

SD100 Series Low-voltage Servo System



VEICHI

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Official Website

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Stock code : 688698

About us



Veichi (stock code: 688698) has always committed to electric drive and industrial control since its foundation. As an all-round company engaged in R & D, manufacturing and sales on high-tech industrial automation products, Veichi has been identified with several honorary titles such as the third patch of Specialized and Sophisticated Enterprises That Produce New and Unique Products, New and High-tech Enterprise, Jiangsu Engineering Technology Research Center, Jiangsu Provincial-level Enterprise Technology Center, Jiangsu Private-own Technical Enterprise, and has obtained the highest level of enterprise credit. Through years of independent research and development, Veichi now has been authorized with patents totaling 163 by the end of June, 2023, and among them 43 are for invention.

Having established R & D center and manufacturing bases in Suzhou, Shenzhen and Xi'an, added with the wholly-owned subsidiary in India, Veichi now are dealing with customers from several nations and regions and has the full capability to provide safe, competitive and trustworthy products and services to customers from the larger world.

Veichi provides various products including AC drive, servo

system, and control system, which are applied in all sorts of fields like heavy industry, mining, petroleum and petrochemical, machine tools, hydraulic transmission, photovoltaic pumping, high-efficiency energy, robotics, printing and packaging, textile, new energy, medical and many other industries

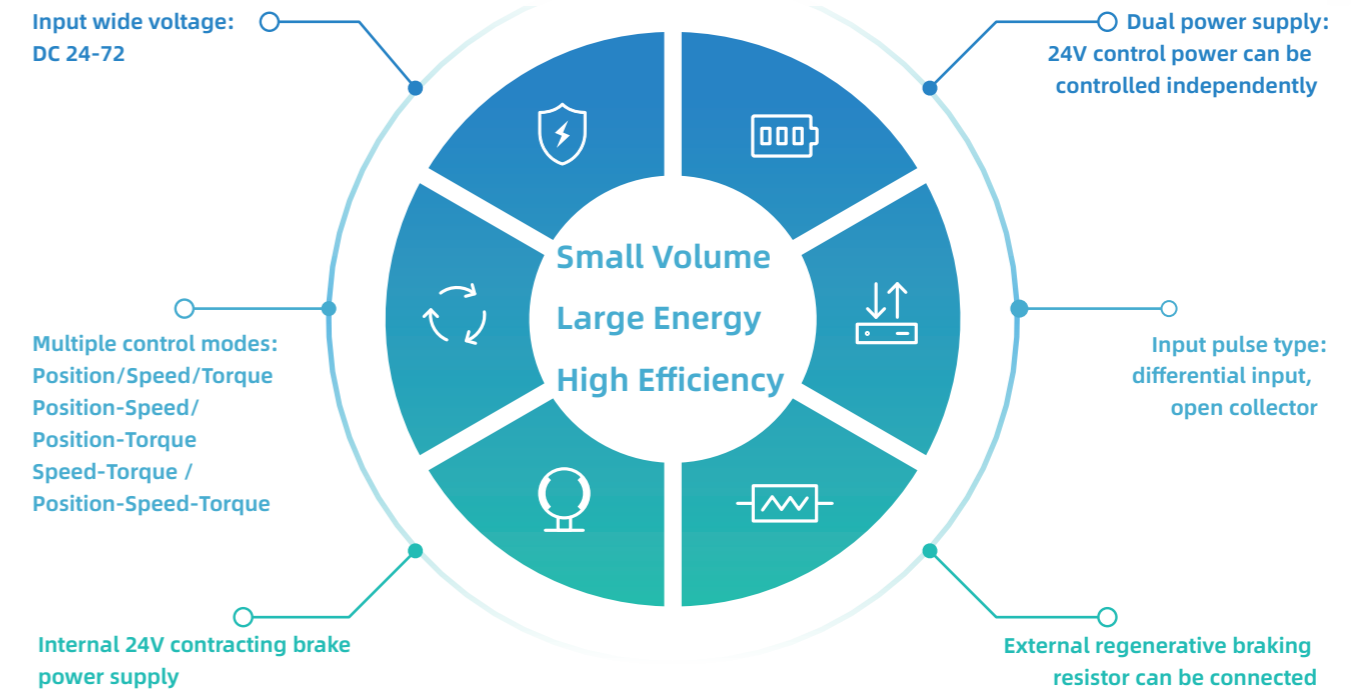
20 service stations and 211 contracted distributors cover 31 provinces on China mainland and Hong Kong, Macao and Taiwan regions, which guarantees a massive and efficient network for sales and services for our customers.

Veichi will continue to abide by the operation philosophy, that is, guided by market demand and driven by technological innovation, enlarge and enhance its core business like AC drive, servo system, control system and SIoT. And Veichi will always be devoted to providing quality products and services for customers and further make contributions to the development of electric drive and industrial control.

SD100 Series Low Voltage Servo Drive

Based on the international leading algorithm platform, SD100 series low-voltage servo system are qualified for single-axis, two-axis and multi-axis motor algorithm control. It features compactness, versatility, flexibility, usability, stability and reliability delivering high performance so they can be widely applied to occasions with certain requirements for voltage and size like mobile robots (AMR, AGV), service robots, specialized robots, logistics, warehousing and sorting, and medical equipment, etc.

As to occasions with special requirements for, like, low temperature, communication and installation, customized low-voltage servo drive are available such as integrated products and solutions for customers to choose.



2005

- Beginning of entrepreneurship in Shenzhen
- First-generation of AC drive successfully launched

2014

- First stage of Suzhou Veichi project groundbreaking and put into construction

2016

- First stage of Suzhou Veichi project put into operation
- First generation of motion control system launched

2013

- Suzhou Veichi Electric Co., Ltd established
- First generation of servo system successfully developed

2019

- Indian subsidiary established
- Restructure to a company limited by shares

2020

- A-share of science and technology innovation board landing
- Awarded as provincial Specialized and Sophisticated "Small Giant" Firms That Produce New and Unique Products

2021

- A Veichi controlled subsidiary established
- Awarded as the third patch of Specialized and Sophisticated "Small Giant" Firms That Produce New and Unique Products

2022

- Xi'an R&D Center established
- Veichi Digital Energy subsidiary established

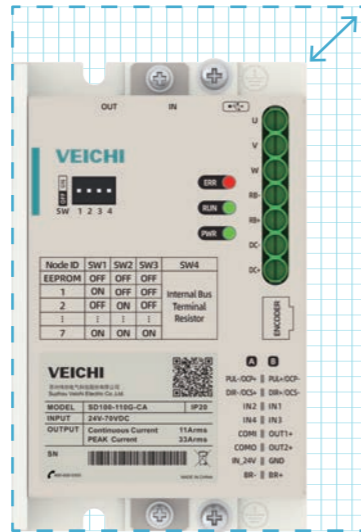
2023

- Suzhou Veichi Phase II project put into operation
- Suzhou Veichi Phase III Project put into construction
- Veichi Medical Equipment subsidiary established

Product Features

Delicate Structure

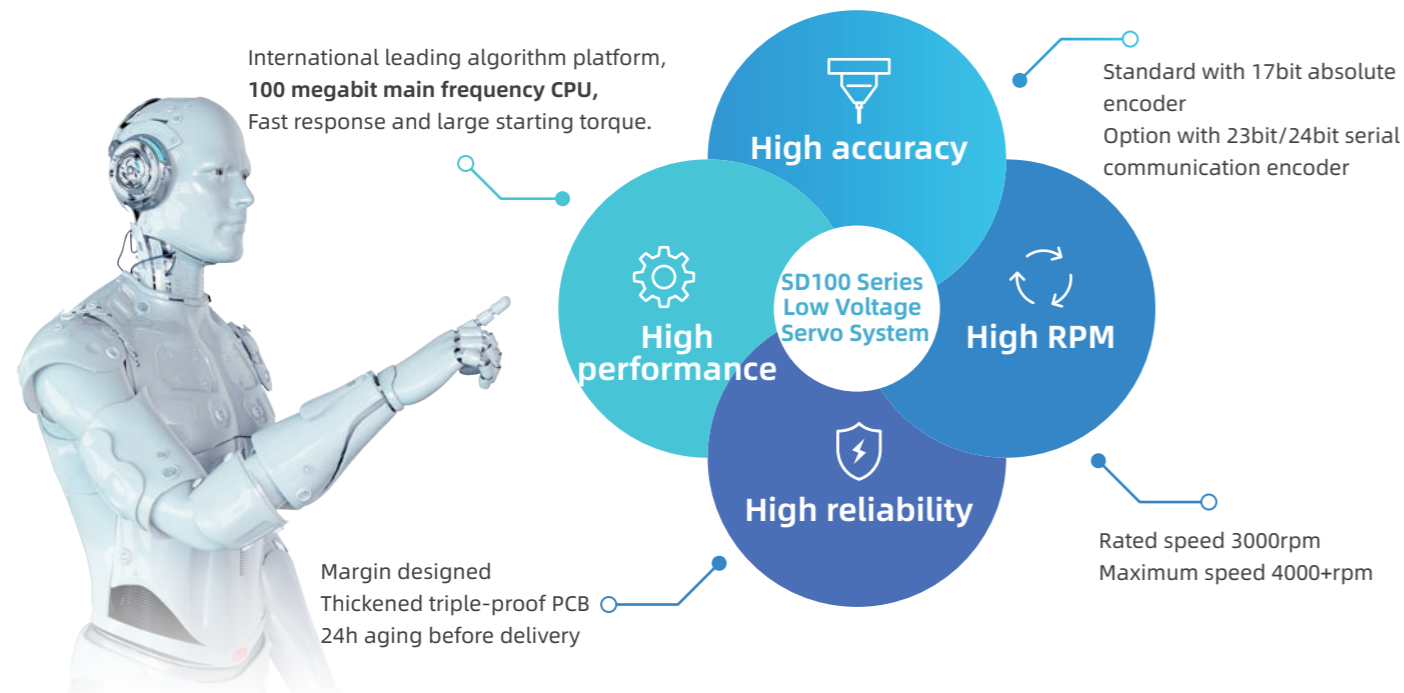
High power density within compact size
Reduced installation area for limited space.



Compared to like products,
volume here is reduced by

20%
~
50%

Ultra-High Standard



Unique Design

Dual axis drive:

1+1 > 2

Dual axis output
produces enhanced benefit 1+1 > 2

Debugging interface:

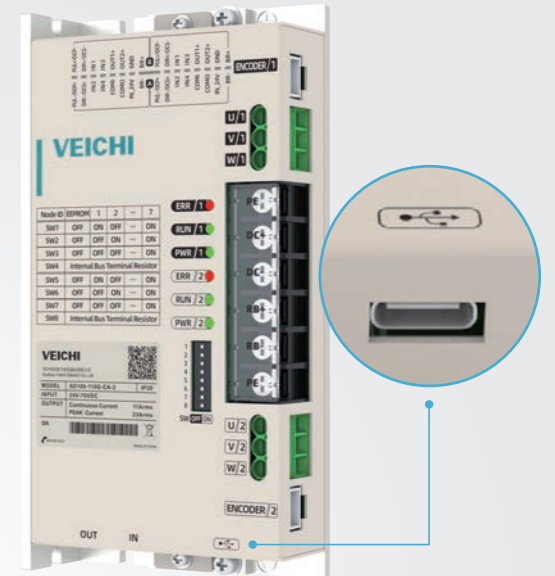
Type-C

Type-C interface
saves cumbersome
" special cables "

Efficient heat dissipation:

50°C

Unique heat dissipation process
can bear operation under up to 50°C
high temperature environment

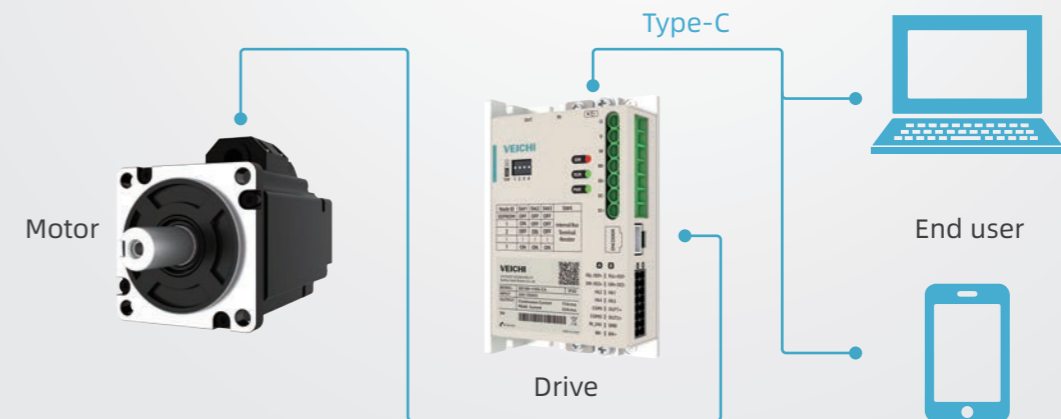


User Friendly

Easy wiring: Quick European-type plug-in terminals are used to reduce wiring time.

Easy to debug: Standard Type-C interfaces are convenient for upper computer software and Bluetooth module for APP wireless debugging is optional.

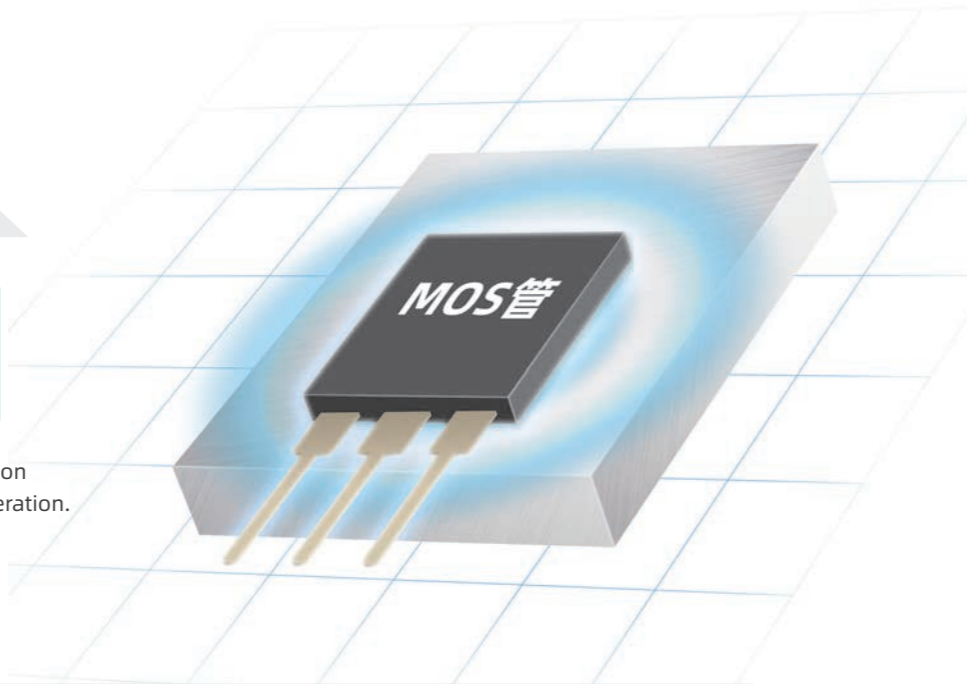
Easy to install: Both front and side installation are allowed thus suitable for different scenarios.



Super Overload Capacity

With **3 times** stronger overload power device

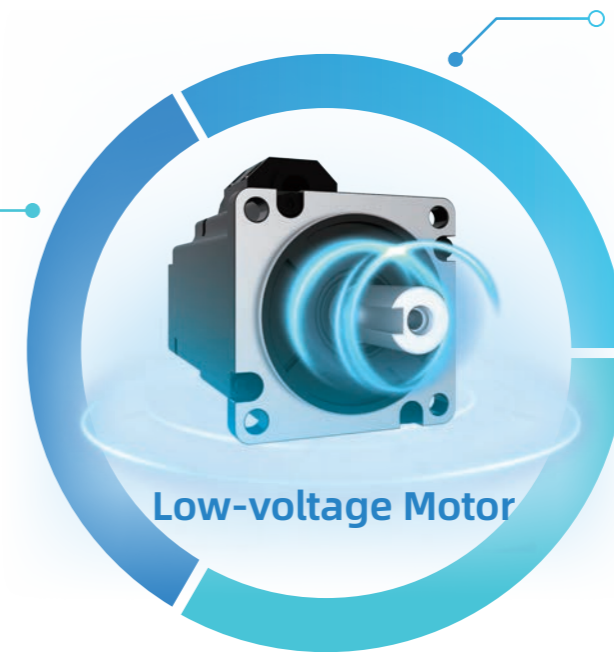
Combined with the unique heat dissipation process, it ensures efficient overload operation.



Certification

The products have certificated with CE, UL and ROSH in accordance with international markets. STO safety protection module makes the product more reliable.

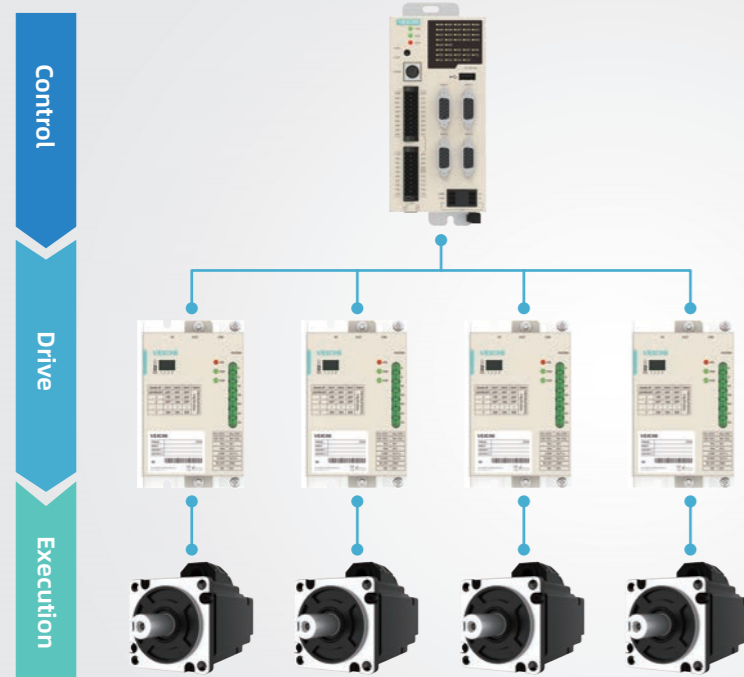
High performance
3 times stronger overload
low noise operation,
new electromagnetic design
high output torque



Low-voltage Motor

Short frame
10% and above shorter in size than the like motors in the market

High reliability
low temperature rise for high temperature applications
magnetic encoder for high vibration applications
Standard direct outlet with no adapter required



Synchronous Drive

The principle of bus interaction as well as external circuit interaction is employed to double guarantee the synchronization of startup and shutdown.

In face of a fault, the above mechanism is used to synchronize brake and stop to protect the equipment.

Diverse buses

CANopen, EtherCAT, Profinet, Modbus-RTU and other bus communication protocols are available for users to choose.



Energy-saving drive

The new generation of energy-saving drive technology reduces motor heat loss and improves energy utilization by more than 10%.

"Low power consumption" mode in standby saves energy and reduce emissions to improve the battery life by more than 10%.

Energy efficiency improved
10%
or more

Battery life improved due to energy saving and emission reduction by
10%
or more

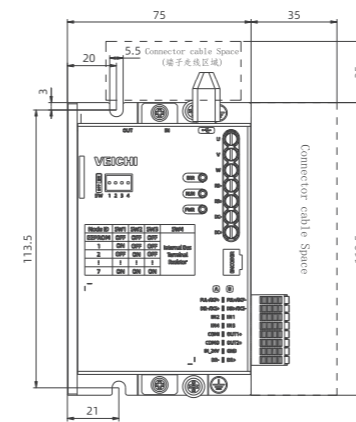
Drive Model Description

SD 100 - 210 G - C A - X L

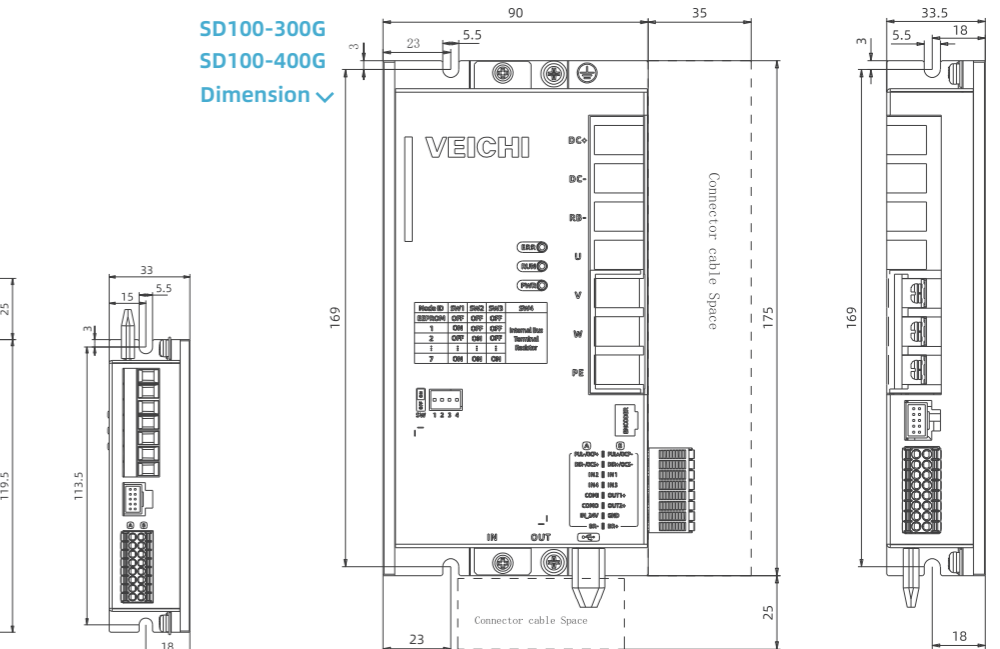
- SD:** Servo product code
- 100:** Low-voltage servo drive series
- Rated current:** 110: 11A, 210: 21A
- Voltage level:** G: 24-70V
- L:** Low temperature model
- Number of output axes:** None: Single axis, 2: Dual axis
- Encoder type:** A: Serial encoder
- Product type:** P: Pulse, E: EtherCAT, C: CANopen (Profinet for option)

Drive Appearance and Installation Dimensions

SD100-110G
SD100-210G
Dimension >



SD100-300G
SD100-400G
Dimension >

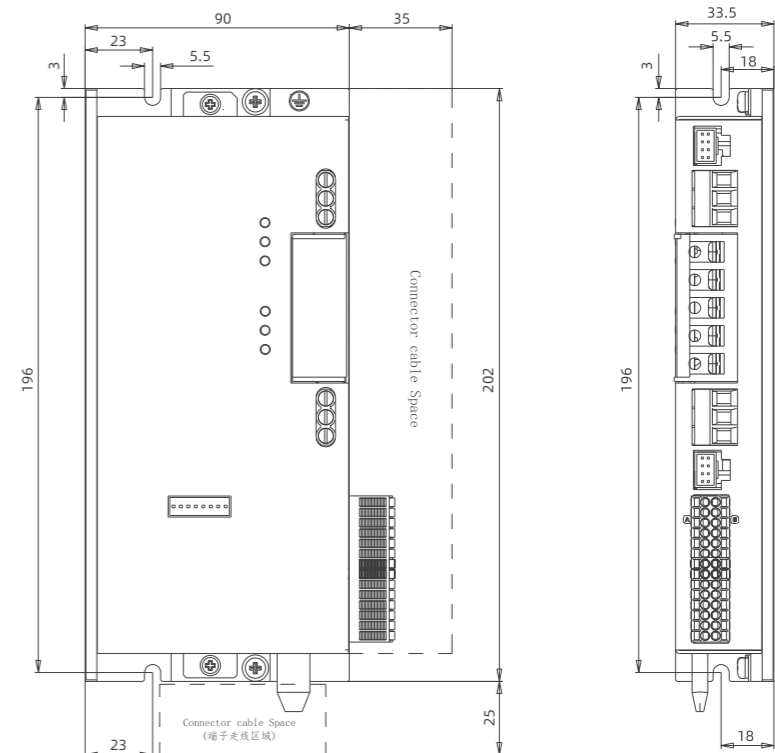


Drive Specification



Model	Input		Output (RMS)	
	DC voltage (V)	Rated current (A)	Instantaneous current (A)	
SD100-110G	DC 24-72V	11	42	
SD100-210G	DC 24-72V	21	63	
SD100-300G	DC 24-72V	30	90	
SD100-400G	DC 24-72V	40	120	
SD100-600G	DC 24-72V	60	180	
SD100-800G	DC 24-72V	80	240	

SD100-110G-2 (dual axis)
SD100-210G-2 (dual axis)
Dimension >

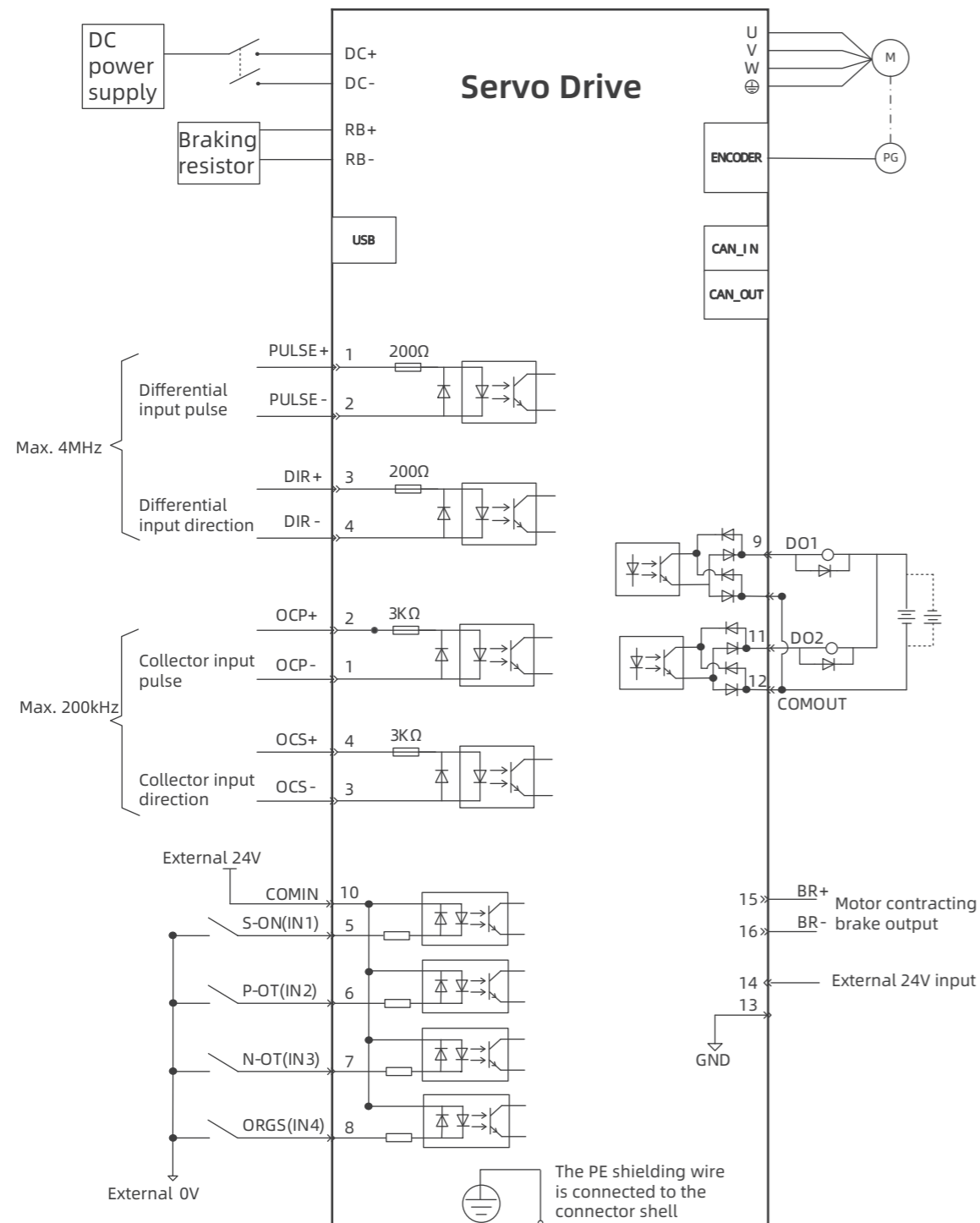


Drive Technical Specification

Item		Specification	
Control method		MOS PWM controlled sine wave current drive mode	
Feedback	With rotary servo motor	Serial encoder: 17-bit absolute encoder	
Environmental condition	Ambient temperature	-5°C~55°C (derate during 55°C~60°C) Low-temperature model: -40°C~5°C (no condensation)	
	Storage temperature	-20°C~85°C Low temperature model: -40°C~5°C	
	Operating humidity	< 95%RH (no freezing, no condensation)	
	Storage humidity	< 95%RH (no freezing, no condensation)	
	Oscillation	4.9m/s ²	
	Impact	19.6m/s ²	
	Protection level	IP20	
	Operating environment		No corrosive gas or combustible gas
			No water, oil, or chemical splash Environment with less dust, dirt, salt and metal powder
	Altitude	< 1000m (derate between 1000m~2000m)	
Others	No electrostatic interference, strong electric field, strong magnetic sound, radiation, etc.		
Applicable standards		IEC61800-2/-3/-5、IEC61000-2/-3/-4	
Installation type		Side installation/base installation	
Performance	Speed control range	1:5000 (the lower limit of the speed control range is the value under the condition of not stopping at rated torque load)	
	Speed fluctuation rate	Load fluctuation	< ± 0.01% of rated speed (load fluctuation: 0%~100%)
		Voltage fluctuation	Rated speed 0% (rated voltage ± 10%)
	Torque control accuracy (reproducibility)	Temperature fluctuation	Rated speed below ± 0.1% (temperature fluctuation: 25 ± 25 °C)
		±1%	
Control function	Position control	Electronic gear ratio setting, pulse deviation clearing, command smoothing setting, internal PR mode, positioning proximity, positioning completion output, feed-forward compensation	
	Speed control (internal)	4-segment internal given speed switching, rotary detection signal output, soft start, zero speed clamp, speed consistency output	
	Torque control (internal)	4 types of internal torque giving command switching, target torque-reached signal output	
	Advanced features	Online parameter recognition, low frequency suppression, automatic vibration suppression, disturbance observer, adjustment-free function	
	RS485	Modbus protocol	
Communication function	CAN	CIA-301 V4.02: CANopen application layer and communication protocol DSP-402 V2.0: drive and motion control sub-protocol	
	USB	USB2.0 standard for upper computer (12Mbps)	
Input and output signals	Assignable input signal	Operating voltage range: DC24V ± 20% Input channel: 4 Input mode: common collector input, common emitter input Input signal: • Servo ON (/S-ON) • P-action (/P-CON) • Forward drive disable (/P-OT), Reverse drive disable (/N-OT) • Alarm reset (/ALM-RST) • Forward-side external torque limiting (/P-CL), reverse-side external torque limiting (/N-CL) • Motor rotation direction switching (/SPD-D) signal • Internal speed selection (/SPD-A, /SPD-B) • Control mode selection (/C-SEL) • Zero clamp (/ZCLAMP) • Command pulse inhibit (/INHIBIT) • Magnetic pole detection input (/P-DET) signal • Gain selection (/G-SEL) • Command pulse input multiplier selection (/PSEL) Assignable signals and changeable positive/negative logic	

Item		Specification
I/O signal	Assignable output signals	Operating voltage range: DC5V ~ DC30V Output channel: 2 Output mode: photo-coupler output (isolated) Output signal: • Positioning completion (/COIN) • Speed consistency detection (/V-CMP) • Rotation detection (/TGON) • Servo ready (/S-RDY) • Torque limit detection (/CLT) • Speed limit detection (/VLT) • Brake (/BK) • Warning (/WARN) • Positioning Near (/NEAR) • Command pulse input multiplier output selection (/PSELA) • Alarm codes (ALO1, ALO2, ALO3) Assignable signals and changeable positive/negative logic
		Command pulse pattern
Command pulse	Input pattern	Linear drive, open collector
	Max. input frequency	Differential inputs: high speed maximum 4Mpps; Open collector: maximum 200Kpps
Shutdown control		Action during servo alarm, servo OFF, overtravel (OT)
Regeneration treatment		Built-in
Overtravel (OT) prevention		P-OT, N-OT , deceleration stop or free stop
Protection		Overcurrent, overvoltage, undervoltage, overload, regeneration fault, encoder disconnection, etc
Auxiliary functions		Intelligent setting, alarm recording, JOG operation, encoder reset, inertia recognition, FFT analysis, etc
Display		3 LED indicators (ERR, RUN, PWR)
Regeneration treatment		External braking resistor

Drive Wiring Diagram



Servo Motor Model Description

V7E - L 06 G - R40 30 - Q 1 K

Product series
V7E

Inertia level
L: Low inertia

Installation flange
06: 60mm
08: 80mm

Voltage level
E: 24V DC
G: 48V DC
I: 72V DC

Mark	Power
R40	400W
R75	750W

Outlet type

Y stands for direct power out and encoder line is connected to a plug-in terminal
U stands for a 0.5m adapter on the power outlet and encoder line is connected to a plug-in terminal.

Mark	Brake type
1	Non-contracting brake
2	Contracting brake

Encoder type

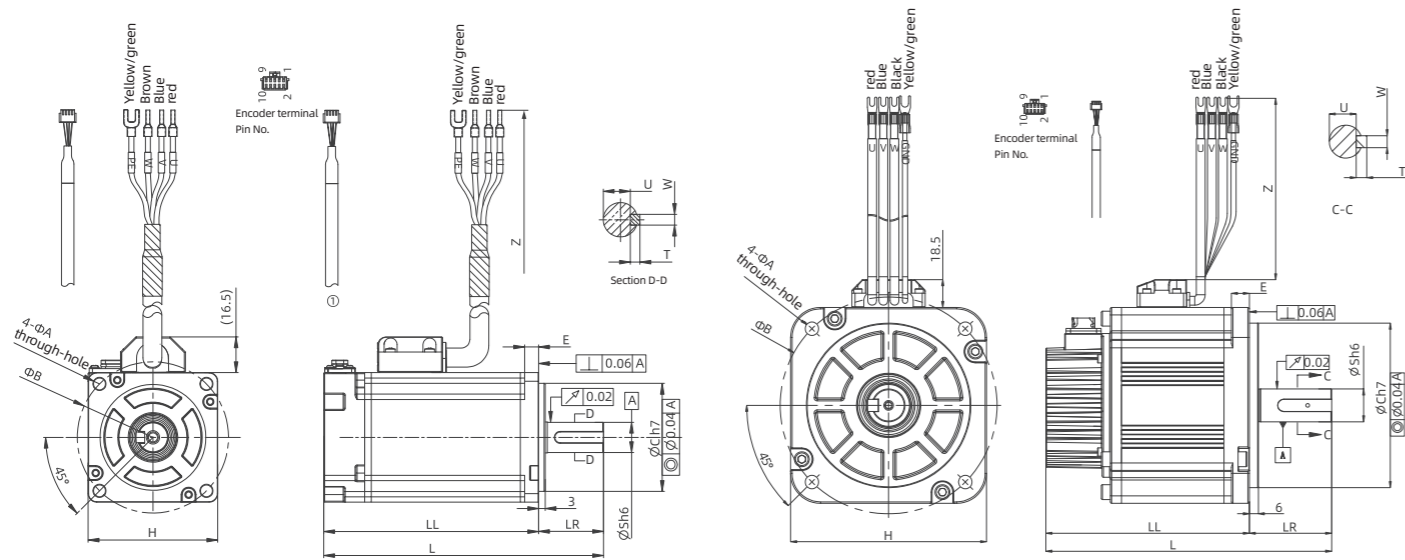
Q: 17-bit single-turn absolute encoder
R: 17-bit multturn absolute encoder

Rated speed (RPM)
30: 3000

Specifications of Motor Mechanical Characteristics

Item	Description
Operating system	Continuous
Oscillation	< 45m/s ² (5G) during rotation and < 24.5m/s ² (2.5G) during stop
Insulation resistance	Direct current (DC) 48V, >10MΩ
Operating ambient temperature	0°C ~ 40°C
Operating ambient humidity	20% ~ 80% (no condensation)
Excitation method	Permanent magnet type
Installation method	Flange
Insulation grade	F grade
Insulation voltage	AC 500V for 1m (for 200V)
Operating temperature	-15°C~40°C
Operating humidity	20 to 90% RH(no condensation)
Protection level	IP67 (axis end excluded)

Servo Motor Installation Dimension



Unit: mm

Motor model	A	B	C	S	E	F	H	L	LL	LR	T	W	U	Z
V7E-L06G-R2030-#1 Δ	5.5	70	50	14	6.5	M5 depth 10	60	110.5	80.5	30	5	5	11	1000
V7E-L06G-R2030-#2 Δ								141.5	111.5					
V7E-L06□-R4030-#1 Δ								129.5	99.5					
V7E-L06□-R4030-#2 Δ								160.5	130.5					
V7E-L06□-R6030-#1 Δ								148.5	118.5					
V7E-L06□-R6030-#2 Δ								179.5	149.5					
V7E-L08□-R7530-#1 Δ	6.6	90	70	19	8	M5 depth 10	80	147	112	35	6	6	15.5	1500
V7E-L08□-R7530-#2 Δ								179	144					
V7E-L08G-1R030-#1 Δ								161	126					
V7E-L08G-1R030-#2 Δ								193	158					
V7E-L08G-1R230-#1 Δ								179	144					
V7E-L08G-1R230-#2 Δ								211	176					
V7E-L08G-1R530-#1 Δ	9	145	110	22	12	M5 depth 12	130	179	144	55	7	8	18	2500
V7E-L08G-1R530-#2 Δ								211	176					
V7E-M13G-1R530-#1 Δ								191	136					
V7E-M13G-1R530-#2 Δ								219	165					

Notes: ① above means the encoder lead style, the wire length can be 1m, 1.5m, 2.5m, 3.5m, 5.5m;
 "□" above means the voltage level, 24V(E) or 48V(G), and the motor sizes is the same;
 "#" above means the encoder type, single-turn absolute (Q) or multi-turn absolute (R), and the motor size is the same.
 Δ above means the motor outlet type U or Y.

Motor Parameter

48V

Motor model	Rated power (W)	Rated voltage (V)	Rated speed (rpm)	Max. speed (rpm)	Rated current (A)	Peak current (A)	Rated torque (N.m)	Peak torque (N.m)	Rotor inertia (Kg.m ² ×10 ⁻⁴)	Net weight (Kg)	Electromagnetic brake suction current(A)	Electromagnetic brake suction time (ms)	Electromagnetic brake static torque (N.m)	Feedback element	
V7E-L06G-R2030-#1 Δ	200	48	3000	4000	5.3	15.9	0.64	1.92	0.18	1.0				Single-turn 17bit absolute value	
V7E-L06G-R2030-#2 Δ								0.20	1.3	0.42	60	1.5			
V7E-L06G-R4030-#1 Δ	400				10.6	31.8	1.27	3.81	0.34	1.4					
V7E-L06G-R4030-#2 Δ								0.36	1.8	0.42	60	1.5			
V7E-L06G-R6030-#1 Δ	600				15.8	47.4	1.91	5.73	0.51	1.8					
V7E-L06G-R6030-#2 Δ								0.53	2.1	0.42	60	1.5			
V7E-L08G-R7530-#1 Δ	750				19.9	59.7	2.38	7.14	1.02	2.6					
V7E-L08G-R7530-#2 Δ								1.13	3.3	0.44	100	3.8			
V7E-L08G-1R030-#1 Δ	1000				21.2	63.6	3.18	9.54	1.34	3.2					
V7E-L08G-1R030-#2 Δ								1.45	3.9	0.44	100	3.8			
V7E-L08G-1R230-#1 Δ	1200				28	84	3.82	11.46	1.63	3.8					
V7E-L08G-1R230-#2 Δ								1.74	4.5	0.44	100	3.8			
V7E-L08G-1R530-#1 Δ	1500	35	105	4.76	14.28	1.94	4.4								
V7E-L08G-1R530-#2 Δ					2.05	5.1	0.44	100	3.8						
V7E-M13G-1R530-#1 Δ	1500	38.7	116.1	4.8	14.4	10.51	7.2								
V7E-M13G-1R530-#2 Δ					12.65	7.2	0.46	100	16						

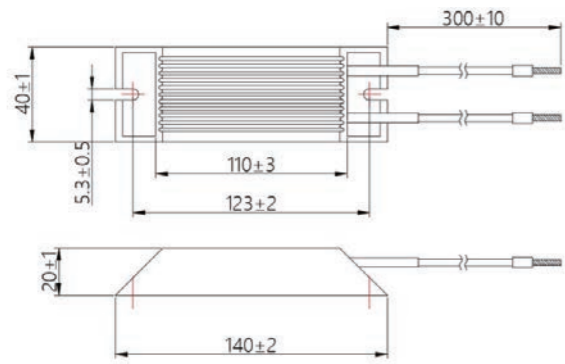
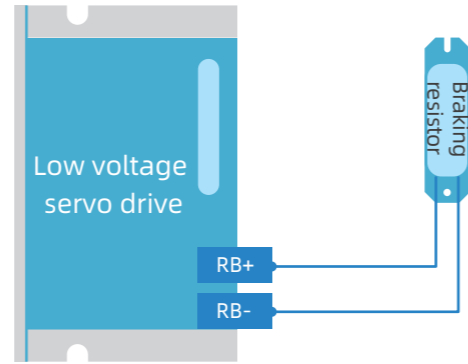
24V

Motor model	Rated power (W)	Rated voltage (V)	Rated speed (rpm)	Max. speed (rpm)	Rated current (A)	Peak current (A)	Rated torque (N.m)	Peak torque (N.m)	Rotor inertia (Kg.m ² ×10 ⁻⁴)	Net weight (Kg)	Electromagnetic brake suction current(A)	Electromagnetic brake suction time (ms)	Electromagnetic brake static torque (N.m)	Feedback element	
V7E-L06E-R4030-#1 Δ	400	24	3000	4000	21.2	63.6	1.27	3.81	0.34	1.4				Single-turn 17bit absolute value	
V7E-L06E-R4030-#2 Δ								0.36	1.8	0.42	60	1.5			
V7E-L06E-R6030-#1 Δ	600				31.6	94.8	1.91	5.73	0.51	1.8					
V7E-L06E-R6030-#2 Δ								0.53	2.1	0.42	60	1.5			
V7E-L08E-R7530-#1 Δ	750				38	114	2.38	7.14	1.02	2.6					
V7E-L08E-R7530-#2 Δ								1.13	3.3	0.44	100	3.8			

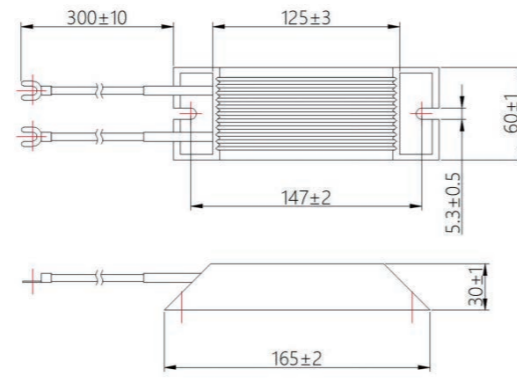
Note: "#" above means 17-bit single-turn absolute encoder (Q) or 17-bit multi-turn absolute encoder (R);
 Δ above means the motor outlet type U or Y.

Brake Resistor Selection

The braking resistor resistance value and power mentioned in the following table are approved according to the common inertia load and intermittent braking mode. If it is necessary to use in the occasions of large inertia or frequent braking for a long period of time, please adjust the braking resistor resistance value and resistor power according to the specifications of the selected drive and the rated parameters of the braking unit. Please consult with the customer service department of Veichi Electric Ltd. if any questions. When external regenerative resistor is connected, connect the resistor to RB+ and RB- terminals, and the wiring reference diagram is shown on the right.



Dimension 1

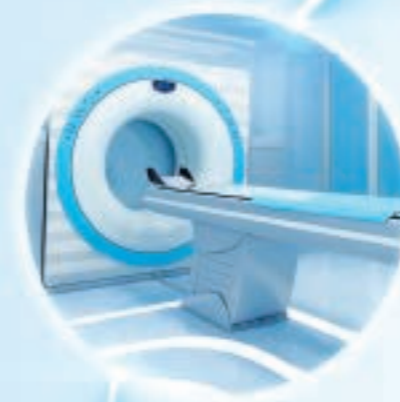


Dimension 2

Motor power (KW)	Installation dimension	Resistance value (Ω)	Resistance power (W)
200-400W	Dimension 1	10	100
600-750W	Dimension 1	5	100
1000-1500W	Dimension 2	5	200

Application

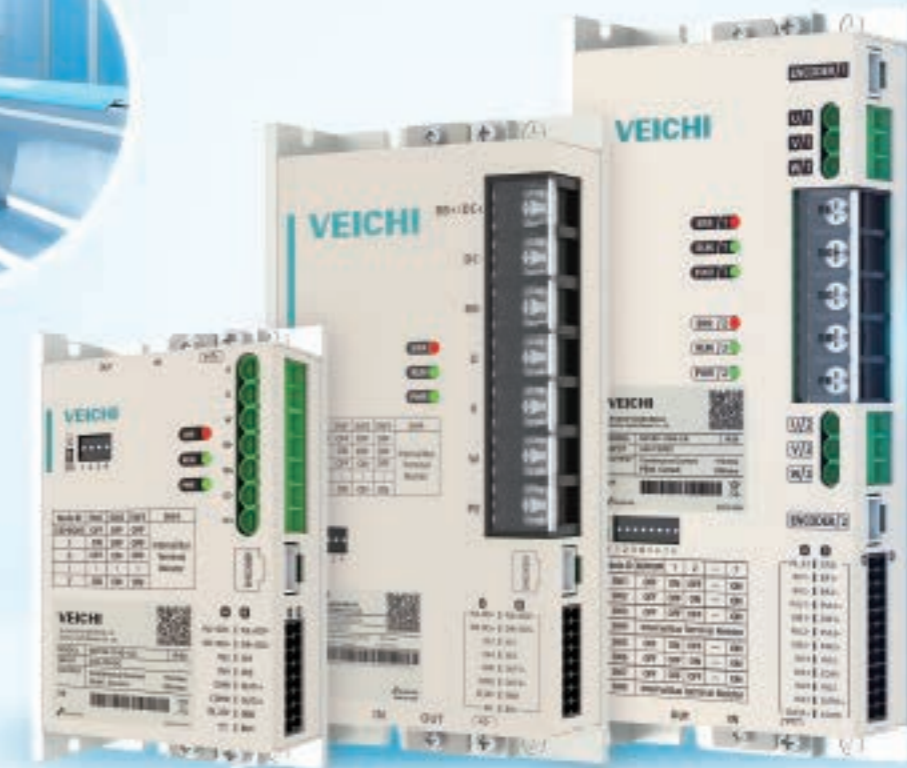
• Medical devices



• Robots
(mobile robots/service robots/
specialized robots)



• Logistics sorting lines



SD100 Series
Low-voltage Servo System

Manufacturing and Quality Control

Smart manufacturing with whole-process automation

- > On intelligent manufacturing ,the smart factory yields an annual capacity of 914,600 sets;
- > Fully automatic SMT production line, automatic coating line, assembly line, testing line, packaging line, high temperature aging room and advanced production equipment are established;
- > Enterprise production is implemented with target management and is operated in strict accordance with the production process and management methods, which greatly improves the production efficiency.
- > Complete supply chain system meets the large volume of one-time delivery.

Inheriting the spirit of craftsmanship, detail-oriented and striving for better

- > Insist on the quality policy and concept of quality first.
- > Procurement, design, manufacturing and other aspects all implemented in strict accordance with the requirements of the ISO9001 quality management system.
- > Talents create high quality, the production line core positions are occupied by 100% college degrees and above.
- > Each product has a unique product code, which can be used in the product traceability system to ensure quality can be controlled and traced.



ISO9001:2015
ISO14001:2015
ISO45001:2018



CE certification
for full series



3C certification
for specialized
products



RoHS 2.0 for
customized
products



AAA Certification
for Measurement
Management
System

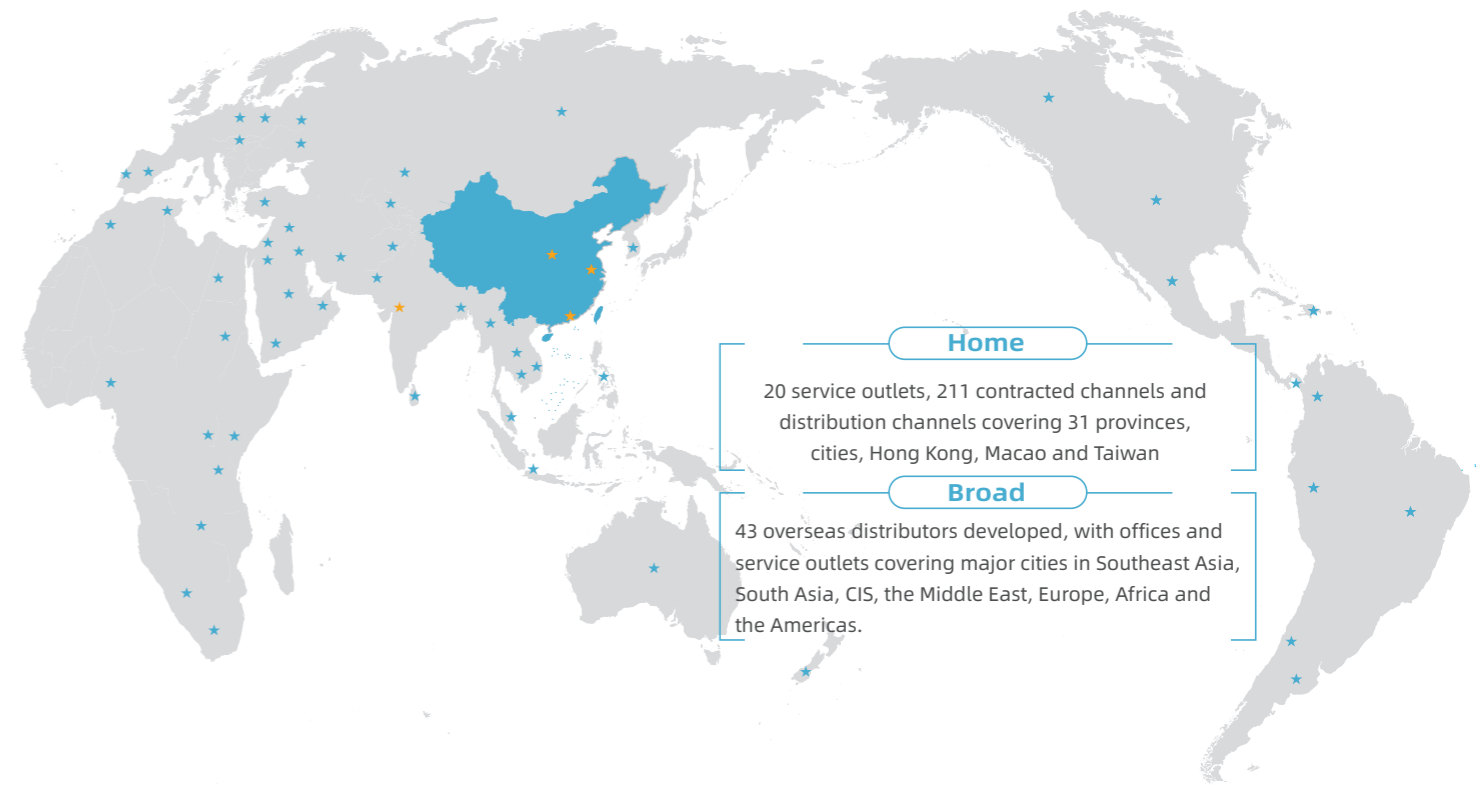


Five-star
certification
for after-sales
service



QC080000
Management
System

Service and Support



01

Pre-sales
technology promotion,
site survey, proposal design,
energy saving assessment

02

During-sales
customization, design
consultation,
installation and
commissioning,
on-site training

03

After-sales
regular return visits,
regular maintenance,
timely repairs,
application instruction

