150%--90s; 180%--2s;		
	P type: 105%--long term;		
Carrier Wave Frequency	Three phase voltage vector combined mode: 1.5~10.0kHz； Two phase voltage vector combined mode: 1.5~12.5kHz; (high frequency mode can be 15kHz)		
Acc. And Dec. Time	0.01~600.00 Sec./0.01~600.00Min.		
Magnetic Flow Braking	By increasing motor magnetic flow (30~120% available), motor can achieve fast decreasing braking.		
DC Braking / Band Brake	Initial frequency of DC braking / bank brake: 0.0~upper frequency, braking / bank brake injecting current 0.0~100.0%		
Start Frequency	0.0~50.0Hz		

Model Table

Voltage class	Model	Code	General load mode (〔F0.15〕=0)			Load mode for fan and water pump (〔F0.15〕=1)		
			Rated capacity (KVA)	Rated current (A)	Suitable motor (KW)	Rated capacity (KVA)	Rated current (A)	Suitable motor (KW)
Three phase 220V	E280-2T0022	000M580230022	3.8	10	2.2	–	–	–
	E280-2T0030	000M580230030	5.3	14	3	–	–	–
	E280-2T0040	000M580230040	6.5	17	4	–	–	–
	E280-2T0055	000M580230055	9.5	25	5.5	–	–	–
	E280-2T0075	000M580230075	12.6	33	7.5	–	–	–
	E280-2T0090	000M580230090	14.9	37	9	–	–	–
	E280-2T0110	000M580230110	17.5	46	11	–	–	–
	E280-2T0150	000M580230150	22.9	60	15	–	–	–
	E280-2T0185	000M580230185	28.6	75	18.5	–	–	–
	E280-2T0220	000M580230220	32.4	85	22	–	–	–
	E280-2T0300	000M580230300	41.9	110	30	–	–	–
	E280-2T0370	000M580230370	51.5	135	37	–	–	–
	E280-2T0450	000M580230450	64.8	170	45	–	–	–
	E280-2T0550	000M580230550	78.1	205	55	–	–	–
	E280-2T0750	000M580230750	101	265	75	–	–	–
	E280-2T0900	000M580230900	122	320	90	–	–	–
Three phase 380V	E280-4T0011G/4T0015P	000M580430011	2.0	3.0	1.1	2.4	3.7	1.5
	E280-4T0015G/4T0022P	000M580430015	2.4	3.7	1.5	3.6	5.5	2.2
	E280-4T0022G/4T0030P	000M580430022	3.6	5.5	2.2	4.9	7.5	3.0
	E280-4T0030G/4T0040P	000M580430030	4.9	7.5	3.0	6.3	9.5	4.0
	E280-4T0040G/4T0055P	000M580430040	6.3	9.5	4.0	8.6	13.0	5.5
	E280-4T0055G/4T0075P	000M580430055	8.6	13.0	5.5	11.2	17.0	7.5
	E280-4T0075G/4T0090P	000M580430075	11.2	17.0	7.5	13.8	21	9.0
	E280-4T0090G/4T0110P	000M580430090	13.8	21	9.0	16.5	25	11
	E280-4T0110G/4T0150P	000M580430110	16.5	25	11	21.7	32	15
	E280-4T0150G/4T0185P	000M580430150	21.7	32	15	25.7	37	18.5
	E280-4T0185G/4T0220P	000M580430185	25.7	37	18.5	29.6	45	22
	E280-4T0220G/4T0300P	000M580430220	29.6	45	22	39.5	60	30
	E280-4T0300G/4T0370P	000M580430300	39.5	60	30	49.4	75	37
	E280-4T0370G/4T0450P	000M580430370	49.4	75	37	62.5	95	45
	E280-4T0450G/4T0550P	000M580430450	62.5	95	45	75.7	115	55
	E280-4T0550G/4T0750P	000M580430550	75.7	115	55	98.7	150	75
	E280-4T0750G/4T0900P	000M580430750	98.7	150	75	116	176	90
	E280-4T0900G/4T1100P	000M580430900	116	176	90	138	210	110
	E280-4T1100G/4T1320P	000M580431100	138	210	110	171	260	132
	E280-4T1320G/4T1600P	000M580431320	171	260	132	204	310	160
	E280-4T1600G/4T1850P	000M580431600	204	310	160	237	360	185
	E280-4T1850G/4T2000P	000M580431850	237	360	185	253	385	200
	E280-4T2000G/4T2200P	000M580432000	253	385	200	276	420	220
	E280-4T2200G/4T2500P	000M580432200	276	420	220	313	475	250
	E280-4T2500G4T/2800P	000M580432500	313	475	250	352	535	280
	E280-4T2800G/4T3150P	000M580432800	352	535	280	395	600	315
	E280-4T3150G/4T3500P	000M580433150	395	600	315	428	650	350
	E280-4T3500G/4T4000P	000M580433500	428	650	480	480	730	400
	E280-4T4000G/4T4500P	000M580434000	480	720	527	527	800	450

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Installation and Dimension Figure
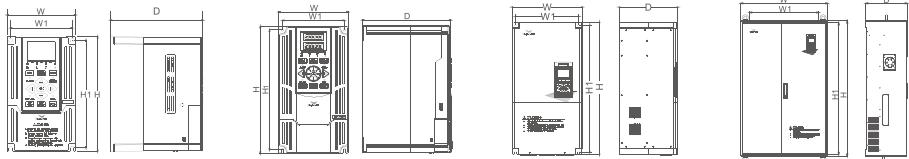
I Class applicable models:
E280-4T0011G/4T0015P~
E280-4T0040G/4T0055P

II class applicable models:
E280-4T0055G/4T0075P~
E280-4T0300G/4T0370P~
E280-2T0022~2T0150

III Class applicable models:
E280-4T0370G/4T0450P~
E280-4T2200G/4T2500P
E280-2T0185~2T1320

IV Class applicable models:
E280-4T2500G/4T2800P~
E280-4T3500G/4T4500P
E280-2T1600

Model number (Three-phase 380 V)	Model number (Three-phase 220 V)	W1 (mm)	W (mm)	H1 (mm)	H (mm)	D (mm)	Screw (Spec.)
E280-4T0011G/0015P	–	87	97	152	162	130	M4
E280-4T0015G/0022P	–						
E280-4T0022G/0030P	–	95	105	190	200	146	M4
E280-4T0030G/0040P	–						
E280-4T0040G/0055P	–						
E280-4T0055G/0075P	E280-2T0022	121	135	234	248	175	M4
	E280-2T0030						
E280-4T0075G/0090P	E280-2T0040	146	160	261	275	179	M5
E280-4T0090G/0110P	–	169	180	290	305	179	M5
E280-4T0110G/0150P	E280-2T0055						
E280-4T0150G/0185P	E280-2T0075	160	210	387	405	202	M6
E280-4T0185G/0220P	E280-2T0090						
E280-4T0220G/0300P	E280-2T0110	160	250	422	445	216	M8
E280-4T0300G/0370P	E280-2T0150						
E280-4T0370G/0450P	E280-2T0185	271	300	545	567	250	M8
E280-4T0450G/0550P	E280-2T0220						
E280-4T0550G/0750P	E280-2T0300						
E280-4T0750G/0900P	E280-2T0370	344	381	588	614	298	M8
E280-4T0900G/1100P	E280-2T0450	380	510	710	740	270	M8
E280-4T1100G/1320P	E280-2T0550						
E280-4T1320G/1600P	E280-2T0750						
E280-4T1600G/1850P	E280-2T0900	400	580	760	793	300	M10
E280-4T1850G/2000P	–						
E280-4T2000G/2200P	E280-2T1100	500	700	960	1000	340	M10
E280-4T2200G/2500P	E280-2T1320						
E280-4T2500G/2800P	–	580	730	1103	1130	355	M10
E280-4T2800G/3150P	E280-2T1600						
E280-4T3150G/3500P	–						
E280-4T3500G/4000P	–	600	760	1170	1200	400	M12
E280-4T4000G/4500P	–						

E500 Series Universal Mini-type AC Drive

E500 series AC Drive is developed based on new hardware platform, which is characterized with extraordinary performance, complete protection functions, small structure, elegance and durability. Optional control keyboard can be used flexibly by users according to requirements. It is especially configured with a status indicator to achieve keyboard-free operation and basic operation status monitor.

Typical Applications

- Textile
- Food
- Transmission
- Ceramics
- Grinding machine
- Centrifugal machine
- Engraving machine
- Terminal machine, Wire-cutting machine, Dividing and cutting machine etc.

Features

- SVC,V/F control.
- Highly adaptive to grid voltage, with endurable to ±20% fluctuation.
- Special self-adaptive control technology, allowing automatic current-limiting, voltage-limiting and under-voltage suppression during operation.
- Standard RS485 communication interface, optional MODBUS protocol and Simphoenix self-defined protocol, with linkage of inverter and PLC, or other industry control equips easily.
- The panel supports hot-plugging applicable for system integration for various applications.
- Vivid real-time monitor, allowing for monitoring input and output current, voltage etc. in real time.
- 4-channel multifunctional input terminals, with 29 kinds of terminal function definitions, 16 kinds of programmable status outputs, hence enabling flexible parameters control.
- Built-in counter is able to conduct simple counting with match of multifunctional terminals.
- Internally integrated and optimized PID controller, facilitating to conduct closed-loop control over temperature, etc. which is able to simplify control system structure to reduce cost.

E500 Series

Functions

| Feature	Specific application parameter, simple PLC, multi-segment running, custom V/F curve, various terminal function definition, RS485 communication, communication linkage
Control feature	VVVF vacuum voltage vector loading-capacity: 110%~long-term, 150%~60s, 180%~2s
Protection	overcurrent, overvoltage, undervoltage, over-heat, short circuit, output phase lack

Specifications

Input voltage (U1), frequency	3AC 380V ±20%, 50/60Hz 1AC 220V ±20%, 50/60Hz
Power range	3AC 380V ±20%, 0.7 kW~9.0kW 1AC 220V ±20%, 0.4kW~7.5kW
Output voltage	3AC 0~380V 3AC 0~220V
Output frequency	0.0~400.0Hz
Carrier frequency	1.5~10.0kHz (along with the power)
Control mode	SVC,V/F
Digital input/output	Standard 4 digital input (X) Standard 1 digital output (OC), Standard 1 relay output(TA-TC)
Analog input/output	Voltage Input (AI) (optional 0-20ma current input mode) , 1 0-10V analog output signal (AO)
Communication interface	Optional RS485 interface, Support MODBUS communication protocol
Braking unit	Optional configured
Peripheral interface	Provide 2 outward power source channel, one is +10V/10mA or +5V/50mA, the other is +24V/50mA
Install	Optional wall mounted and orbital
Protection class	IP20
Certificate	CE

Model Table

Voltage class	Model	Code	Rated capacity (KVA)	Suitable motor (KW)	Rated current (A)
Single phase 220V	E500-2S0004(B)	000M550220004(B)	1.1	0.4	3.0
	E500-2S0007(B)	000M550220007(B)	1.9	0.75	5.0
	E500-2S0015(B)	000M550220015(B)	2.9	1.5	7.5
	E500-2S0022(B)	000M550220022(B)	3.8	2.2	10.0
	E500-2S0030(B)	000M550220030(B)	5.3	3.0	14.0
	E500-2S0040(B)	000M550220040(B)	6.3	4.0	16.5
	E500-2S0055(B)	000M550220055(B)	9.5	5.5	25
	E500-2S0075(B)	000M550220075(B)	12.6	7.5	33
Three phase 380V	E500-4T0007(B)	000M550430007(B)	1.6	0.75	2.5
	E500-4T0015(B)	000M550430015(B)	3.0	1.5	4.5
	E500-4T0022(B)	000M550430022(B)	3.6	2.2	5.5
	E500-4T0030(B)	000M550430030(B)	5.0	3.0	7.5
	E500-4T0040(B)	000M550430040(B)	6.3	4.0	9.5
	E500-4T0055(B)	000M550430055(B)	8.6	5.5	13
	E500-4T0075(B)	000M550430075(B)	11.2	7.5	17
	E500-4T0090(B)	000M550430090(B)	13.8	8.8	33

Note: The model with a suffix of "B" has braking unit and RS485 interface.

Installation and Dimension Figure
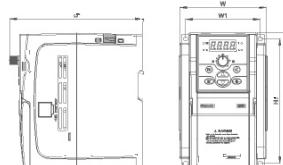
Class I Suitable for:
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E500-2S0015(B)~E500-2S0040(B)/
E500-4T0007(B)~E500-4T0040(B)
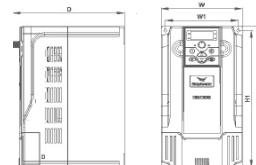
Class II Suitable for:
E500-2S0055(B)/E500-4T0055(B)~4T0075(B)/
E500-2S0075(B)/E500-4T0090(B)

Inverter model (Three phase 380V)	Inverter model (Single phase 220V)	W1(mm)	W(mm)	H1(mm)	H(mm)	D(mm)	Screw
——	E500-2S0004(B)	67.5	81.5	132.5	148	134.5	M4
——	E500-2S0007(B)						
E500-4T0007(B)	——	86.5	101.5	147.5	165	154.5	M4
E500-4T0015(B)	E500-2S0015(B)						
E500-4T0022(B)	E500-2S0022(B)						
E500-4T0030(B)	E500-2S0030(B)	100	110	190	205	169.5	M5
E500-4T0040(B)	E500-2S0040(B)						
E500-4T0055(B)	——	121	135	234	248	186	M4
E500-4T0075(B)							
E500-4T0090(B)	E500-2S0055(B)	146	160	261	275	190	M5
	E500-2S0075(B)						

V800 Series High-performance Vector AC Drive

V800 series AC drive s based on new vector control platform that built-in control algorithms of closed-loop vector, open-loop vector, V/F control, torque control and V/F separation control, which can meet each kind of complicated control application. It can extend three extension cards, with hundreds of warning functions that will pre-alarm to avoid failure shutdown.

Typical Applications

- Typical Application
- Hoisting
- Machine tool
- Textile machinery
- Food packing
- Cable machinery
- Petrochemical processing
- Washing equipment, Cenrifugal machine

Features

- Integrated leading permanent magnet synchronous motor control algorithm.
- Low speed high torque output, 200% starting torque at 0 speed.
- Quick torque response, <5ms.
- Steady speed precision up to ±0.02%.
- Power above 3.0kw Inverter with LCD screen as standard.
- Completely new design of switch power supply, reduce failure rate.
- Optimized drive protection function.
- Optional DP, CANopen, modbus for integrated automation.
- Independent airduct design, to ensure electrical isolation.
- Fully enclosed design of electrical part, multilayer conformal coating.

Functions

|	
Features	Outage restart, fault reset, start allowed to enable, running allowed to enable, overcurrent suppression, start delay, overvoltage/undervoltage suppression, analog input curve correction, disconnect detection, swing mode, magentic break, DC break, band type break, wakeup and sleep, temperature detection, analog I/O terminal, spindle orientation, synchronous communication, load dynamic balancing, dual parameter chanel, timer, counter, macroparameter, strong starting torque.
Control feature	Close-loop vector control : 200% starting torque at zero speed, speed range 1: 1000.The steady speed precision ±0.02%; torque responding time≤5ms. Loading-capacity: General-load Loading capacity: 110%--long-term; 150%--60s, 180%--5s. steady-load mode: 105%--long-term; 120%--60s; 150%--1s.
Protection	Power source: three phase supply unbalance protection. Running protection: overcurrent protection, overvoltage protection, over temperature protection, inverter over-load protection, motor over-load protection, output phase lack protection, modular drive protection. Equipment malfunction: current detect anomalies, EEPROM memory unit error, control unit anomalies, motor over-heat, input signal anomalies, temperature measurement circuit error . Motor connection : motor disconnected, motor shree phase unbalance, parameter identification error. Expansion card : expansion card conflict and compatibility test.

Specifications

Input voltage, frequency	3AC 380V ±20%; 50/60Hz
Power range	3AC 380V ±20%; 1.1kW~800kW
Output voltage	3AC 0~380V
Output frequency	Low frequency mode: 0.0~300.00Hz High frequency mode: 0.0~2000.0Hz
Carrier frequency	3 phase vector synthesis: 1.5~12.0kHz
Control mode	Close-loop vector control; open-loop vector control; V/F control
Digital output/input	Standard 6 digital input (DI), extensible Standard 2 digital output (DO), extensible
Pulse input/output	0.0~100.0kHz pulse input 0.0~100.0kHz pulse output (DC signal/standard I/O extension card)
Analog input/output	V800-4T0030G/4T0040P and models below Standard configuration : 1 0~10V voltage input(AI1); 1 0~20mA current input(AI2); 1 0~10V voltage output (optional 0-20mA current output). Optional configuration : 1 0~10V(-10V~10V swappable) voltage input(AI1). V800-4T0040G/4T0055P and models above Standard configuration : 1 0~10V voltage input(AI1); 1 0~20mA current input(AI2); 2 0~10V voltage output (optional 0-20mA current output). Optional I/O : 1 -10V~10V voltage input(AI3)
Protocol	Extensible for MODBUS protocol (tandard RS485 interface) and profibus-DP CANopen protocol
Bulit-in	Power above 75kW built-in DC reactor
Braking unit	Power below 22kW are equipped with braking unit
Peripheral interface	DC24V power source, maximum input current: 100mA
Install	Wall mounted (Power above 220kW are available for cabinet)
Protection class	IP20
Certificate	CE

V800 Series

Model Table

Voltage class	Model	Code	General load pattern			Steady load pattern		
			Rated capacity (KVA)	Rated current (A)	Suitable motor (KW)	Rated capacity (KVA)	Rated current (A)	Suitable motor (KW)
Three phase 380V	V800-4T0011G/4T0015P	006M800430011	2.0	3.0	1.1	2.4	3.7	1.5
	V800-4T0015G/4T0022P	006M800430015	2.4	3.7	1.5	3.6	5.5	2.2
	V800-4T0022G/4T0030P	006M800430022	3.6	5.5	2.2	4.9	7.5	3.0
	V800-4T0030G/4T0040P	006M800430030	4.9	7.5	3.0	6.3	9.5	4.0
	V800-4T0040G/4T0055P	006M800430040	6.3	9.5	4.0	8.6	13.0	5.5
	V800-4T0055G/4T0075P	006M800430055	8.6	13.0	5.5	11.2	17.0	7.5
	V800-4T0075G/4T0090P	006M800430075	11.2	17.0	7.5	13.8	21	9.0
	V800-4T0090G/4T0110P	006M800430090	13.8	21	9.0	16.5	25	11
	V800-4T0110G/4T0150P	006M800430110	16.5	25	11	21.7	33	15
	V800-4T0150G/4T0185P	006M800430150	21.7	33	15	25.7	39	18.5
	V800-4T0185G/4T0220P	006M800430185	25.7	39	18.5	29.6	45	22
	V800-4T0220G/4T0300P	006M800430220	29.6	45	22	39.5	60	30
	V800-4T0300G/4T0370P	006M800430300	39.5	60	30	49.4	75	37
	V800-4T0370G/4T0450P	006M800430370	49.4	75	37	62.5	95	45
	V800-4T0450G/4T0550P	006M800430450	62.5	95	45	75.7	115	55
	V800-4T0550G/4T0750P	006M800430550	75.7	115	55	98.7	150	75
	V800-4T0750G/4T0900P	006M800430750	98.7	150	75	116	176	90
	V800-4T0900G/4T1100P	006M800430900	116	176	90	138	210	110
	V800-4T1100G/4T1320P	006M800431100	138	210	110	171	260	132
	V800-4T1320G/4T1600P	006M800431320	171	260	132	204	310	160
	V800-4T1600G/4T1850P	006M800431600	204	310	160	237	360	185
	V800-4T1850G/4T2000P	006M800431850	237	360	185	253	385	200
	V800-4T2000G/4T2200P	006M800432000	253	385	200	276	420	220
	V800-4T2200G/4T2500P	006M800432200	276	420	220	313	475	250
	V800-4T2500G/4T2800P	006M800432500	313	475	250	352	535	280
	V800-4T2800G/4T3150P	006M800432800	352	535	280	395	600	315
	V800-4T3150G/4T3500P	006M800433150	395	600	315	428	650	350
	V800-4T3500G/4T4000P	006M800433500	428	650	350	480	730	400
	V800-4T4000G/4T4500P	006M800434000	480	730	400	527	800	450
	V800-4T4500G/4T5000P	006M800434500	527	800	450	592	900	500
	V800-4T5000G/4T5600P	006M800435000	592	900	500	658	1000	560
	V800-4T5600G/4T6300P	006M800435600	658	1000	560	737	1120	630
	V800-4T6300G/4T7000P	006M800436300	737	1120	630	823	1225	700
	V800-4T7000G/4T8000P	006M800437000	823	1225	700	955	1450	800
	V800-4T8000G/4T9000P	006M800438000	955	1450	800	1053	1600	900

Installation and Dimension Figure
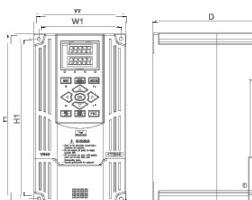
I Class applicable models:
V800-4T0011G/4T0015P~V800-4T0300G/4T0370P
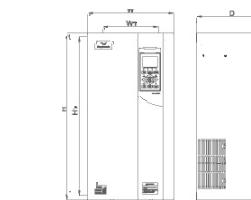
II Class applicable models:
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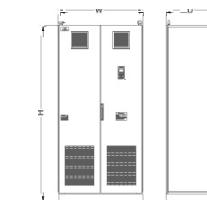
III Class applicable models:
V800-4T3500G/4T4000P~V800-4T8000G/4T9000P

Inverter model (Three phase 380V)	W1 (mm)	W (mm)	H1 (mm)	H (mm)	D (mm)	Screw
V800-4T0011G/4T0015P	87	97	152	162	130	M4
V800-4T0015G/4T0022P						
V800-4T0022G/4T0030P	95	105	190	200	146	M4
V800-4T0030G/4T0040P						
V800-4T0040G/4T0055P	121	135	234	248	175	M4
V800-4T0055G/4T0075P						
V800-4T0075G/4T0090P	146	160	261	275	179	M5
V800-4T0090G/4T0110P	169	180	290	305	179	M5
V800-4T0110G/4T0150P						
V800-4T0150G/4T0185P	160	210	387	405	202	M6
V800-4T0185G/4T0220P						
V800-4T0220G/4T0300P	160	250	422	445	216	M8
V800-4T0300G/4T0370P						
V800-4T0370G/4T0450P	160	260	483	500	250	M8
V800-4T0450G/4T0550P	200	300	558	567	250	M8
V800-4T0550G/4T0750P						
V800-4T0750G/4T0900P	240	340	702	717	280	M10
V800-4T0900G/4T1100P						
V800-4T1100G/4T1320P	300	400	700	717	280	M10
V800-4T1320G/4T1600P						
V800-4T1600G/4T1850P	300	450	860	890	350	M10
V800-4T1850G/4T2000P	450	580	925	950	380	M12
V800-4T2000G/4T2200P						
V800-4T2200G/4T2500P						
V800-4T2500G/4T2800P	500	640	1240	1265	400	M12
V800-4T2800G/4T3150P						
V800-4T3150G/4T3500P						
V800-4T3500G/4T4000P	▬	900	▬	2100	600	▬
V800-4T4000G/4T4500P						
V800-4T4500G/4T5000P	▬	1000	▬	2100	600	▬
V800-4T5000G/4T5600P						
V800-4T5600G/4T6300P	▬	1200	▬	2100	600	▬
V800-4T6300G/4T7000P						
V800-4T7000G/4T8000P						
V800-4T8000G/4T9000P						

V560 Series High-performance Closed-loop Vector AC Drive

V560 series AC drive is based on new vector control platform that built-in control algorithms of closed-loop vector, open-loop vector, V/F control, torque control and V/F separation control, which can meet each kind of complicated control application. It can extend three extension cards, with hundreds of warning functions that will pre-alarm to avoid failure shutdown.

Typical Applications

- Typical Application
- Hoisting
- Machine tool
- Textile machinery
- Food packing
- Cable machinery
- Petrochemical processing
- Washing equipment, Centrifugal machine

Features

- Maximum 5μs current closed-loop response cycle, 200% start torque at zero speed.
- Standard 5 digit two-line LED panel display and LCD keypad optional.
- Built-in several system macro and application macro, and it simplifies parameter setting by micro parameter calling.
- Software virtual I/O function with simple parameter setting, it configures virtual I/O flexibly that reduce external interference and simplify wiring.
- Self-balancing of current, power torque or position automatically in the case of multiple motor linkage.
- Hundreds of combinations of torque and revolution.
- Spindle servo and division positioning control.
- Flexible configuration of priorities of frequency or rotate speed setting channels.
- Any non-stored parameter adjusted at field can be saved, abandoned or restored to default value with one key.
- Ergonomic operation panel enables locking and unlocking of keyboard or software.
- Shielding non-used parameters automatically or displaying modified, saved or changed parameters selectively.

Functions

| Features	Outage restart, fault reset, start allowed to enable, running allowed to enable, overcurrent suppression, start delay, overvoltage/undervoltage suppression, analog input curve correction, disconnect detection, swing mode, magentic break, DC break, band type break, wakeup and sleep, temperature detection, analog I/O terminal, spindle orientation, synchronous communication, load dynamic balancing, dual parameter chanel, timer, counter, macroparameter, strong starting torque.
Control feature	Close-loop vector control : 200% starting torque at zero speed, speed range 1: 1000.The steady speed precision ±0.02%; torque responding time ≤ 5ms. Loading-capacity: General-load Loading capacity: 110%--long-term; 150%--60s, 180%--5s. steady-load mode: 105%--long-term; 120%--60s; 150%--1s.
Protection	Power source: three phase supply unbalance protection. Running protection: overcurrent protection, overvoltage protection, over temperature protection, Inverter over-load protection, motor over-load protection, output phase lack protection, modular drive protection. Equipment malfunction: current detect anomalies, EEPROM memory unit error, control unit anomalies, motor over-heat, input signal anomalies, temperature measurement circuit error . Motor connection: motor disconnected, motor shree phase unbalance, parameter identification error. Expansion card : expansion card conflict and compatibility test.

Specifications

Input voltage, frequency	3AC 380V ±20%; 50/60Hz
Power range	3AC 380V ±20%; 0.75kW--800kW
Output voltage	3AC 0--380V
Ourput frequency	Low frequency mode: 0.0--300.00Hz; High frequency mode: 0.0--2000.0Hz
Carrier frequency	3 phase vector synthesis: 1.5--12.0kHz; Single phase vector synthesis: 1.5--15.0kHz (along with the power)
Control mode	Close-loop vector control; open-loop vector control; V/F control; V/F separation control
Digital output/input	Standard 6 digital input (DI), extensible; Standard 2 digital output (DO), extensible
Pulse input/output	0.0--100.0kHz pulse input; 0.0--100.0kHz pulse output (OC signal/standard I/O extension card)
Analog input/output	V560-4T0022G/4T0030P and models below; Standard configuration: 1 0~10V voltage Input(AI1); 1 0~20mA current input(AI2); 1 0~10V voltage output (optional 0-20mA current output). Optional configuration: 1 0~10V/-10V~10V swappable voltage Input(AI1). V560-4T0030G/4T0040P and models above; Standard configuration: 1 0~10V voltage Input(AI1); 1 0~20mA current input(AI2); 2 0~10V voltage output (optional 0-20mA current output). Optional I/O: 1 -10V~10V voltage input(AI3)
Protocol	Extensible for MODBUS protocol (tandard RS485 interface) and profibus-DP CANopen protocol
Built-in	Power above 75kW built-in DC reactor
Braking unit	Power below 22kW are equipped with braking unit
Peripheral interface	DC24V power source, maximum input current: 100mA
Install	Wall mounted (Power above 220kW are available for cabinet)
Protection class	IP20
Certificate	CE

V560 Series

Model Table

Voltage class	Model	Code	General load pattern			Steady load pattern		
			Rated capacity (KVA)	Rated current (A)	Suitable motor (KW)	Rated capacity (KVA)	Rated current (A)	Suitable motor (KW)
Three phase 380V	V560-4T0007G/4T0011P	006M560430007	1.5	2.3	0.75	2.0	3.0	1.1
	V560-4T0011G/4T0015P	006M560430011	2.0	3.0	1.1	2.4	3.7	1.5
	V560-4T0015G/4T0022P	006M560430015	2.4	3.7	1.5	3.6	5.5	2.2
	V560-4T0022G/4T0030P	006M560430022	3.6	5.5	2.2	4.9	7.5	3.0
	V560-4T0030G/4T0040P	006M560430030	4.9	7.5	3.0	6.3	9.5	4.0
	V560-4T0040G/4T0055P	006M560430040	6.3	9.5	4.0	8.6	13.0	5.5
	V560-4T0055G/4T0075P	006M560430055	8.6	13.0	5.5	11.2	17.0	7.5
	V560-4T0075G/4T0090P	006M560430075	11.2	17.0	7.5	13.8	21	9.0
	V560-4T0090G/4T0110P	006M560430090	13.8	21	9.0	16.5	25	11
	V560-4T0110G/4T0150P	006M560430110	16.5	25	11	21.7	33	15
	V560-4T0150G/4T0185P	006M560430150	21.7	33	15	25.7	39	18.5
	V560-4T0185G/4T0220P	006M560430185	25.7	39	18.5	29.6	45	22
	V560-4T0220G/4T0300P	006M560430220	29.6	45	22	39.5	60	30
	V560-4T0300G/4T0370P	006M560430300	39.5	60	30	49.4	75	37
	V560-4T0370G/4T0450P	006M560430370	49.4	75	37	62.5	95	45
	V560-4T0450G/4T0550P	006M560430450	62.5	95	45	75.7	115	55
	V560-4T0550G/4T0750P	006M560430550	75.7	115	55	98.7	150	75
	V560-4T0750G/4T0900P	006M560430750	98.7	150	75	116	176	90
	V560-4T0900G/4T1100P	006M560430900	116	176	90	138	210	110
	V560-4T1100G/4T1320P	006M560431100	138	210	110	171	260	132
	V560-4T1320G/4T1600P	006M560431320	171	260	132	204	310	160
	V560-4T1600G/4T1850P	006M560431600	204	310	160	237	360	185
	V560-4T1850G/4T2000P	006M560431850	237	360	185	253	385	200
	V560-4T2000G/4T2200P	006M560432000	253	385	200	276	420	220
	V560-4T2200G/4T2500P	006M560432200	276	420	220	313	475	250
	V560-4T2500G/4T2800P	006M560432500	313	475	250	352	535	280
	V560-4T2800G/4T3150P	006M560432800	352	535	280	395	600	315
	V560-4T3150G/4T3500P	006M560433150	395	600	315	428	650	350
	V560-4T3500G/4T4000P	006M560433500	428	650	350	480	730	400
	V560-4T4000G/4T4500P	006M560434000	480	730	400	527	800	450
	V560-4T4500G/4T5000P	006M560434500	527	800	450	592	900	500
	V560-4T5000G/4T5600P	006M560435000	592	900	500	658	1000	560
	V560-4T5600G/4T6300P	006M560435600	658	1000	560	737	1120	630
	V560-4T6300G/4T7000P	006M560436300	737	1120	630	823	1250	700
	V560-4T7000G/4T8000P	006M560437000	823	1225	700	955	1450	800
	V560-4T8000G/4T9000P	006M560438000	955	1450	800	1053	1600	900

Installation and Dimension Figure
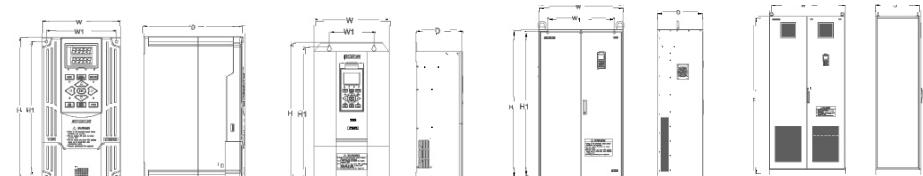
I Class applicable models:
V560-4T0007G/4T0011P~
V560-4T0300G/4T0370P

II Class applicable models:
V560-4T0370G/4T0450P~
V560-4T2000G/4T2200P

III Class applicable models:
V560-4T2200G/4T2500P~
V560-4T3150G/4T3500P

IV Class applicable models:
V560-4T3500G/4T4000P~
V560-4T8000G/4T9000P

Inverter model (Three phase 380V)	W1 (mm)	W (mm)	H1 (mm)	H (mm)	D (mm)	Screw
V560-4T0007G/4T0011P	87	97	152	162	130	M4
V560-4T0011G/4T0015P						
V560-4T0015G/4T0022P	95	105	190	200	146	M4
V560-4T0022G/4T0030P						
V560-4T0030G/4T0040P	121	135	234	248	175	M4
V560-4T0040G/4T0055P						
V560-4T0055G/4T0075P	146	160	261	275	179	M5
V560-4T0075G/4T0090P						
V560-4T0090G/4T0110P	169	180	290	305	179	M5
V560-4T0110G/4T0150P						
V560-4T0150G/4T0185P	160	210	387	405	202	M6
V560-4T0185G/4T0220P						
V560-4T0220G/4T0300P	160	250	422	445	216	M8
V560-4T0300G/4T0370P						
V560-4T0370G/4T0450P	180	298	525	564	249	M8
V560-4T0450G/4T0550P						
V560-4T0550G/4T0750P	260	350	564	606	277	M8
V560-4T0750G/4T0900P						
V560-4T0900G/4T1100P	293	400	685	725	271	M10
V560-4T1100G/4T1320P	360	516	695	735	283	M10
V560-4T1320G/4T1600P	360	516	725	765	302	M10
V560-4T1600G/4T1850P	360	540	862	890	323	M10
V560-4T1850G/4T2000P	500	640	974	1000	323	M10
V560-4T2000G/4T2200P						
V560-4T2200G/4T2500P	560	730	1073	1100	370	M10
V560-4T2500G/4T2800P						
V560-4T2800G/4T3150P	600	756	1290	1322	410	M10
V560-4T3150G/4T3500P						
V560-4T3500G/4T4000P	–	900	–	2100	600	–
V560-4T4000G/4T4500P						
V560-4T4500G/4T5000P	–	1000	–	2100	600	–
V560-4T5000G/4T5600P						
V560-4T5600G/4T6300P	–	1200	–	2100	600	–
V560-4T6300G/4T7000P						
V560-4T7000G/4T8000P	–	1200	–	2100	600	–
V560-4T8000G/4T9000P						

Simphoenix

V350 Series Low Power Closed-loop Vector AC Drive

V350 series AC drive is designed based on new software and hardware platform for better satisfaction of marketing applications as machine tool, winding machine, multipoint drive machine, printing, chemical fiber, textile machine etc., featuring outstanding performance, compact structure, complete protection functions, flexible and rich peripheral interfaces. It is integrated closed-loop vector, open-loop vector, V/F control modes, and module design of software and hardware which can be either applied in varied industries or subject to secondary development according to field conditions.

Typical Applications

- Machine tool
- Textile machinery
- Road construction machinery
- Cable machinery
- Petrochemical processing

Features

- High torque at low frequency, and closed-loop vector up to 200% start torque at zero speed; open-loop vector up to 180% start torque at zero speed.
- Standard 5-digit two-line LED panel display and LCD keypad optional.
- Vivid real-time monitor, allowing for monitoring using power, running time, input and output current, voltage failure record etc. in real time.
- The high frequency running mode can be up to 1000Hz.
- Built-in several system macro and application macro, and it simplifies parameter setting by micro parameter calling.
- Hundreds of combinations of torque and revolution.
- Programmable 16 stage speed running, with each stage of running time, acceleration and deceleration time, running direction to be adjusted separately.
- Flexible configuration of priorities of frequency or rotate speed setting channels.
- Software virtual I/O function with simple parameter setting, it configures virtual I/O flexibly that reduce external interference and simplify wiring.
- Abundant warning and protection functions.

Functions

| Feature	Magnetic break, DC break, band type break, wakeup and sleep, analog I/O terminal, spindle orientation, synchronous communication, load dynamic balancing, dual parameter channel, timer, counter, macrop arameter, strong starting torque, start allowed to enable, running allowed to enable
Control feature	Close-loop vector control: 200% starting torque at zero speed, speed range1:1000, torque responding time ≤5ms Loading-capacity: 110%~long term, 150%~60s; 180%~5s
Protection	Power source: three phase supply unbalance protection Running protection: overcurrent protection, overvoltage protection, over temperature protection, inverter over-load protection, motor over-load protection, output phase lack protection, modular drive protection Equipment malfunction: current detect anomalies, EEPROM memory unit error, control unit anomalies, motor over-heat, input signal anomalies, temperature measurement circuit error Motor connection: motor disconnected; motor three phase unbalance; parameter identification error. Expansion card: expansion card conflict and compatibility test

Specifications

| Input voltage, frequency	3AC 380V ±20%, 50/60Hz 1AC 220V ±20%, 50/60Hz
Power range	3AC 380V ±20%, 1.1kW~15kW 1AC 220V ±20%, 0.7kW~2.2kW
Output voltage	3AC 0~380V 3AC 0~220V
Output frequency	Low frequency mode: 0.0~300.00Hz High frequency mode: 0.0~1000.0Hz
Carrier frequency	3 phase vector synthesis: 1.5~10.0KHz Single phase vector synthesis: 1.5~12.5KHz
Control mode	Close-loop vector control; open-loop vector control; V/F control; V/F part control
Digital output/input	V350-4T0030/2S0022 and power below have 5 digital input (DI) and 1 digital output (DO) V350-4T0040 and power above have 6 digital input (DI) and 2 digital output (DO) Can be extended to 16 channels
Pulse input/output	0.0~100.0KHz pulse input 0.0~100.0KHz pulse output (OC signal / standard I/O extension card)
Analog input/output	V350-4T0030/2S0022 and models below Standard configuration: 1 0~10V voltage input(AI1); 1 0~20mA current input(AI2); 1 0~10V voltage output(optional 0-20mA current output). Optional configuration: 1 0~10V/-10V~10Vswappable) voltage input(AI1). V350-4T0040 and models above Standard configuration: 1 0~10V voltage input(AI1); 1 0~20mA current input(AI2); 2 0~10V voltage output(optional 0-20mA current output). Optional I/O: 1 -10V~10V voltage input(AI3)
Communication protocol	V350-4T0030/2S0022 and models below: support MODBUS V350-4T0040 and models above : Support MODBUS / PROFIBUS-DP/CANopen
Braking unit	Standard inner braking unit
Peripheral interface	DC24V power source, maximum input current: 100mA
Protection class	IP20
Certificate	CE

Model Table

Voltage class	Model	Code	Rated capacity (KVA)	Suitable motor (KW)	Rated current (A)
Single phase 220V	V350-2S0007	006M350220007	1.9	0.75	5.0
	V350-2S0011	006M350220011	2.5	1.1	6.5
	V350-2S0015	006M350220015	2.9	1.5	7.5
	V350-2S0022	006M350220022	3.8	2.1	10.0
Three phase 380V	V350-4T0011	006M350430011	2.0	1.1	3.0
	V350-4T0015	006M350430015	2.4	1.5	3.7
	V350-4T0022	006M350430022	3.6	2.2	5.5
	V350-4T0030	006M350430030	4.9	3.0	7.5
	V350-4T0037	006M350430037	5.6	3.7	8.5
	V350-4T0040	006M350430040	6.3	4.0	9.5
	V350-4T0055	006M350430055	8.6	5.5	13.0
	V350-4T0075	006M350430075	11.2	7.5	17.0
	V350-4T0090	006M350430090	13.8	9.0	21
	V350-4T0110	006M350430110	16.5	11	25
	V350-4T0150	006M350430150	21.7	15	33

Installation and Dimension Figure
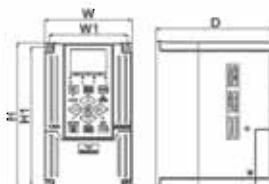
V350-4T0037 and below power range models
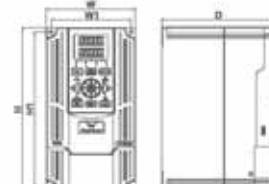
V350-4T0040 and above power range models

Inverter model (Three phase 380V)	Inverter model (Single phase 380V)	W1(mm)	W(mm)	H1(mm)	H(mm)	D(mm)	Screw
V350-4T0011	V350-2S0007	87	97	152	162	131	M4
V350-4T0015	V350-2S0011						
V350-4T0022	V350-2S0015	95	105	190	200	145	M4
V350-4T0030	V350-2S0022						
V350-4T0037	——						
V350-4T0040	——	121	135	234	248	174.5	M4
V350-4T0055	——						
V350-4T0075	——	146	160	261	275	181	M5
V350-4T0090	——						
V350-4T0110	——	169	180	290	305	179	M5
V350-4T0150	——						

DBKU Series Breaking Unit

The new generation of DBKU has configured with keypad which can easily read the parameters and make all the settings by user ;with new design of hardware and software, it has more functions like current sampling,voltage tracking breaking and overcurrent,overload,short circuit,IGBT straight protections,also it has master and slave function which makes multiple DBKUs are able to work. With all these update fetures,our new breaking unit can work more smoothly and more stable.

Specifications

Voltage	380V
Breaking Mode	Voltage tracking mode and Voltage hysteresis mode
Response Time	2ms
Action Voltage	620-730V
Overheat Protection	DC bus voltage 850V
Overcurrent Protection	Rated current 2.5 times(incase the breaking resistor is small)
Overload Protection	The lasting time of passing peak current is less than 25S
Protections	Over current,short circuit,overload,overheat,IGBT straight protection
Status Indication	Power source indication,breaking status indication,fault indication
Action Voltage Setting	620-730V set via keypad

Model Table

Voltage class	Model	Code	Power (KW)	Current(A)		Minimum breaking resistor (R)	Braking radiate power (Braking Repetition (0%))
				Rated(Long term)	Peak value(Last 25S)		
Three phase 380V	DBKU-30-A	050M005380030	L: 22-45	30	50	23	15kW
			H: 18.5-30				
	DBKU-50-A	050M005380050	L: 55-90	50	100	13	27kW
			H: 37-55				

Dimensions
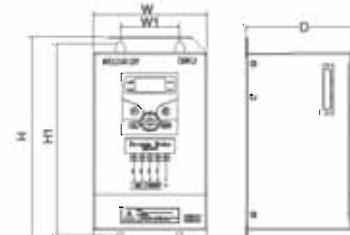
Model number	W1 (mm)	W (mm)	H1 (mm)	H (mm)	D (mm)	Screw
DBKU-30-A	60	115	194	207	120	M4
DBKU-50-A						

Operation panel

Serial	Name	Model	Code	Models	Remarks
1	Single LED standard keypad	DPNL300EES	050M007031301	E500	E0313, Standard1.5 meter line
2	Single LED Medium Keypad	DPNL301EFS	050M007031401	E500	E0314, Standard1.5 meter line
3	Single LED mini Keypad	DPNL302EMS	050M007031801	E500	E0318, Standard1.5 meter line
4	LCD Button Keypad	DPNL360CA	050M007360001	V/E280	E0327, Standard1.5 meter line
5	LCD Wheel Keypad	DPNL360CB	050M007360002	V/E280	E0328, Standard1.5 meter line
6	Double LED Button Keypad	DPNL360EA	050M007360003	V/E280	E0315, Standard1.5 meter line
7	Double LED Wheel Keypad	DPNL360EB	050M007360004	V/E280	E0316, Standard1.5 meter line
8	Double LED Button Mini Keypad	DPNL350EM	050M007033701	V/E280	E0337, Standard1.5 meter line
9	Double LED Potentiometer Keypad	DPNL350EN	050M007033601	V/E280	E0336, Standard1.5 meter line

E500 Series

1. Single LED standard keypad DPNL300EES	2. Single LED Medium Keypad DPNL301EFS (Only for External connection)	3. Single LED mini Keypad DPNL302EMS
Base External installation Figure 5 No Base External installation Figure 6	No Base External installation Figure 1	No Base installation

V Series、E280 Series

4. LCD Button Keypad DPNL360CA	5. LCD Wheel Keypad DPNL360CB	6. Double LED Button Keypad DPNL360EA
Base External installation Figure 2 No Base External installation Figure 3	Base External installation Figure 2 No Base External installation Figure 3	Base External installation Figure 2 No Base External installation Figure 3

| 7. Double LED Wheel Keypad DPNL360EB	8. Double LED Button Mini Keypad DPNL350EM	9. Double LED Potentiometer Keypad DPNL350EN
Base External installation Figure 2 No Base External installation Figure 3	No Base External installation Figure 4	No Base External installation Figure 4

Hole dimension
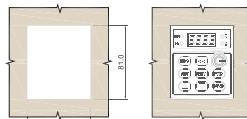
Figure 1
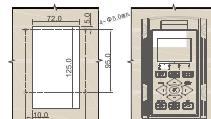
Figure 2
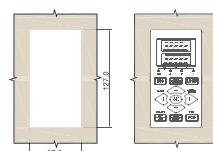
Figure 3
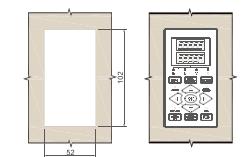
Figure 4
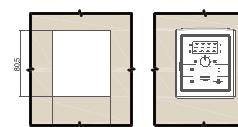
Figure 5
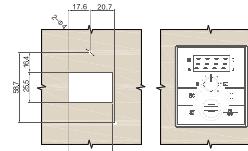
Figure 6

Note: the thickness of open sheet metal is not more than 2.0mm

I/O Extension Card

| No.	Name	Model	Adaptive Models
1	IO extension card (Standard)	IOV-D104	V350-4T0040 and above models, V560-4T0030G/4T0040P and above models, V800-4T0040G/4T0055P and above models, E280-4T0055G/4T0075P and above models.
2	IO extension card	IOV-A102	V350-4T0030 and below models, V350-2S0022 and below models, V560-4T0022G/4T0030P and below models, V800-4T0030G/4T0040P and below models, E280-4T0040G/4T0055P and below models.
3	IO extension card	IOV-A103	V350-4T0030 and below models, V350-2S0022 and below models, V560-4T0022G/4T0030P and below models, V800-4T0030G/4T0040P and below models, E280-4T0040G/4T0055P and below models.
4	IO extension card	IOV-A110	V350-4T0030 and below models, V350-2S0022 and below models, V560-4T0022G/4T0030P and below models, V800-4T0030G/4T0040P and below models, E280-4T0040G/4T0055P and below models.

Product Structure and Introduction

1. I/O Extension Card（Standard Type）IOV-D104

I/O Extension Card Wiring Diagram
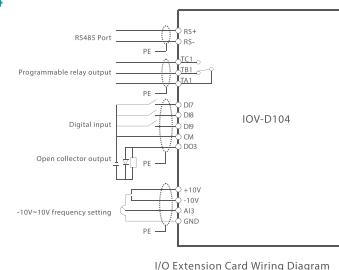
Terminal Type	Terminal Name	Function
Communication port	RS+,RS-	RS485 communication port
Auxiliary power	+10V,-10V	Supply ±10V/Max. 10mA power
Analog input	AI3	Analog voltage -10V~10V input, input impedance ≥ 100k Ω
Digital input	DI7,DI8	Valid when OFF with CM port, input frequency ≤ 1kHz
High-speed pulse/digital input	DI9	High-speed programmable pulse input，valid when OFF with CM port，frequency ≤ 100kHz
High-speed pulse/digital output	DO3	High-speed programmable OC output，output frequency ≤ 100kHz
Programmable relay output	TA1	TA1-TB1 normally closed contact； TA1-TC1 normally open contact； Contact capacity：AC 250V/1A
Programmable relay output	TB1	
Programmable relay output	TC1	
Common port	GND	± 10V, common port of Ai3
Common port	CM	Common port of DO3 、 DI7 、 DI8 、 DI9

2. I/O Extension Card IOV-A102

IOV-A102 is applicable to V Series/E280 Series
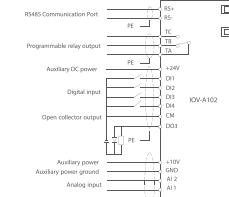
I/O Extension Card Wiring Diagram

Terminal Type	Name	Description	Function
Communication Port	RS+	485 differential signal positive terminal	Standard RS485 communication port
Communication Port	RS-	485 differential signal passive terminal	
Output power	10V	+10V auxiliary voltage source	Max. loading capacity: 20mA
Output power	24V	+24V auxiliary voltage source	Max. loading capacity: 100mA
Analog input	AI1	Analog input terminal	Input voltage: 0~10V (optional -10V~10V)
Analog input	AI2		Input current: 0~20mA
Digital input	DI1	Digital input terminal	Input impedance: R= 4.7KΩ Max. input frequency: 1kHz
Digital input	DI2		
Digital input	DI3		
Digital input	DI4		
Analog output	AO1	Multi-functional analog output terminal	Current output: 0~20mA(load resistance: 0~500Ω);voltage output:0~10V; JP1 connect to V: voltage output; JP1 connect to A: current output
Digital output	DO3	OC output terminal	Max. output frequency: 100kHz; Max. work voltage: 24V; Max. output current: 150mA
Programmable relay output	TA	TA-TB normally closed contact TA-TC normally open contact	Common port of +10V、AO1、AI1、AI2
Programmable relay output	TB		
Programmable relay output	TC		
Common port	GND	Analog common terminal	Common port of DO3、DI1、DI2、DI3、DI4
Common port	CM	+24V/digital common terminal	Contact capacity: AC 250V/1A

3 . I/O Extension Card IOV-A103

IOV-A103 is applicable to V Series/E280 Series

I/O Extension Card Wiring Diagram
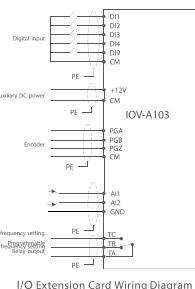
Termnial Type	Name	Function
Auxiliary power	12V	Supply +12V/Max.100mA power
Single terminal PG signal input	PGA	Connect NPN type encoder A phase output, max. frequency ≤100 kHz
	PGB	Connect NPN type encoder B phase output, max. frequency ≤100 kHz
	PGZ	Connect NPN type encoder C phase output, max. frequency ≤100 kHz
Analog input	AI1	Analog voltage: 0 ~ 10V, input impedance ≥ 100kΩ
	AI2	Analog current input: 0 ~ 20mA
Digital input	DI1~DI4	Input frequency ≤ 1kHz
High-speed digital input	DI9	Can work as high-speed pulse input terminal, max. input frequency ≤100kHz
Programmable relay output	TA	TA-TB normally closed contact; TA-TC normally open contact; Contact capacity: AC 220V/ 1A
	TB	
	TC	
Common port	GND	Common port of AI1、AI2
	CM	Common port of 12V，PGA，PGB，PGZ，DI1~DI4，DI9

4. I/O Extension Card IOV-A110

IOV-A110 is applicable to V Series/E280 Series

I/O Extension Card Wiring Diagram
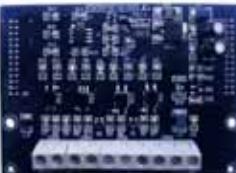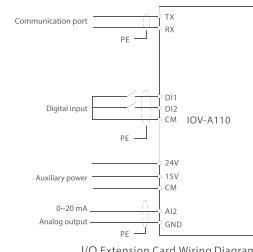
Termnial Type	Name	Instructions	Function
Communication port	TX	Asynchronous serial port sender	Communication asynchronous serial port
	RX	Asynchronous serial port receiver	
Output power	24V	+24V voltage source	Maximum load capacity: 100mA
	15V	+15V voltage source	Maximum load capacity: 100mA
Analog input	AI2	Analog input terminal: See applicable models specification parameters F4	Input range: 0~20mA
Digital input	DI1	Digital input terminal: See applicable models specification parameters F3	Input impedance: R = 4.7kΩ Maximum input frequency: 1kHz
	DI2		
Common port	GND	Analog, AI2 common, asynchronous communication Interface public	——
	CM	+15V, +24V Power Supply Common DI1, DI2 common	

Communication Adaptive Card

No.	Name	Model	Adaptive Model
1	Modbus communication adaptiveCard	IOV-D105	V350-4T0040 and above models, V560-4T0030G/4T0040P and above models, V800-4T0040G/4T0055P and above models, E280-4T0055G/4T0075P and above models.
2	CANopen communication adaptive card	IOV-D109	V350-4T0040 and above models, V560-4T0030G/4T0040P and above models, V800-4T0040G/4T0055P and above models, E280-4T0055G/4T0075P and above models.
3	Profibus-DP communication adaptive card	IOV-E108	V350-4T0040 and above models, V560-4T0030G/4T0040P and above models, V800-4T0040G/4T0055P and above models, E280-4T0055G/4T0075P and above models.

Product Structure and Introduction

1 . Communication Adaptive Card IOV-D105

Communication Card Wiring Diagram
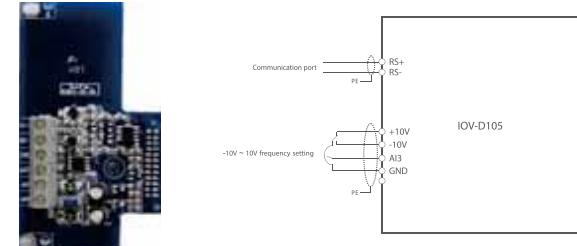
IOV-D105 is applicable to V Series/E280 Series

Terminal Type	Name	Function
Communication port	RS+, RS-	RS485 communication port
Auxiliary power	+10V, -10V	Supply ±10V/max. 10mA power
Common port	GND	Common port of ±10V and AI3
Analog input	AI3	Analog voltage input (-10V~10V), input impedance ≥100kΩ

2．CANopen Communication Adaptive Card IOV-D109
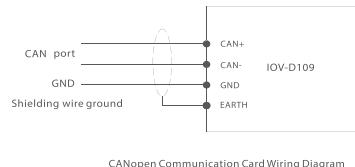
CAN port — CAN+
GND — CAN-
Shielding wire ground — GND
IOV-D109
EARTH

CANopen Communication Card Wiring Diagram

IOV-A110 is applicable to V Series/E280 Series

Terminal Type	Name	Function
Communication port	CAN+	CANopen communication physical interface
	CAN-	
Communication cable shielding ground	EARTH	CANopen cable shielding ground
Common port	GND	Protection ground
Knob	**Position**	**Baud Rate**
Baud rate selection	0	10kbps
	1	20kbps
	2	50kbps
	3	125kbps
	4	250kbps
	5	500kbps
	6	800kbps
	7	1Mkbps

3．Profibus-DP Communication Adaptive Card IOV-E108

Profibus-DP Communication Card Wiring Diagram
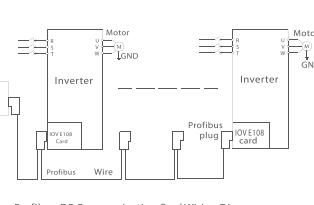
IOV-E108 is applicable to V Series/E280 Series

Terminal Type	Name	Function
Profibus differential signal	DP-A-	Receive／send data -N(signal A)
	DP-B+	Receive／send data -P(signal B)
	PGND	Communication cable shielding ground
Standard Profibus bus connector	1	Shielding layer
	3	Receive／send data -P(signal B)
	4	Control -P
	5	5V power earth
	6	5V power
	8	Receive／send data -N(signal A)
Auxiliary power	+12V	Supply +12V/max. 200mA current
Common port	GD	Power supply referring ground
Differential input	A+	Encoder A phase differential (+12V20%)input, max. frequency ≤100 kHz
	A-	
	B+	Encoder B phase differential (+12V20%)input, max. frequency ≤100 kHz
	B-	
	Z+	Encoder Z phase differential (+12V20%)input, max. frequency ≤100 kHz
	Z-	

PG Extension Card

| No.	Name	Model	Adaptive Model
1	PG card (Standard)	PGV-C000	V350-4T0040 and above models, V560-4T0030G/4T0040P and above models, V800-4T0040G/4T0055P and above models, E280-4T0055G/4T0075P and above models.
2	PG signal separation card	PGV-C001	V350-4T0040 and above models, V560-4T0030G/4T0040P and above models, V800-4T0040G/4T0055P and above models, E280-4T0055G/4T0075P and above models.
3	PG signal separation card	PGV-C005	V350-4T0040 and above models, V560-4T0030G/4T0040P and above models, V800-4T0040G/4T0055P and above models, E280-4T0055G/4T0075P and above models.
4	PG & communication extension card	PGV-A006	V350-4T0040 and above models, V560-4T0030G/4T0040P and above models, V800-4T0040G/4T0055P and above models, E280-4T0055G/4T0075P and above models.

Product Structure and Introduction

1.PG Card(Standard) PGV-C000
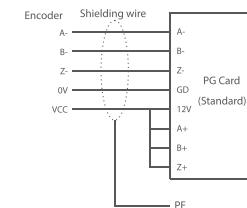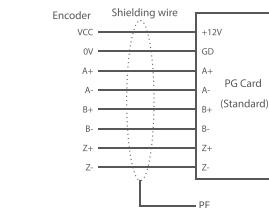
PG Card Differential Input Wiring Diagram

PG Card Single Terminal Input Wiring Diagram

| Terminal Type	Name	Function
Auxiliary power	+12V	Supply +12V/max.200mA current
Common port	GD	Common port of power
Differential input	A+	Encoder A phase differential (+12V±20%) input, max. frequency ≤100 kHz
	A-	
	B+	Encoder B phase differential (+12V±20%) input, max. frequency ≤100 kHz
	B-	
	Z+	Encoder Z phase differential (+12V±20%) input, max. frequency ≤100 kHz
	Z-	

2. PG Signal Separation Card PGV-C001

PG Card Differential Input Wiring Diagram

PG Card Single Terminal Input Wiring Diagram

Terminal Type	Name	Function
Auxiliary power	+5V	Supply +5V/ max. 500mA current
Common port	GD	+5V power common port
Differential output	AO+	Encoder A phase differential （+5V±20%）output, max. frequency ≤100 kHz
	AO-	
	BO+	Encoder B phase differential （+5V±20%）output, max. frequency ≤100 kHz
	BO-	
	ZO+	Encoder Z phase differential （+5V±20%）output, max. frequency ≤100 kHz
	ZO-	
Differential input	AI+	Encoder A phase differential （+5V±20%）input, max. frequency ≤100 kHz
	AI-	
	BI+	Encoder B phase differential （+5V±20%）input, max. frequency ≤100 kHz
	BI-	
	ZI+	Encoder Z phase differential （+5V±20%）input, max. frequency ≤100 kHz
	ZI-	

3 . PG Signal Separation Card (OC) PGV-C005
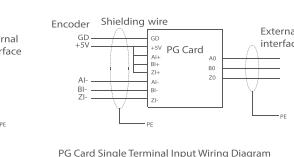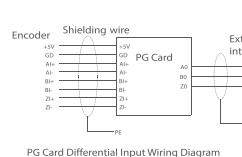
PG Card Differential Input Wiring Diagram

PG Card Single Terminal Input Wiring Diagram

Terminal Type	Name	Function
Auxiliary power	+5V	Supply +5V/ max. 500mA current
Common port	GD	+5V power common port
Open collector output	AO	Encoder A phase open collector output, max. frequency ≤100 kHz, output current <100mA
	BO	Encoder B phase open collector output, max. frequency ≤100 kHz, output current <100mA
	ZO	Encoder Z phase open collector output, max. frequency ≤100 kHz, output current <100mA
Differential input	AI+	Encoder A phase differential （+5V±20%）input, max. frequency ≤100 kHz
	AI-	
	BI+	Encoder B phase differential （+5V±20%）input, max. frequency ≤100 kHz
	BI-	
	ZI+	Encoder Z phase differential （+5V±20%）input, max. frequency ≤100 kHz
	ZI-	

4. PG & Communication Extension Card PGV-A006

PG Extension Card Wiring Diagram
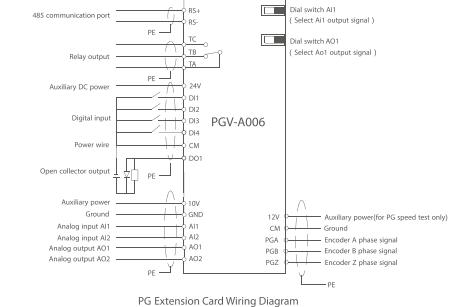
Terminal Type	Name	Description	Function
Programmable relay output	TA	TA-TB normally closed contact, TA-TC normally open contact, Please refer to F3 parameter for more details.	Contact capacity: AC 250V/1A
	TB		
	TC		
Digital input	DI1	Digital input: Please refer to F3 parameter for more details.	Input frequency < 1kHz
	DI2		
	DI3		
	DI4		
Digital output	DO1	OC output, please refer to F3 parameter for more details.	Max. work voltage: 24V, max. work current: 150mA
Auxiliary power reference ground	24V	+24V auxiliary voltage source	Max. loading capacity: 200mA
	12V	PG speed test specialized power	Max. loading capacity: 100mA
	CM	Reference ground for 24V、12V、DI、DO、PGA、PGB、PGZ	____
Programmable relay output	PGA	Respectively contact to incremental encoder A、B、Z phase output	Connect NPN type encoder A phase output max. frequency ≤100kHz
	PGB		
	PGZ		
Auxiliary power reference ground	10V	+10V auxiliary voltage source	Max. loading capacity: 16mA
	GND	Reference ground for 10V、AI1、AO1、AI2、AO2	——
Communication port	RS+	485 differential signal positive terminal	——
	RS-	485 differential signal passive terminal	
Analog input	AI1	Analog input terminal Please refer to F4 parameter for more details in Manual.	1. Dial switch to V as voltage input mode, and input voltage range:0~10V, input impedance:100K 2. Dial switch to A as current input mode, input current range:0~20mA
	AI2		Voltage input mode only
Analog output	AO1	Analog output terminal Please refer to F4 parameter for more details in Manual.	1. Dial switch to V as voltage input mode, and output voltage range:0~10V.Loading resistance >1K 2. Dial switch to V as voltage input mode, and output current range:0~20mA. Loading resistance <500R
	AO2		Voltage input mode only

Simphoenix

CA100 Series Servo Drive

CA100 series servo drive is designed based on a new software and hardware platform. With high cost performance CA100 series servo drive is suitable to the application fields like machine tool, engraving machine, textile and packaging. It has position, speed, torque and multiple control mode and is able to enhance functions to meet the requirement of different kinds of applications.

Typical Applications

- Machine tool
- Engraving machine
- Textile equipment
- Packaging machinery
- Cutting machine
- Food processing

Features

- Various control mode like position, speed, torque and multiple compound control.
- Response frequency is 1.5kHz.
- Available of 2500 P/R,17bit,20bit multiple encoder.
- With the load inertia integration, load interia identification and vibration depression dialing device.
- Overload capacity up to 3 times.

Specifications

Basic Specifications	Drive model	CA100T	1R8、3R0、4R5、6R0、7R5、10R	1PH/3PH AC220V -15%~+10% 50/60Hz
		CA100F	4R0、6R0、8R5、12R、20R、25R	3PH AC380V -15%~+10% 50/60Hz
	Control mode	Torque, speed, position, speed/position, torque/position, torque/speed		
	Feedback	Incremental encoder 2500P/R		
	Work condition	Temperature	Working ambient temperature: 0℃~+45℃ (When the environmental temperature is more than +45℃, please make inverter derated.)	
			Storage temperature: -20℃~+60℃	
		Humidity	Below 90%RH, no condensed water	
		Vibration	0.5G(4.9m/s²)	
		Protecting grade	IP10	
		Altitude	Under 1000m (When >1000m, please derate.)	
		Others	1. No electrostatic interference, no strong electric field, no strong magnetic field, no radiation etc.	
			2. No corrosive gas, combustible gas and water, oil, medicine spray.	
			3. Under environment of little dust, dirt, salt and metal powder etc.	
	Installation	Pedestal mounted		
Speed control	Control input	1. 8-channel internal command, internal speed is changeable by control input. 2. External analog command. 3. Zero speed clamp		
	Control output	Speed arrival judgment: 3 methods		
	Analog input	1.According to analog voltage to take speed command input, the max. Voltage is ±12V; 2.DC 300rpm/V [factory value], function code Pn029 can modify input proportion setting.		
	Torque limit command	Able to take forward/reverse torque limit separately		
	Speed ratio	1:6000		
	Speed variation rate	Fluctuation of load	0~100% load: under ±0.02% (≤rated speed)	
		Fluctuation of voltage	Rated voltage ± 10%: 0% (≤rated speed)	
		Fluctuation of temperature	25 ±25°C: ± 0.1% (≤rated speed)	
	Torque control precision	±1% (reproduce type)		
	Soft-start time	0~30s (able to set the acceleration time and deceleration time respectively)		
	Frequency response characteristic	1.5kHz(Max)		
Position mode	Command pulse	Input pulse kind	1. Symbol + pulse 2. A, B quadrature pulse 3. CCW+CW pulse	
		Input pulse form	Cable-driven (+5V level), open collector (+5V, +12V, +24V level)	
		Input pulse frequency	Max. 500Kpps (difference) / 200Kpps (collector)	
	Electronic gear ratio	3 groups of electronic gear setting, 1 ~ 32767		
	Control input	Deviation counter clear signal, command pulse prohibit input, internal position 8 segments		
	Control output	Positioning complete signal, positioning approach judgment		
Torque control	Control input	1. 4-channel of internal torque, able to take control input judgment 2. analog command input		
	Control output	Torque arrival judgment		
	Analog input	1.According to analog voltage to take torque command input, max. Input voltage is ±12V 2.DC 30%/V [factory value], input proportion setting is changeable		
	Speed limit	3 limit methods		
	Input signal	8DI (digital input terminal) 2AI (analog input terminal)		
	Output signal	5DO (digital output terminal) 2AO (analog output terminal, can be used for debugging monitor)		
	Pulse output	A,B,C differential signal output, Z pulse collector output		
	Protection	Over current, over voltage, under voltage, over load, main circuit detection error, heatsink overheat, over speed, encoder disconnected, CPU error, parameter error		
	Communication	RS485 1:N (N<128), extendable to other communication methods		
	Instruction	Built-in keypad, power charge		

Simphoenix

CA100 Series

Model Table

Voltage class	Model	Code	Rated current (A)	Maximum Suitable motor (kW)
Single phase 220V	CA100-T1R8AP	022M100200018	1.8	0.20
	CA100-T3R0AP	022M100200030	3.0	0.75
Single/Three phase 220V	CA100-T4R5AP	022M100200045	4.5	1.20
Three phase 220V	CA100-T6R0AP	022M100200060	6.0	1.80
	CA100-T7R5AP	022M100200075	7.5	2.00
	CA100-T10RAP	022M100200100	10.0	2.60
Three phase 380V	CA100-F4R0AP	022M100400040	4.0	1.50
	CA100-F6R0AP	022M100400060	6.0	2.60
	CA100-F8R5AP	022M100400085	8.5	3.80
	CA100-F12RAP	022M100400120	12.0	5.50
	CA100-F20RAP	022M100400200	20.0	7.50
	CA100-F25RAP	022M100400250	25.0	9.80

Drive dimensions
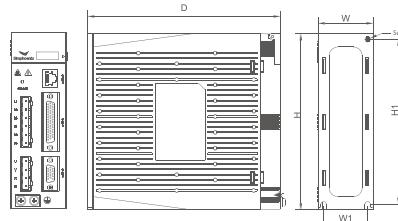
I Class applicable models:
CA100-T1R8AP~ CA100-T10RAP
CA100-F4R0AP~ CA100-F12RAP
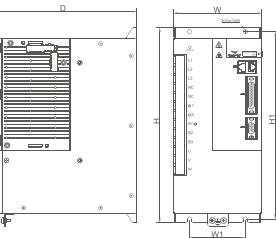
II Class applicable models:
CA100-F20RAP~CA100-F25RAP

Model	W1 (mm)	W (mm)	H1 (mm)	H (mm)	D (mm)	Screw
CA100-T1R8□□	40	50	150	160	175	M4
CA100-T3R0□□						
CA100-T4R5□□	60	70	150	160	175	M4
CA100-T6R0□□						
CA100-T7R5□□						
CA100-T10R□□	89	100	169	180	200	M5
CA100-F4R0□□						
CA100-F6R0□□						
CA100-F8R5□□						
CA100-F12R□□						
CA100-F20R□□	80	110	268	280	210	M5
CA100-F25R□□						

CM105 series servo motor and matched CA100 servo drive drive selection table

220V						
Capacity(W)	Speed(rpm)	Rated Torque(Nm)	Flange	Motor	Drive	Motor Code
200	3000	0.60	60	CM105-60T06030A1□□□□	T1R8 A	2001
400	3000	1.30	60	CM105-60T13030A1□□□□	T3R0 A	2025
			80	CM105-80T13030A1□□□□	T3R0 A	2028
600	3000	1.90	60	CM105-60T19030A1□□□□	T4R5 A	2055
	3000	2.00	110	CM105-110T20030A1□□□□	T3R0 A	2024
730	2000	3.50	80	CM105-80T35020A1□□□□	T3R0 A	2026
750	3000	2.40	80	CM105-80T24030A1□□□□	T3R0 A	2027
800	2000	4.00	110	CM105-110T40020A1□□□□	T4R5 A	2048
1000	2500	4.00	80	CM105-80T40025A1□□□□	T4R5 A	2050
	2500	4.00	130	CM105-130T40025A1□□□□	T4R5 A	2049
	1000	10.00	130	CM105-130T10110A1□□□□	T4R5 A	2051
1100	3000	3.50	80	CM105-80T35030A1□□□□	T4R5 A	2052
1200	3000	4.00	110	CM105-110T40030A1□□□□	T6R0 A	2074
	2000	6.00	110	CM105-110T60020A1□□□□	T4R5 A	2054
1300	2500	5.00	130	CM105-130T50025A1□□□□	T6R0 A	2075
1500	3000	5.00	110	CM105-110T50030A1□□□□	T6R0 A	2076
	2500	6.00	130	CM105-130T60025A1□□□□	T6R0 A	2077
	1500	10.00	130	CM105-130T10115A1□□□□	T6R0 A	2078
1800	3000	6.00	110	CM105-110T60030A1□□□□	T6R0A	2079
2000	2500	7.70	130	CM105-130T77025A1□□□□	T7R5 A	2082
2300	1500	15.00	130	CM105-130T15115A1□□□□	T10R A	2106
2600	2500	10.00	130	CM105-130T10125A1□□□□	T10R A	2107

380V						
Capacity(W)	Speed(rpm)	Rated Torque(Nm)	Flange	Motor	Drive	Motor Code
1000	1000	10.00	130	CM105-130F10110A1□□□□	F4R0 A	4012
1500	1500	10.00	130	CM105-130F10115A1□□□□	F4R0 A	4013
2300	1500	15.00	130	CM105-130F15115A1□□□□	F6R0 A	4030
2600	2500	10.00	130	CM105-130F10125A1□□□□	F6R0 A	4031
3000	1500	19.00	180	CM105-180F19115A1□□□□	F8R5 A	4049
3700	1000	35.00	180	CM105-180F35110A1□□□□	F12R A	4069
3800	2500	15.00	130	CM105-130F15125A1□□□□	F12R A	4067
4300	1500	27.00	180	CM105-180F27115A1□□□□	F12R A	4070
4500	2000	21.50	180	CM105-180F22120A1□□□□	F12R A	4068
5500	1500	35.00	180	CM105-180F35115A1□□□□	F12R A	4071
5600	2000	27.00	180	CM105-180F27120A1□□□□	F20R A	4084
7300	2000	35.00	180	CM105-180F35120A1□□□□	F20R A	4085
7500	1500	48.00	180	CM105-180F48115A1□□□□	F20R A	4083
10000	2000	48.00	180	CM105-180F48120A1□□□□	F25R A	4101

CS100 Series Digital Stepper Drive

CS100 Series is a new digital hybrid stepper drive of simphoenix which adopt special new motor control ARM mcu and vector closed-loop control tech. It has solved the problem of lost step of step motor.also highly improve the high speed performance reduce the heating vibration of the motor. Thus improve the working speed and accuracy also reduce the power consumption. In addition,when the motor continuous overload the drive will trips alarm.also it has the same reliability like the ac servo system.The installation dimensions can apply to the traditional 57, 60 and 86 series stepper motor, able to replace the current open-loop or closed loopstepper motor drive perfectly.

Typical Applications

- Engraving machine
- Stripping machine
- Marking machine
- Cutting machine
- Laser Phototypesetting
- Graph plotter
- CNC cutting machinery
- Automatic assembly equipment

Features

- Adopt special new 32 bit motor control ARM mcu.
- Adopt advanced PID current control algorithm.
- It can keeps steady and quiet working while at low speed application.
- Both static current and dynamic current can be set.
- It can drive 57,60 and 86 series hybrid stepper motor.
- Optocoupler isolation differential signal input.
- Maximum pulse response frequency can reach 200KHZ.
- 16 kinds of subdivision setting gear and 8 kinds of current setting gear.
- Has over current，under voltage and over voltage protection.

Functions

Protection	has over current，under voltage and over voltage protection；

Specifications

Motor model	CS100-S708AN	CS100-S708AH	CS100-S505DN	CS100-S505DH
Working Voltage	20–75 VAC		20–50 VAC	
Peak Current	7.2A		7.2A	
Maximum Pulse Frequency	200kHz		200kHz	
Isolation Resistor	≥50MΩ		≥50MΩ	
Subdivision Number	DIP switch may be provided(400－51200)		DIP switch may be provided(400－40000)	
Provides encoder current	－－	50mA	－－	50mA
Control method	－－	Closed loop vector current control	－－	Closed loop vector current control
Communication Interface	－－	RS232	－－	RS232
Encoder feedback	－－	AB differential input	－－	AB differential input
Cooling Method	Natural Cooling Or External Heat Radiator		Natural Cooling Or External Heat Radiator	
Environment	Avoid Dust, oil Mist And Corrosive Gas		Avoid Dust, oil Mist And Corrosive Gas	
Working Temperature	0℃－50℃		0℃－50℃	
Working Humidity	40－90%RH		40－90%RH	
Vibration	5.9 m/s2 Max		5.9 m/s2 Max	
Storage Temperature	-20℃±50℃		-20℃±50℃	
Weight	About 780 Grams		About 780 Grams	

CS100 Sereis

CS100 stepper drive and matched SM stepper motor selection table

Holding torque (N.m)	Step angle	Phase current (A)	Motor model	Drive type	Remarks
0.4	1.8°	2.0	SM-57S004-020	CS100-S505DN CS100-S708AN	Open loop
0.9	1.8°	3.0	SM-57S009-030		
2.2	1.8°	3.0	SM-60S022-030		
3.0	1.8°	4.0	SM-60S030-040		
4.5	1.8°	6.0	SM-86S045-060	CS100-S708AN	
8.0	1.8°	6.0	SM-86S080-060		
12.0	1.8°	6.0	SM-86S120-060		
2.2	1.8°	3.0	SM-60S022S-030	CS100-S505DH CS100-S708AH	Closed loop
3.0	1.8°	4.0	SM-60S030S-040		
4.5	1.8°	6.0	SM-86S045S-060	CS100-S708AH	
8.0	1.8°	6.0	SM-86S080S-060		
12.0	1.8°	6.0	SM-86S120S-060		

Drive dimensions(mm)

CS100-S708AN

CS100-S708AH

CS100-S505DN

CS100-S505DH
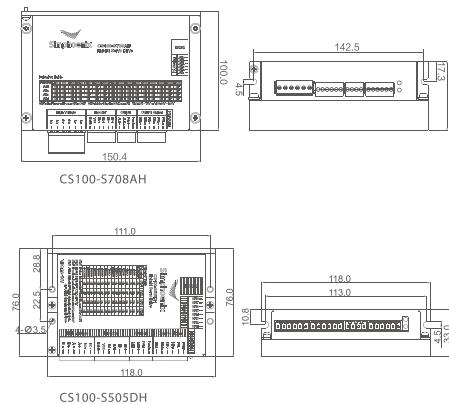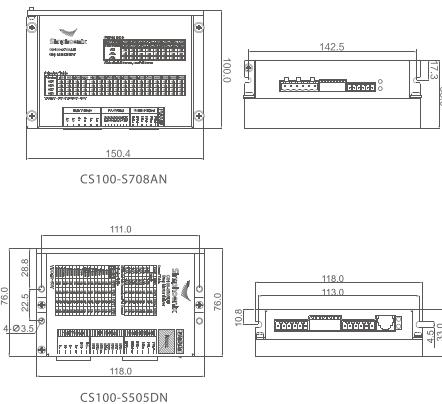
SM Series Stepper Motor

Shenzhen Simphoenix Electric Technology Co.,Ltd is committed to researching and developing of stepper drive and stepper motor. Our featured single phase stepper motor system has obvious performance advantage over other domestic stepper drive systems by absorbing excellent characteristics of AC servo motor drive system.

Typical Applications

Adaptive to various types of small and medium-sized automation equipment and instrument. For example:

- Packaging machine
- Engraving machine
- Food processing
- Machine tool
- Automatic assembly equipment
- Electronic manufacture
- Wire stripping machine
- Marking machine
- Cutting machine

Features

- Low voice, low vibration .
- Precise position control .
- Precise speed .
- Precise position control under low speed condition .
- Longer service life .

SM Sereis

Functions

Protection	It has over current，under voltage，over voltage and tracking deviation over-dosing protection .

Specifications

| Step Accuracy	5%
Temperature	80℃ Max
Storage Temperature	-20℃－50℃
Isolation resistor	500DC 1000MΩ
Pressure	500AC 1minute
Encoder	100 Line increment model

SM-57 series stepper motor parameter list (open loop motor only)

Motor Model	Step Angle	Motor Length L(mm)	Phase Voltage (V)	Phase Current (A)	Phase Resistance (Ω)	Phase Inductance (mH)	Holding Torque (N.m)	Rotational Inertia (g.cm²)	Weight (kg)
SM-57S004-020	1.8°	41	1.8	2.0	0.6	0.8	0.4	135	0.42
SM-57S009-030	1.8°	56	2.4	3.0	0.8	1.2	0.9	260	0.75
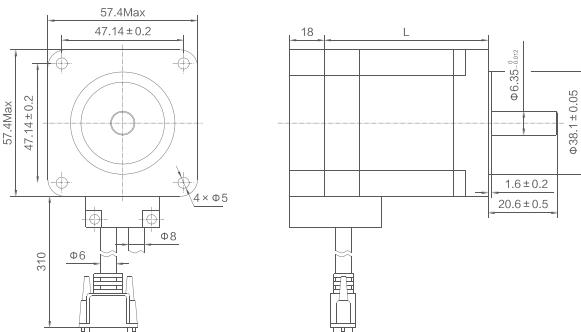
SM-60 series stepper motor paramater list (open loop and closed loop optional, closed loop stepper motor is 18mm longer than open loop stepper motor.)

Motor Model	Step Angle	Motor Length L(mm)	Phase Voltage (V)	Phase Current (A)	Phase Resistance (Ω)	Phase Inductance (mH)	Holding Torque (N.m)	Rotational Inertia (g.cm²)	Weight (kg)
SM-60S022-030	1.8°	67	3.36	3.0	1.2	4.6	2.2	590	1.20
SM-60S030-040	1.8°	88	2.8	4.0	0.7	3.5	3.0	860	1.40
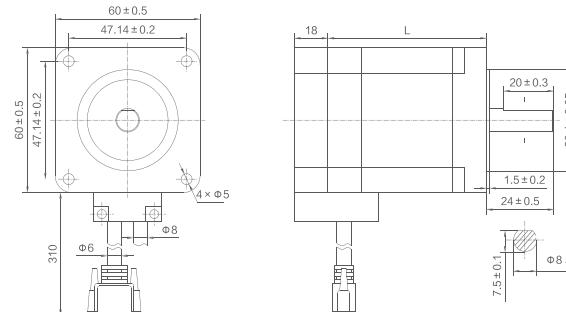
SM-86 series stepper motor paramater list (open loop and closed loop optional, closed loop stepper motor is 18mm longer than open loop stepper motor.)

Motor Model	Step Angle	Motor Length L(mm)	Phase Voltage (V)	Phase Current (A)	Phase Resistance (Ω)	Phase Inductance (mH)	Holding Torque (N.m)	Rotational Inertia (g.cm²)	Weight (kg)
SM-86S045-060	1.8°	75	1.8	6.0	0.3	2.5	4.5	1400	2.40
SM-86S080-060	1.8°	113	1.44	6.0	0.42	4.6	8.0	2700	4.80
SM-86S120-060	1.8°	151	1.8	6.0	0.7	9.0	12.0	4000	5.50

Simphoenix
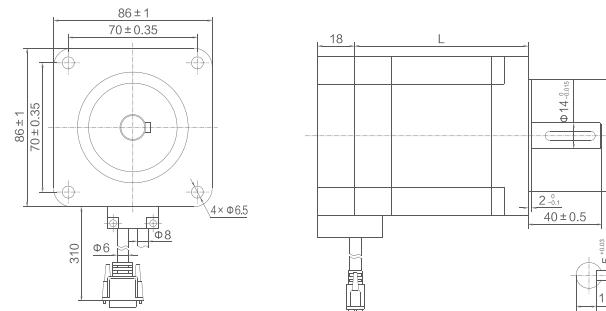
EP1S Series Programmable Logic Controller (PLC)

EP1S series PLC is minitype high performance universal PLC with tiny configuration but powerful functions, those are data processing, analog processing, internet communication, high speed counting, high speed pulse output positioning control, floating-point operation and writing EEPROM order superior functions etc.

Typical Applications

- Punch Press
- Textile Machinery
- Wire Drawing
- Package Machines
- Construction
- Brick Stone Machinery
- Electronics
- Pharmacy Equipments etc.

Features

- Main module points: 16point/30point/40point/60point.
- Program capacity: 24K step.
- Basic order counting speed: 0.2~0.5μs.
- High speed pulse output: 4 independent 100 kHz.
- Communication port: 1 RS232 port (program port), 1 RS232/RS485 port.
- Holding when power-off: bit register 3248, word register 2940.
- High speed counting: single phase 8 group: 4x100kHz, 4x10kHz, AB phase 2 group: 1x50kHz, 1x5kHz.

Functions

- Support IL/LD/SFC types programming to reach control logic.
- Based on programming control logic to control machines.

Specifications

Input Specifications：

EP1S Series		
Items	High-speed terminal X0~X7	Normal terminals
Signal input method	Source/leakage type, user can choose via terminal "S/S"	
Electrical Specifications — Detection voltage	24VDC	
Electrical Specifications — Input impedance	3.3kΩ	4.3kΩ
Electrical Specifications — On input	400Ω external circuit resistance is less than	400Ω external circuit resistance is less than
Electrical Specifications — Off output	24kΩ external circuit resistance is more than	24kΩ external circuit resistance is more than
Filter function — Digital filtering	Has digital filtering function, filtering time can be set among 0ms, 8ms, 16ms, 32ms, 64ms	
Filter function — Hardware filtering	All the terminal are hardware filtering except terminal X0~X7 and the filtering time is about 10ms	
High-speed function	The maximum frequency of terminal X0, X1, X2, X3 can reach 100kHZ The maximum frequency of terminal X4, X5, X6, X7 can reach 10kHZ The sum of input frequency need to be less han 60kHZ	
Common terminal	There is only onr common terminal which is terminal "S/S"	

Output Specifications

EP1S Series		
Items	Relay output type	Output transistor type
Circuit source voltage	250VAC, 30VDC below	5~24VDC
Circuit isolation	Mechanical isolation of relay	Optocoupler isolation
Action indicattion	When the output of the relay contact close, Indicator lamp on	When the optocoupler is activated , Indicator lamp on
Open leakage current	/	0.1mA/30VDC less than
Minimum load	2mA/5VDC	5mA (5~24VDC)
Maximum Output current — Resistor load	2A/1 point 8A/4 point group common terminal 8A/8 point group common terminal	Y0, Y1, Y2, Y3: 0.3A/1 point others: When add 1 point the total allowance will add 0.1A while it is above 8 points
Maximum Output current — Inductive load	220VAC, 80VA	Y0, Y1, Y2, Y3: 7.2W/24VDC, others:12W/24VDC
Maximum Output current — lamp load	220VAC, 100W	Y0, Y1, Y2, Y3: 0.9W/24VDC, others:1.5W/24VDC
Response time — ON→OFF	20ms Max	Y0, Y1, Y2, Y3: 10μs others: 0.5ms
Response time — ON→OFF	20ms Max	
Maximum output frequency	/	Each channel 4x100 kHZ
Output common terminal	Y0—COM0; Y1—COM1; Y2—COM2; Y3—COM3; When after Y2, every 8 terminal can use 1 common terminal at most. Each common terminal is isolated	
fuse protection	No	

Model table

Model	Power Supply Voltage (V)	Input/Output Point	Digital Input Signal Voltage	Digital Output Type	Digital Input Terminal/Public Terminal	Digital Output Terminal/Public Terminal	Analog Input Terminal	Analog Output Terminal	Interruption/Pulse Input	Pulse Output
EP1S-M1006RA	85~264	10/6	DC 24V	Relay	10/1	6/6	No	No	Yes	No
EP1S-M1006TA	85~264	10/6	DC 24V	Transistor	10/1	6/6	No	No	Yes	Yes
EP1S-M1614RA	85~264	16/14	DC 24V	Relay	16/1	14/6	No	No	Yes	No
EP1S-M1614TA	85~264	16/14	DC 24V	Transistor	16/1	14/6	No	No	Yes	Yes
EP1S-M2416RA	85~264	24/16	DC 24V	Relay	24/1	16/7	No	No	Yes	No
EP1S-M2416TA	85~264	24/16	DC 24V	Transistor	24/1	16/7	No	No	Yes	Yes
EP1S-M3624RA	85~264	36/24	DC 24V	Relay	36/1	24/8	No	No	Yes	No
EP1S-M3624TA	85~264	36/24	DC 24V	Transistor	36/1	24/8	No	No	Yes	Yes

Installation and Dimension Figure

85.0

fixed slide（35mm）

2-∅4.8

150.0
140.5

81.0

90.0
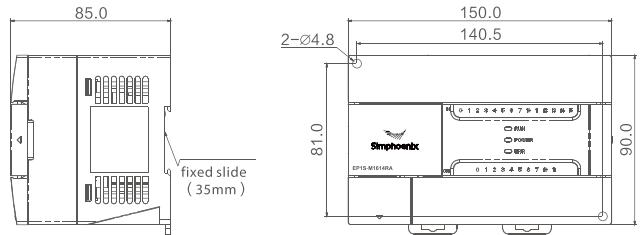
EP1S-M1614RA

Model	W1(mm)	W(mm)	H1(mm)	H(mm)	D(mm)	Screw
EP1S-M1006RA	120.5	130	81	90	85	M4 screw & 35mm width DIN rail
EP1S-M1006TA	120.5	130				
EP1S-M1614RA	140.5	150				
EP1S-M1614TA	140.5	150				
EP1S-M2416RA	224.5	234				
EP1S-M2416TA	224.5	234				
EP1S-M3624RA	224.5	234				
EP1S-M3624TA	224.5	234				

EP1 Series I/O Expansion Module

This module is uesd to expand the digital point of the PLC main module, it adopt auto programing method, easy to use.

Typical Applications

- Punching machine
- Textile
- Wire drawing machine
- Packaging
- Construction machinery
- Brick machine
- Electronic equipment
- Pharmaceutical equipment

Model table

Model	Input point	Output point	Output type
EP1-E0800NN	8	–	–
EP1-E1600NN	16	–	–
EP1-E0008RN	–	8	Relay
EP1-E0008TN	–	8	Transistor
EP1-E0016RN	–	16	Relay
EP1-E0016TN	–	16	Transistor
EP1-E0808RN	8	8	Relay
EP1-E0808TN	8	8	Transistor

Specifications

Input Specifications :

Items	Dimension
signal input method	Source/leakage type, choose via s/s terminal
Electrical Specifications — Detection voltage	24VDC
Maximum allowance voltage	30VDC
Maximum surge voltage	35VDC, 0.5s
Input Resistance	4.3kΩ
ON voltage/curren	18VDC min/3mA min each channel
OFF voltage/curren	4VDC max/1mA max
Maximum allowable leakage current	1mA
Filtering	Filtering time is about 8ms
Isolation voltage	500VAC 1min

Output Specifications

| Items	Output port of repaly	Output port of transistor
External power supply	250VAC, 30VDC below	5~24VDC
Circuit isolation	relay mechanical isolation	optocoupler isolation
Isolation voltage	1500VAC	500VAC
Contact endurance	100000 rated load	/
Contact resistance	≤100mΩ	/
Action instruction	indicator light is on when relay output contact closed	indicator light is on when optocoupler is driven
Open leakage current	/	Less than 0.1 mA / 30 VDC
Minimum load	100mA/5VDC	5mA (5~24VDC)
Maximum Output current — Resistor load	2A/1 point 8A/4 points group common port 8A/8 points group common port	0.3A/1 point 0.8A/4 points 1.2A/6 points 1.6A/8 points
Inductive load	220VAC, 80VA	12W/24VDC
lamp load	220VAC, 100W	1.5W/24VDC
Response time — ON→OFF	20ms maximum	0.5ms maximum
ON→OFF	20ms maximum	
Common output port	1 public terminal can connect with 8 terminals at most, and public terminals should be isolated from each other.	

Terminal instructions

EP1-E0800NN

Inputs terminals:

O	X1	X3	X5	X7
S/S	X0	X2	X4	X6

Air terminal:

O	O	O	O	O
O	O	O	O	O
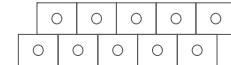
EP1-E1600NN

Inputs terminals:

O	X1	X3	X5	X7
S/S0	X0	X2	X4	X6

Inputs terminals:

O	X11	X13	X15	X17
S/S1	X10	X12	X14	X16
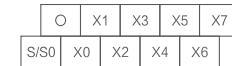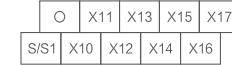
EP1-E0008RN/EP1-E0008TN

output terminals:

Y0	Y2	COM1	Y5	Y7
COM0	Y1	Y3	Y4	Y6

Air terminal:

O	O	O	O	O
O	O	O	O	O
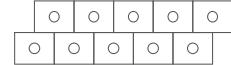
EP1-E0016RN/EP1-E0016TN

output terminals:

Y0	Y2	COM1	Y5	Y7
COM0	Y1	Y3	Y4	Y6

output terminals:

Y10	Y12	COM3	Y15	Y17
COM2	Y11	Y13	Y14	Y16

EP1-E0808RN/EP1-E0808TN

Inputs terminals:

O	X1	X3	X5	X7
S/S	X0	X2	X4	X6

output terminals:

Y0	Y2	COM1	Y5	Y7
COM0	Y1	Y3	Y4	Y6
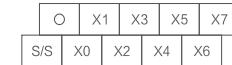
Terminal definition

Pin marking	Instruction
O	No connection
S/S	To choose input method;connect with external 24VDC positive means chooseleakage method while connect with negtive means another one
Xn	Switch signal input terminal, work with terminal S/S can creat input signal
COMn	Output common port
Yn	Switch signal output terminal

Dimensions(mm)
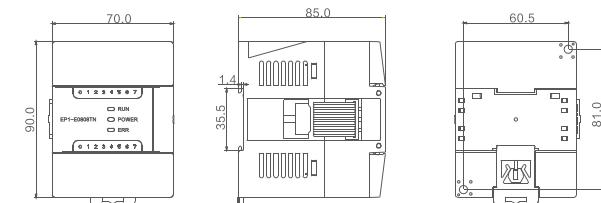
EP1 Series Analog Module

EP1 series analo module is an external part of our EP1 series main PLC module which can detects voltage signal, current signal also output voltage signal and current signal. High-precision, good stability and strong anti-interference performance can fulfill lots of environment and industrial applications.

Typical Applications

- Textile
- Construction
- Injection molding
- Machinery
- Agricultural automation
- Mining

- Analog input/high-precision output.
- Multi- input/output range can meet different ranging requirement.
- Good stability, good consistency and no need for calibration.
- Can correct the zero-drift and linear error of equipment like transmitter and solenoid valve by Built-in zero and
- Full-scale setting value.

Specifications

Table 1 output specifications

| Items	Dimension					
	Voltage input			Current input		
A/D conversion time	1ms			1ms		
	Range	Digital Output	Resolution	Range	Digital Output	Resolutio
Range	0~10V	0~10000	4.88mV	0~20mA	0~10000	9.77uA
	0~5V	0~10000	2.44mV			
	0~2.5V	0~10000	1.22mV			
	0~1V	0~10000	488uV			
	-10~10V	-10000~10000	9.77mV	-20~20mA	-10000~10000	19.53uA
	-5~5V	-10000~10000	4.88mV			
	-2.5~2.5V	-10000~10000	2.44mV			
	-1~1V	-10000~10000	977uV			
	-0.5~0.5V	-10000~10000	488uV			
Precision	environment 25±5℃: 0.2%			environment 25±5℃: 0.2%		
	environment -40~55℃: 0.5%			environment -40~55℃: 0.5%		
Maximum absolute-input	±24VDC			±50mA		
Isolation method	Analog input and PLC: digital isolator Analog input and external 24V: DC/DC converter； Each analog channel: no isolation					

Table 2 output specifications

Items	Dimension					
	Voltage input			Current input		
A/D conversion time	1ms			1ms		
	Range	Digital Output	Resolution	Range	Digital Output	Resolution
Range	0~10V	0~10000	4.88mV	0~20mA	0~10000	9.77uA
	0~5V	0~10000	2.44mV	4~20mA	0~10000	9.77uA
	-10~10V	-10000~10000	9.77mV	0~24mA	0~10000	11.72uA
	-5~5V	-10000~10000	4.88mV	-	-	-
Precision	environment 25±5℃: 0.2% environment -40~55℃: 0.5%			environment 25±5℃: 0.2% environment -40~55℃: 0.5%		
Maximum drive Capability	2kΩ minimum			0~20mA：600Ω maximum 4~20mA：600Ω maximum 0~24mA：500Ω maximum		
Common output port	1 public terminal can connect with 8 terminals at most, and public terminals should be isolated from each other.					

Model table

Module type	Analog input channel number	Analog output channel number	Analog signal type
EP1-E4AD	4	0	Voltage, current
EP1-E4DA	0	4	Voltage, current
EP1-E2AD2DA	2	2	Voltage, current

Terminal instructions

EP1-E4AD

VI1−	○	VI2−	○	○
V1+	I1+	V2+	I2+	○

24V+	V3+	I3+	V4+	I4+
24V−	⏚	VI3−	○	VI4−

EP1-E4DA

VIO1−	○	VIO2−	○	○
VO1+	IO1+	VO2+	IO2+	○

24V+	VO3+	IO3+	VO4+	IO4+
24V−	⏚	VIO3−	○	VIO4−

EP1-E2AD2DA

VI1−	○	VI2−	○	○
V1+	I1+	V2+	I2+	○

24V+	VO1+	IO1+	VO2+	IO2+
24V−	⏚	VIO1−	○	VIO2−
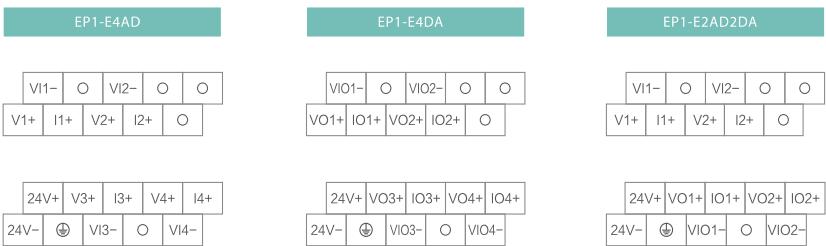
Terminal definition

Marking	Explain
24V+	External 24V positive
24V-	External 24V negative
⏚	Earth
○	No connection
VOn+	Voltage signal output port of channel no.n
IOn+	Current signal output port of channel no.n
VIOn-	Output common port of channel no,n
Vn+	Voltage signal input port of channel no.n
In+	Voltage signal input port of channel no.n
VIn-	Input common port of channel no.n

Dimensions

70.0
90.0
EP1-E2AD2DA ○ RUN ○ 24V ○ ERR

85.0
1.4
35.5

60.5
81.0
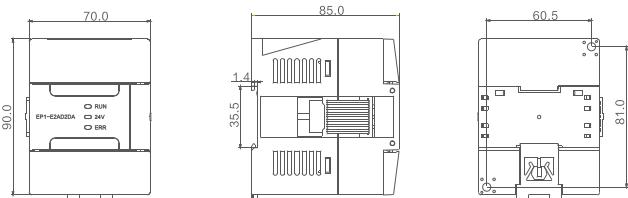
EM Series Human Machine Interface (HMI)

EM series is a new generation open-type HMI of Simphoenix,adopting 400MHz high-performance Atmel 32 bit A5 CPU with friendly interface with human and machine.The easiness of learning and using for configuration programming environment with strong data communication and throughput capacity,it is applicable for textile machines,CNC tools,electric vehicles,rail transit,building automation fields etc.

Typical Applications

- Food Machinery
- Textile Machinery
- CNC Tools
- Rail Transit
- Wind Power Generation
- Electric Vehicles
- Building Automation

Features

- High-performance Atmel 32 bit A5 processor, can support better working efficiency, and support 16 million colors for picture color display.
- Standard dual USB terminals can upload or download program, store data, and support USB terminal by mouse, keyboard, printer etc.
- SD card port can upload or download program and store data, including alarm information, recipe data etc.
- Powerful communication ability can support direct communication with most PLCs, and support Modbus protocol, user-defined protocol by using script, Ethernet communication, CANOPEN 2.0 protocol.
- Strong functions of SCADA with easy learning and easy using, and abundant gallery support C language macro script and import starting interface by customer.

EM Sereis

Functions

- User can make second program development by supporting platform and terminal
- User may use self-defined programming interface with machines

Specifications

Model		EM2-070T	EM2-070T	EM2-101E	EM2-101T	EM1-070T	EM1-070E	EM1-101T	EM1-101E
Performance Specifications	Display size	7″ TFT (16:9)		10.1″ TFT (16:9)		7″ TFT (16:9)		10.1″ TFT (16:9)	
	Resolution	800 × 480		1024 × 600		800 × 480		1024 × 600	
	Display color	16 million color				65536 color			
	Brightness	300cd/m²		250cd/m²		300cd/		250cd/m²	
	Contrast	400:1		500:1		400:1		500:1	
	Backlight	LED				LED			
	Touch screen	4-wire precision resistor network				4-wire precision resistor network			
	Lcd lifetime	50000H				50000H			
	CPU	32bits 400MHz RISC				32bits 400MHz RISC			
	Memory	256M flash + 64M SDRAM				128M flash + 64M SDRAM			
	Recipe memory&RTC	512KB+clock				512KB+clock			
	Extensible memory	No		1 USB Host 1 SD Card		No		1 USB Host 1 SD Card	
	Ethernet	No		Yes		No		Yes	
	Program download	USB		USB/Ethernet port		USB		USB/ Ethernet port	
	Communication port	COM1: RS232 / RS485	COM1: RS232 / RS485 COM2:RS232 / RS485 /RS422	COM1: RS232 / RS485	COM1: RS232 / RS485 COM2:RS232 / RS485 /RS422	COM1: RS232 / RS485	COM1: RS232 / RS485 COM2:RS232 / RS485 /RS422	COM1: RS232 / RS485	COM1: RS232 / RS485 COM2:RS232 / RS485 /RS422
Electrical Specifications	Rated power	3W				5W			
	Rated voltage	DC24V				DC24V			
	Input range	DC12V ~ 28V				DC12V ~ 28V			
	Isolation resistance	>50MΩ@500VDC				>50MΩ@500VDC			
	Hi-pot	500VAC 1minute				500VAC 1minute			
Structure Specifications	Shell color	Black				Black			
	Shell material	Fire-Prof ABS plastic				Fire-Prof ABS plastic			
	Dimensions	200 × 146 × 40(mm)				271 × 213 × 40(mm)			
	Opening size	192 × 138(mm)（±0.5）				262 × 205(mm)（±0.5）			
	Weight	0.6kg				1.2kg			
Environment Specifications	Working temperature	0~50℃				0~50℃			
	Working humidity	10~90%RH(non-condensing）				10~90%RH(non-condensing）			
	Storage temperature	−10~60℃				−10~60℃			
	Storage humidity	10~90%RH(non-condensing）				10~90%RH(non-condensing）			
	Seismic degree	10~25Hz(x y z direction 2G/30 minute）				10~25Hz(x y z direction 2G/30 minute）			
	Cooling method	natural air cooling				natural air cooling			
Certifications	Keypad protection grade	IP65				IP65			
	CE	EN61000-6-2:2005 EN61000-6-4:2007				EN61000-6-2:2005 EN61000-6-4:2007			
	FCC compatibility	FCC CLASS A				FCC CLASS A			

Installation and Dimension Figure

Installation dimension of EM1 (7 inch (EM1070T) as example):

Door Panel

Panel opening size:192x138mm

Front

Back

Door Panel

Touch Screen

Front

Touch Screen   panel

Fastener

Back
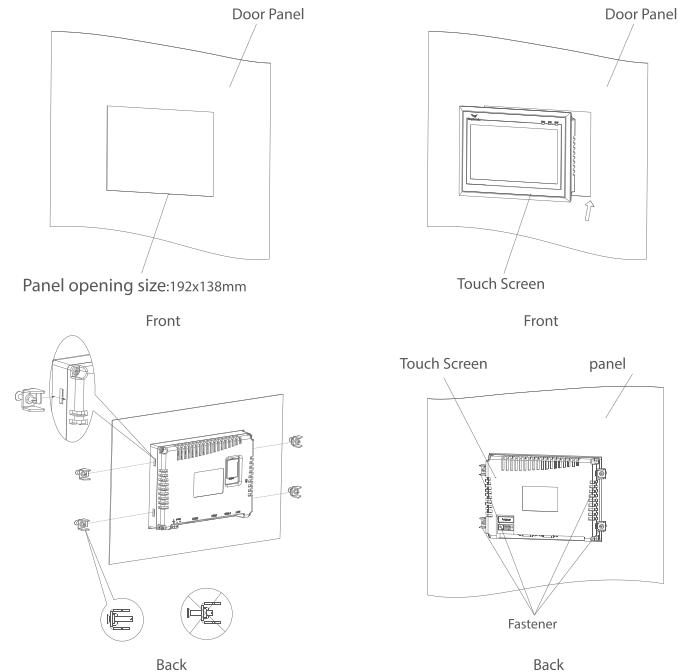
Dimensions(mm)
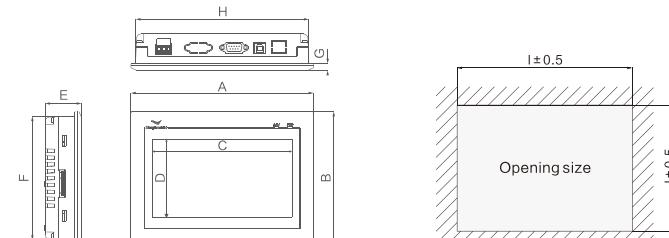
Model		A	B	C	D	E	F	G	H	I	J
EM2-070T/E	EM1-070T/E	200	146	153	85	40	135.7	7.5	189.7	192	138
EM2-101T/E	EM1-101T/E	271	213	222	124	40	200	7.5	256	262	205

I ± 0.5

Opening size

J ± 0.5

Simphoenix