

IHTEK
by Huayuan Electric



Official website

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IHTEK

S1 Series Vector Inverter

Small size, excellent performance, meeting higher requirements



www.huayuan-elec.com

HuaYuan Electric

Huayuan Electric is a branch company of Beijing Huayuan Group; Specialized in developing, manufacturing, selling of industrial automatic products, also committed to provide excellent integrated solutions!

As a new-rising force in high-tech area in Huayuan Group, Huayuan Electric is in accordance with Huayuan Group' s spirit 'Tenacity, Unity, exploration, Struggle' , taking up the mission of improving national industry automation progress, upholding the design & development of Independent intellectual property rights, working hard at domestic market, established famous brand in this industry, and expanding our business in international market. Huayuan Electric determined to be a reliable partner to constantly create value for customers & users.

Products covered: Variable-frequency Drive, Servo Drives, UPS, which are widely applied to machine tools, package, textiles, ceramic, mine, food, chemical, transfer, data center, etc.

Huayuan Electric obtained many patents after established, including over 10 patents of invention; over 20 patents of appearance design, over 80 patents of utility model, fully demonstrating our innovative ability and providing a strong technical support for product promotion.



Product introduction

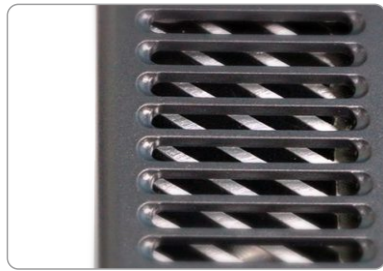
IHTEK S1 series Vector Inverter is developed by HuaYuan based on the market requirement on small-power and size general inverter, mainly used to drive single-phase 220V or three-phase 380V motor, with power range of 0.4 kW – 4.0 kW.

S1 series inverter has many advantages, such as high space utilization ratio, strong protective capability, full protection function, excellent performance, abundant functions and strong expansibility. It is widely used in woodworking engraving, metal processing, food packaging, conveying, automatic production line, centrifugal machine and other small-size mechanical equipment.



Product details

Top heat emission hole
Independent air outlet



Decoration holes

The symmetric position at the right of heat emission hole for modeling unification

Decoration middle frame

High glazed surface treatment, sharp contrast to fine etching pattern of housing, reflecting its high quality and elegancy.

Heat emission hole

Used for natural heat dissipation of control panel and driver board.

Keypad and hand position

Keypad disassembly and assembly can be easily achieved only through pressing the spring arm at the right of keypad.

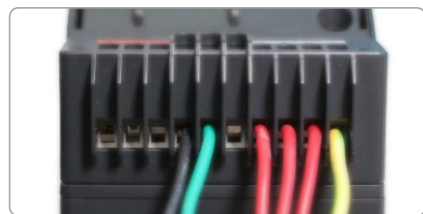


Nameplate

Black plastic, integrated with the appearance of product, showing product parameters, serial number and other information.

Connected to the terminal of main circuit

Fence is designed to promote insulation between terminals of main circuit for insulation protection.



Fan housing

Inbuilt 24V DC high-speed protective fan



Wall mounting hole
Make wall mounting type installation easy

Keypad
High precision and comfortable manipulation

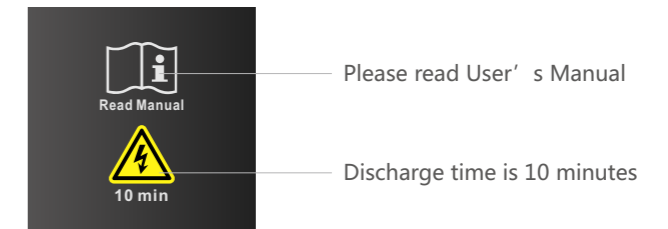


Screw of terminal cover
Necked plating of M4 45 steel
Protection grade of entire machine IP 20

LOGO
240-mesh high-precision silk screen printing

Terminal cover
Open it to wire the terminal of control circuit and main circuit

Warning identification
Warning information the user should read before use



Right heat emission hole
Promote natural heat dissipation of capacitance and other electrical elements

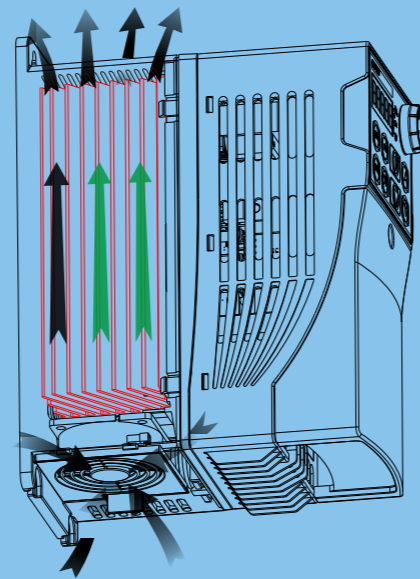
Mounting dimension
Mounting dimension and screw specifications are etched at the plastic back to instruct installation.



Product feature

Independent air duct

- Completely independent air duct
- Real electric isolation and pollutant isolation
- Long-term reliable running in severe environment



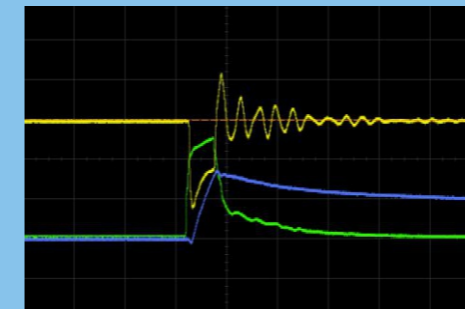
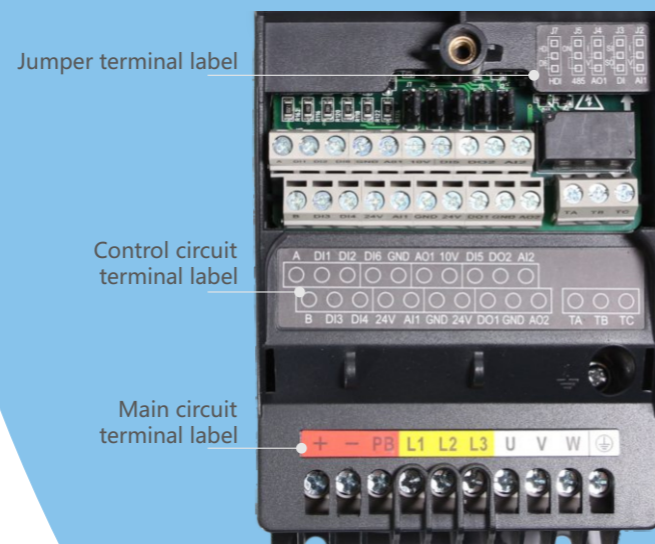
Compact design

- Small size
- Compact structure
- Book-shaped design
- Save installation space for customer

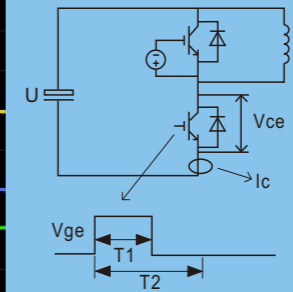


"Fool-proof" terminal wiring design

- Improve visualization of operation
- Effectively prevent misoperation



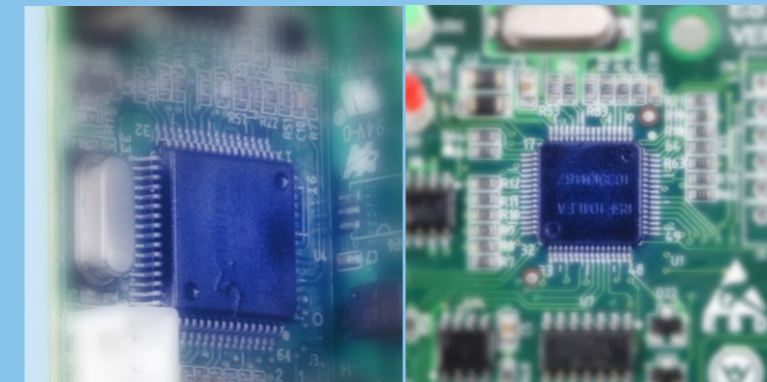
Monopulse short circuit test wave form



Protection function

Abundant functions, effectively protect the safety and stability

- Overcurrent protection on three-phase output side
- Overvoltage protection
- open-phase protection
- short circuit to ground protection
- Overcurrent protection at bus
- overload protection
- overheat protection



Function module

Performance module

Double CPU

- Double CPU, high-speed effective communication
- Perfect integration of function and performance
- Abundant resource, further enhance the expansibility

Impeccable I/O interface

- 6 groups of DI
- 2 groups of DO
- 2 groups of AI
- 2 groups of AO
- 1 group of relay
- 2 groups of power supply
- 1 group of communication interfaces



Product function

- ⊙ Perfect combination of usability and functionality
- ⊙ Free programming function at input and output terminals
- ⊙ Powerful programmable function platform for secondary development by customer

Inbuilt enhanced function module

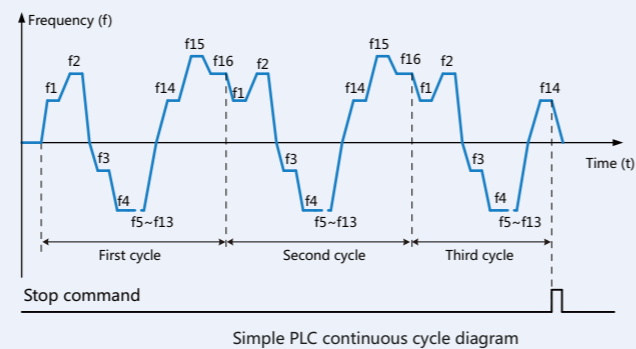
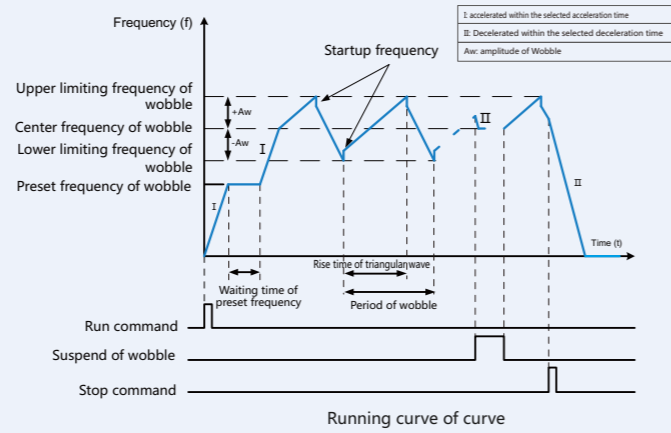
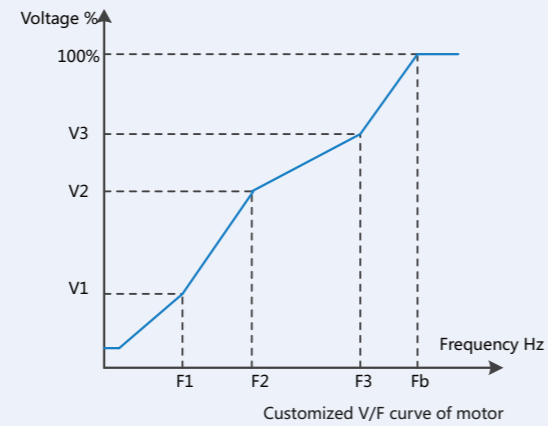
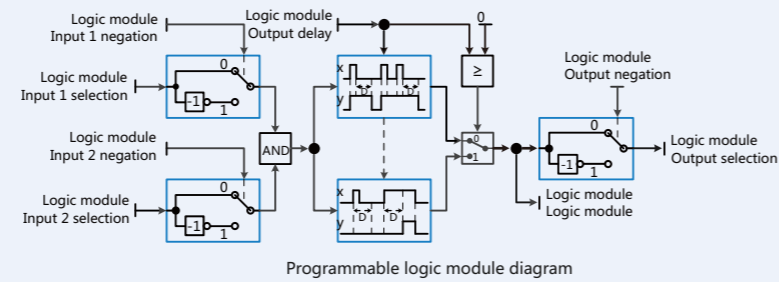
- 2 logic modules
- 2 comparison modules
- 3 operation modules
- braking logic module

- ⊙ Inbuilt electricity meter, the customer is easy to calculate energy-saving effect
- ⊙ Carrier with automatic voltage regulation (AVR)
- ⊙ Automatic frequency regulation, speed tracking start
- ⊙ Support DC braking during start/stop
- ⊙ Hopping frequency control function
- ⊙ Optional stop mode during power failure
- ⊙ Optional hot-plug and hot-unplug function of keypad
- ⊙ Support MODBUS-RTU communication protocol

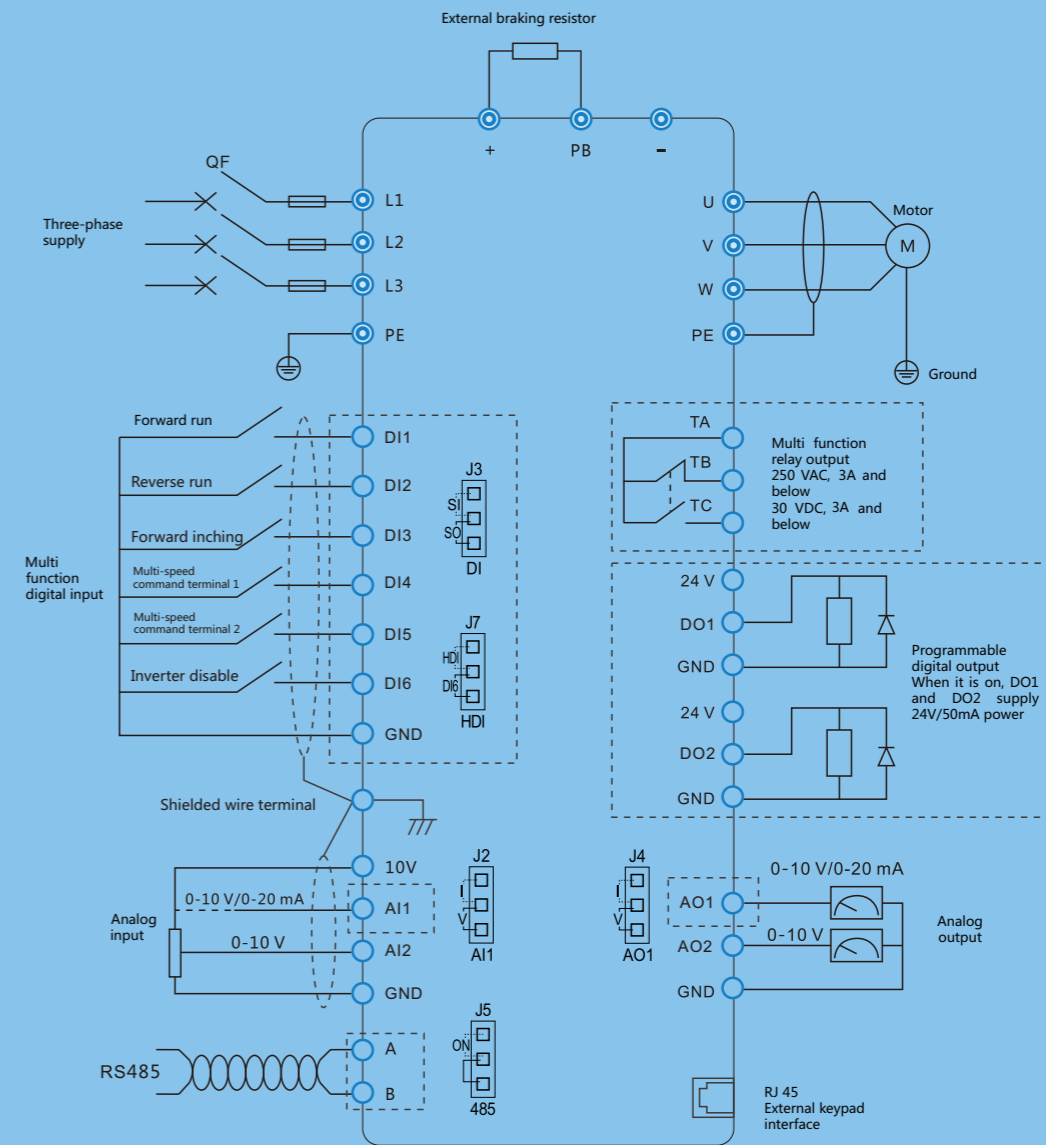
- ⊙ Multi-speed selection precedence, 16-speed running
- ⊙ Simple PLC function
- ⊙ PID control
- ⊙ Customized V/F curve

- Customized three-point curve
- 1.2 power curve
- 1.7 power curve
- 2.0 power curve

- ⊙ Auto waking function
- ⊙ Wobble frequency
- ⊙ Pulse counting
- ⊙ Fixed length control



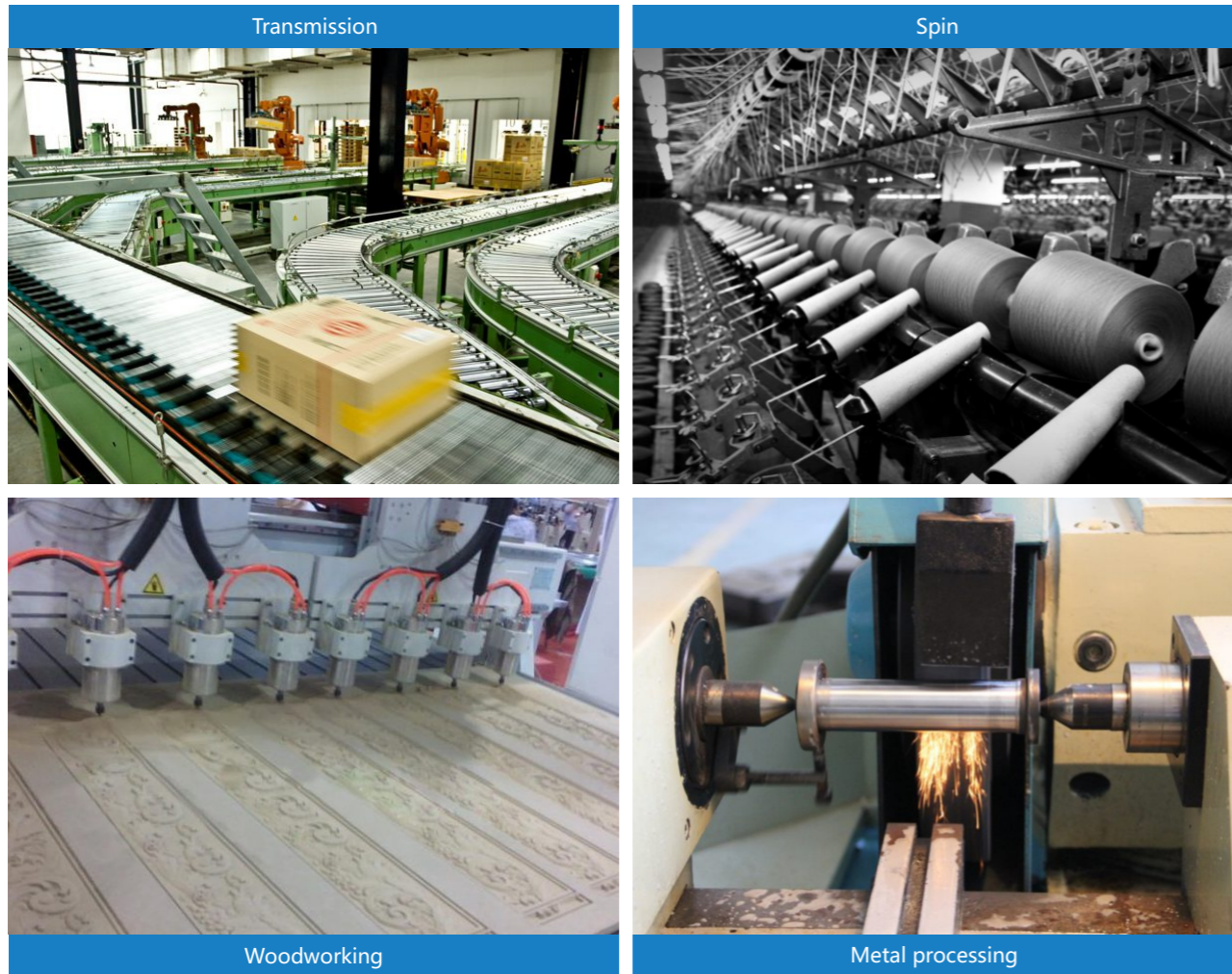
System wiring diagram



Remark:
 Jumper J2: AI1 analog input, select from 0-10V, 0-20mA;
 Jumper J3: multi function digital input "sink" or "source" selection
 Jumper J4: AO1 analog output, select from 0-10V, 0-20mA;
 Jumper J5: RS 485 terminal resistor selection;
 Jumper J7: DI6 terminal high-speed pulse selection

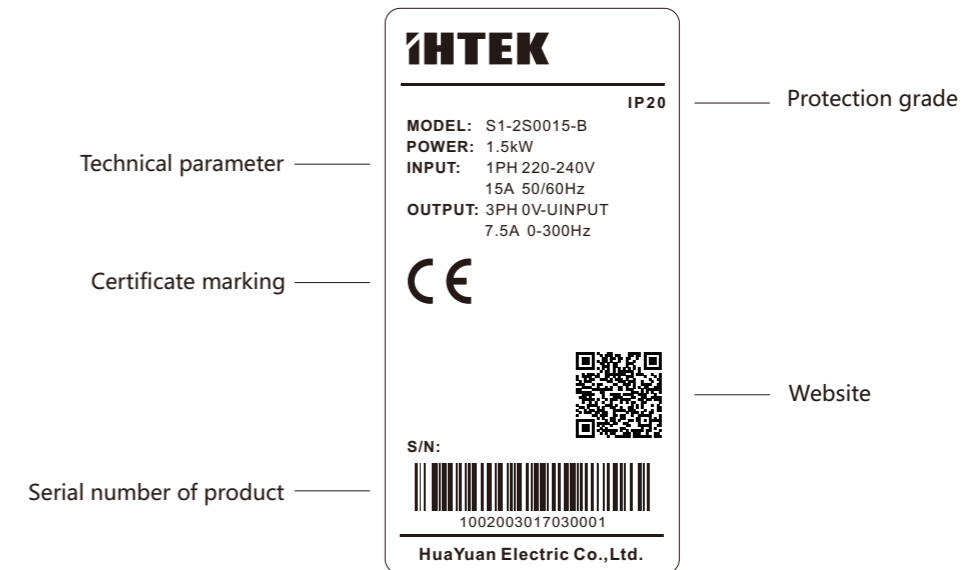
Industry application

Widely used in woodworking engraving, metal processing, food packaging, conveying, automatic production line, centrifugal machine and other small-size mechanical equipment.

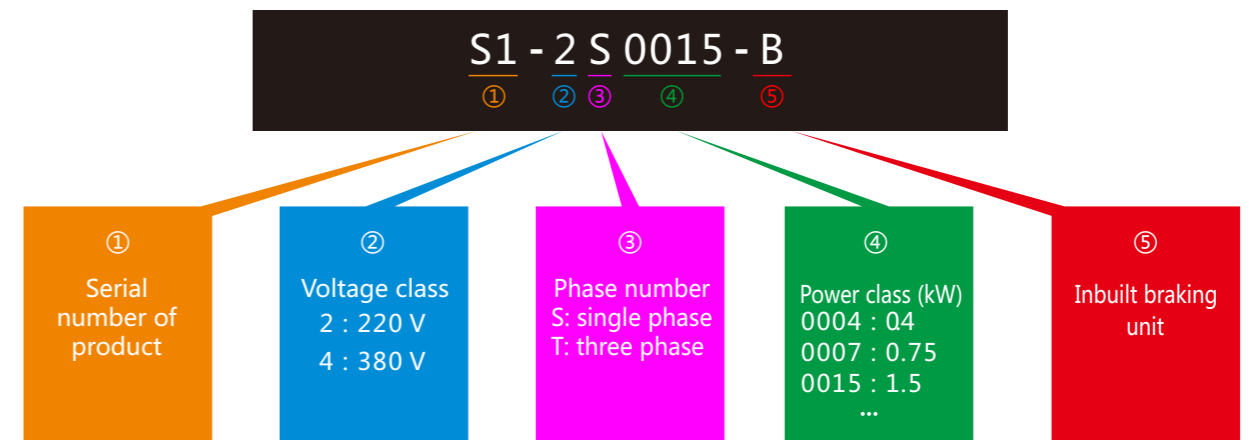


Nameplate and model description

Content of nameplate



Model description



Detailed technical specifications

Item		Specification
Input	Rated voltage	2S : 200 ~ 240V 4T : 380 ~ 480V
	Frequency	48 ~ 62Hz
Output	Voltage	0V ~ UINPUT
	Frequency	0 ~ 300Hz
	Current overload capacity	150% ~ 60s(±5%) 180% ~ 3s
Control characteristics	Control mode	V/F control, open loop vector control (SVC)
	Carrier frequency	1 ~ 15kHz
	Speed range	1:100(SVC) 1:50(V/F)
	Starting torque	0.5Hz : 100% , 1Hz : 150%(SVC)
	Frequency resolution	Digital setting 0.01 Hz Analog setting 0.1% × max frequency
	Output frequency precision	Digital setting 0.01 Hz Analog setting 2% × max frequency
	Acceleration/deceleration time	0-3600s, of which the unit can be set as second (default) or minute
	Torque compensation	0.0 ~ 30.0%
	V/F curve	Customized V/F curve and 3 decreased torque characteristic curve (2.0 power, 1.7 power, 1.2 power)
	Basic function	DC braking
Dynamic braking		Usage rate: 0.0 -100.0% DC voltage value: 200V: 350 – 390V 380V: 650 -780V
Inching function		Frequency range: 0.00 – max frequency Acceleration/deceleration time: 0.1 -600.0s Interval time: 0.1 – 600.0s
Multi-speed running		16-speed running achieved through control terminal
Auto voltage regulation (AVR)		Automatically keep a constant output voltage when the grid voltage varies within a certain range
MODBUS communication		Standard MODBUS communication protocol for fast communication with peripherals
Special function	Wobble	Wobble with adjustable center frequency
	Simple PLC	16-speed simple PLC control function
	Fixed length control	Fixed length setting control
	Inbuilt PID	Be easy to form a closed-loop control system
	Enhancements	Two programmable logic modules, a programmable binary / decimal conversion module, two programmable comparison modules, three programmable arithmetic operation modules for secondary development by customer
Input and output function	Frequency setting mode	Keypad setting, potentiometer setting, multi-speed setting, analog setting, communication setting, optional
	Running command channel	Keypad setting, external terminal setting, communication setting
	Digital input terminal	6 digital input terminals, DI1-DI6, "sink" or "source" can be selected DI6 can be used as high-speed pulse input terminal, max frequency 50 kHz
	Digital output terminal	2 programmable digital output terminal, DO1 and DO2, max output current: 50mA DO2 can be used as high-speed pulse output terminal, max frequency 50 kHz
	Analog input terminal	2 analog input terminal, AI1: 0-10V or 0-20mA, optional; AI2: 0-10V
	Analog output terminal	2 analog output terminal, AO1: 0-10V or 0-20mA, optional; AO2: 0-10V
	Relay output	A programmable relay output, AC250V/3A (COSφ =1) AC250V/1A (COSφ =0.4) DC30V/3A

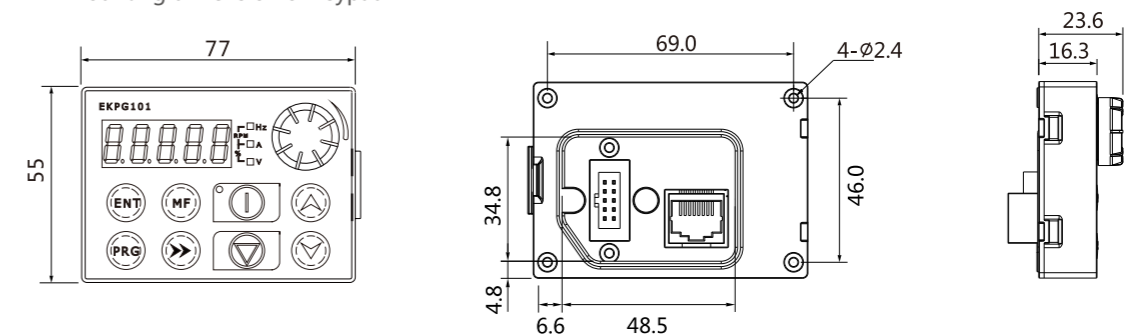
Technical parameter

Voltage class	Model	Rated capacity (kVA)	Rated input current (A)	Rated output current (A)	Adaptive motor (kW)
Single phase 220V	S1-2S0004 (-B)	0.9	6	2.5	0.4
	S1-2S0007 (-B)	1.5	9.5	4	0.75
	S1-2S0015 (-B)	2.8	15	7	1.5
	S1-2S0022 (-B)	4.1	25	10	2.2
	S1-2S0040 (-B)	6.4	40	17	4.0
Three phase 380V	S1-4T0007 (-B)	1.7	3.2	2.5	0.75
	S1-4T0015 (-B)	2.6	5	4	1.5
	S1-4T0022 (-B)	3.4	7	5.2	2.2
	S1-4T0040 (-B)	5.9	11	9	4.0
	S1-4T0055 (-B)	8.5	15	13	5.5
	S1-4T0075 (-B)	11.1	20	17	7.5

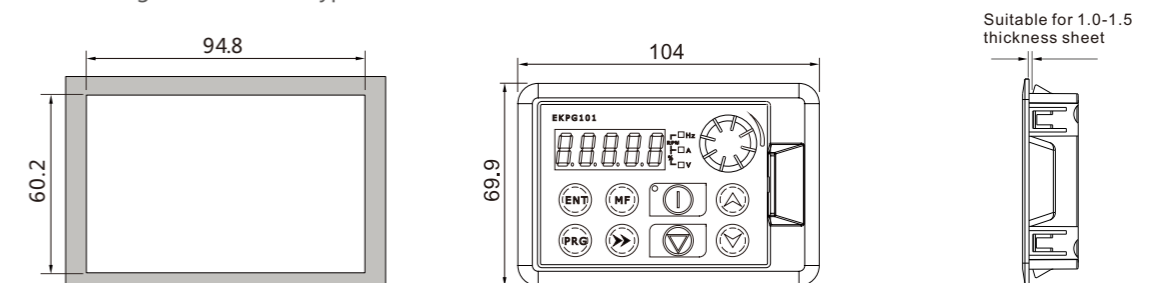
Mounting dimension of keypad

(Unit: mm)

Mounting dimension of keypad



Mounting dimension of keypad base

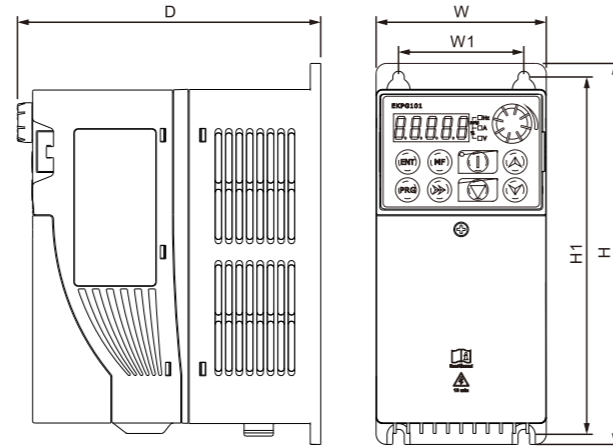


Mounting dimension of inverter

(Unit: mm)

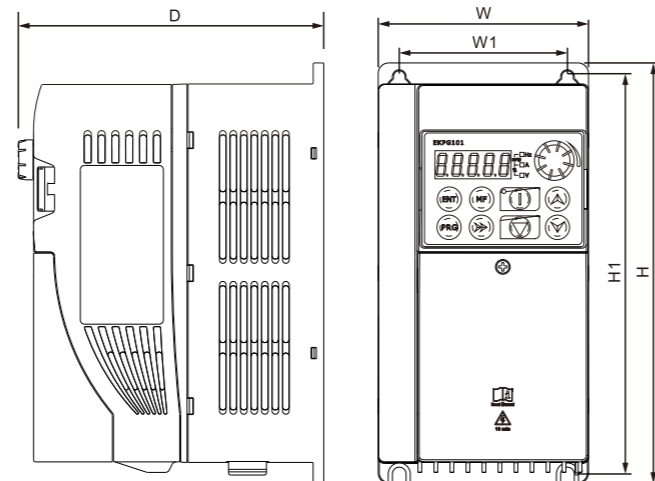
Models for size A:

S1-2S0004(-B)~S1-2S0015(-B)
S1-4T0007(-B)~S1-4T0022(-B)



Models for size B:

S1-2S0022(-B)
S1-4T0040(-B)



Models for size C:

S1-2S0040(-B)
S1-4T0055(-B)
S1-4T0075(-B)

Model (single phase 220V)	Model (three phase 380V)	W1 (mm)	W (mm)	H1 (mm)	H (mm)	D (mm)	Applicable screw
S1-2S0004 (-B)	—	60	81.5	171.5	182.5	145	M5
S1-2S0007 (-B)	S1-4T0007 (-B)						
S1-2S0015 (-B)	S1-4T0015 (-B)						
—	S1-4T0022 (-B)	80	100	189	200	145	M5
S1-2S0022 (-B)	—						
—	S1-4T0040 (-B)	85	110	230	240	158	M5
S1-2S0040 (-B)	—						
—	S1-4T0055 (-B)						
—	S1-4T0075 (-B)						

Sales and service network



Vision: To be the globally leading supplier for products of industrial automation and integrated solutions!

Mission: Focus on customer demand to create competitive advantage for customer
Expand employee potential to create development space for employee.

Spirit: Tenacity, unity, exploration, struggle

Core values: Be responsible, cooperative, innovative, and win-win.