# **SINOVO**





**SINOVO** 

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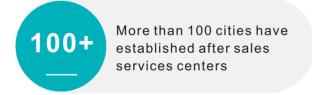
# SINOVO QUALITY PROFESSIONAL QUALITY





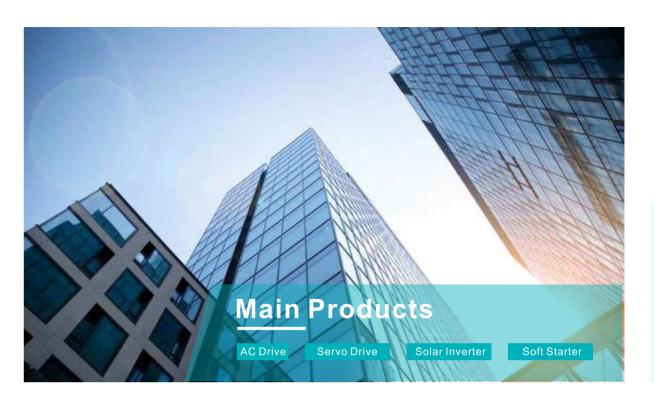






# SINOVO, established in 2006. It is a national high-tech enterprise integrating R&D, production, sales and service.

- With more than 200 employees, one third of them are R& D engineers.
- Shenzhen R& D/ sales headquarters, with 8000 square meters factory in heyuan. More than 30 main cities have established offices, over 100 cities have after- services center.
- The products sell to all over the world. Main market is Europe, Asia, America and Africa.



## Quality

- National high- tech enterprise
- Post- doctoral innovation practice base Shenzhen software enterprise

#### Achievement

- Obtained more than ten financial incentives and policy support for energy conservation and environmental protection, technology development, advanced manufacturing, etc. from Shenzhen City and Baoan District Governments
- Applied more than 30 invention patents, utility model patents, appearance patents, software copyrights, etc. with the State Intellectual Property Office.

### Corporate Culture

- Spirit:
- We are honest and devoted
- Service Objective:
- We believe in customer first, let's work hand in hand for win win cooperation
- Vision:

We delicate ourself to becoming globally leading & trustworthy supplier in industrial automation and new energy field.

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## SD600 Series SINOVO

Based on many years of research and development technology achievements and market feedback, SD600 series AC Drive have been fully upgraded in terms of structure, hardware and software on the basis of the excellent previous work.

#### High Power Density:

The structure design layout is more compact;

#### High Quality:

The hardware design and component s selection are more optimized and reasonable;

#### High Performance:

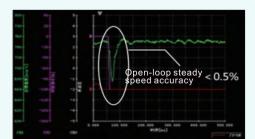
The software upgrade is more compatible with the end user, industrial control is more flexible, accurate, and the performance is stronger, and it is more suitable for precision control occasions with higher requirements for torque, control accuracy, and response speed;

#### Optimize Products User Experience :

Easy operation, maintainability, environmental protection, scalability and convenience of Internet of Things access;

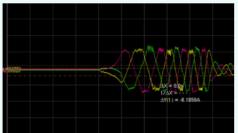
## **✓**

## **High Performance**



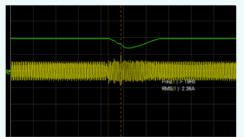
## 1. High Speed Stability and Precision

 $\pm 0.5\% (SVC), \pm 0.02\% (FVC)$  VC dynamic speed stability accuracy (speed anti-load disturbance): 0.103%s



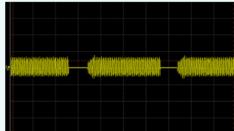
#### 2. Fast Current Limit

The Drive has a combination of software and hardware fast current limiting functions. When it detects that the current of each phase is more than the limit value, it quickly completes the wave-by-wave current limiting control to avoid over-current faults.



## 3. Instant Power Failure Without Stopping

When the power failure instantly, the Drive realizes generation feedback by reducing the operating frequency and maintains the stability of the bus voltage. When the grid input is normal, it returns to normal operation.



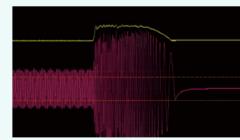
#### 4. Fast Rotary Speed Tracking

The Drive completes the speed tracking of the shaft of the high-speed rotating motor within 300ms, realizing fast and smooth start.



## 5. Excellent Low Frequency Torque Control

0.5HZ applied load during smooth operation

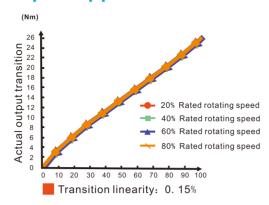


#### **6. Overexcitation Function**

There is no need to add external braking resistors and other components to achieve rapid braking effect, which can effectively suppress the rise of bus voltage during deceleration, avoid frequent overvoltage faults, and cooperate with the software's overvoltage suppression algorithm to meet rapid shutdown.

#### Large Torque at Low Speed, Small Torque Ripple

In closed-loop vector mode, the linearity deviation of the torque straight line is within 3%. The torque output is stable, the low-frequency torque is large, and it can realize the stable load operation at an ultra-low speed of 0.01Hz. The torque mode and the speed mode can be easily switched.



#### **Over Voltage and Current Control**

#### Over - voltage Stalled

In the deceleration process, by adjusting the output frequency, avoid excessive deceleration that causes the motor to generate too much power, which may cause over voltage on the main branch bus of the Drive.



#### Over - current Stalled

During the acceleration process, by adjusting the output frequency, avoid excessive acceleration caused by excessive load, which may cause a large over current of the inverter.

#### Multiple Application Functions

| Improved V/F   | SVC                      | SVC FVC |  |  | MODBUS\ CAN\ CAN open\ Profi Bus |                        |  |
|--|--------------------------|---------|--|--|----------------------------------|------------------------|--|
|  |                          |         |  |  |                                  |                        |  |
| Multi-speed control  | I/O optional card        |         |  |  | switch 1st and 2nd commands      |                        |  |
|  |                          |         |  |  |                                  |                        |  |
| Parameter copy Speed search start Accurate self-identification |                          |         |  |  | ification                        | Frequency binding      |  |
|  |                          |         |  |  |                                  |                        |  |
| Function code display hidden function PID FDI                  |                          |         |  |  | S curve Power down and restart   |                        |  |
|  |                          |         |  |  |                                  |                        |  |
| Outstanding weak magnetic field control V/F separation control |                          |         |  |  |                                  | Overexcitation braking |  |
|  |                          |         |  |  |                                  |                        |  |
| DC braking   | Current limit protection |         |  |  |                                  | Stalled protection     |  |
|  |                          |         |  |  |                                  |                        |  |
| Motor thermal protection Counting function                     |                          |         |  |  |                                  |                        |  |

## Advanced Design

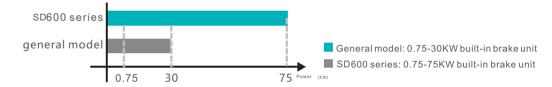
#### Over Voltage and Current Control

Long lifespan component selection and refined design ensured the good quality of the products.

Stabilize the automatic spraying process of the three- proof paint, increase the environmental resistance of the veneer, and comprehensively improve the protection of the veneer.



#### Perfect DC Braking Circuit Scheme

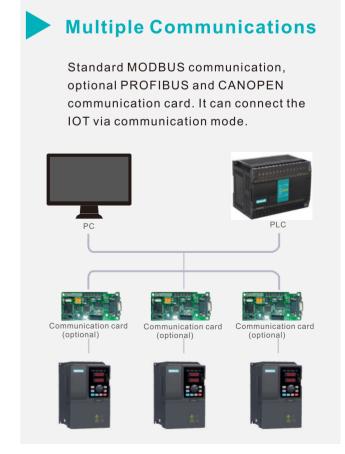


0.75kW~75kW built-in brake unit Strong braking ability: The short-term braking ability can reach 1.1~1.4 times the rated power of the Drive, and the braking protection is more comprehensive and intelligent.

## Perfect DC Braking Circuit Scheme

All models with standard DC power supply terminals





#### Rich Scalability

Various function expansion cards, IO cards, relay output cards, and various PG cards can be selected according to requirements to match various encoders, communication expansion cards, etc. Can be customized according to demand.













#### **High-Performance Keypad**

#### **High- performance Keypad( standard)**

Double- row LED display, convenient for parameter monitoring;

With parameter copy and upload functions



#### LCD Keypad (optional)

Full display of each parameter description, Support multilingual;

With parameter copy and upload functions





## **✓**

## Reasonable Structural Design



## 1. Independent Air Duct Design

It prevent pollutants from entering the electronic component, effectively improve the protective level of Drive, so as to adapt to the various complex and harsh application environment. It improve the reliability of the product and extend the inverter lifespan;

The independent air duct effectively solves the large heat dissipation problem in the control cabinet, which is convenient for customers' electrical cabinet heat dissipation design.

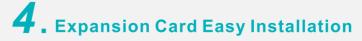
## 2. Advanced Thermal Simulation Technology

In structural design, with the introduction of thermal simulation technology has improved, the overall power density of the drive ensures the heat dissipation of the whole machine



## **3.** Easy Installation

Protruding treatment of mounting holes, It provides convenience for customers' installation.



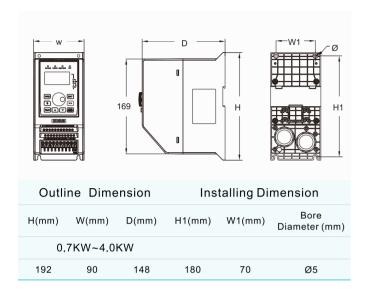
Customers can choose expansion cards according to their demand, It can be quickly installed to the reserved position of the Drive; Compatible with a variety of cards, customers can choose according to their demand

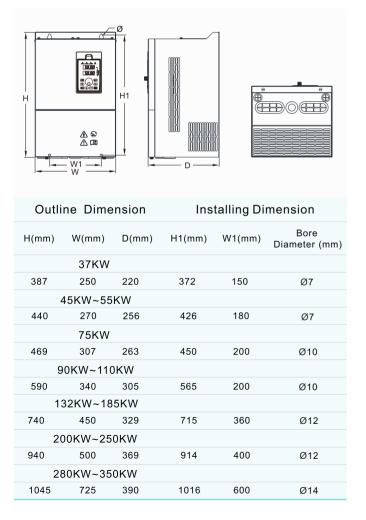


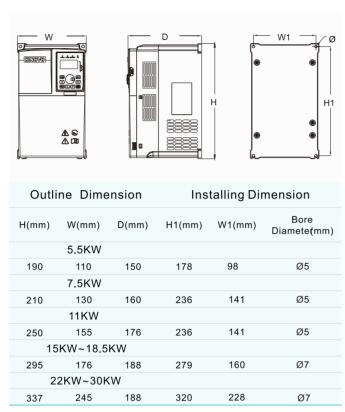
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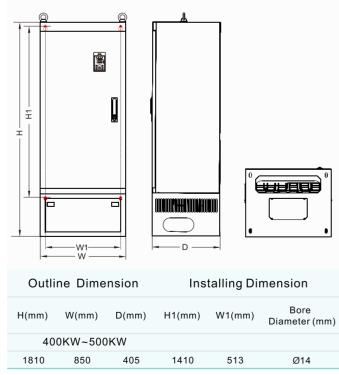
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## **Outline and Installing Dimension**



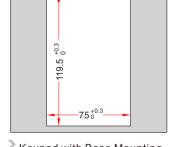


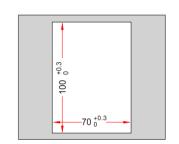




## The Installing Dimension Size of the External Keypad (the maximum external length can reach 100 meters)







Keypad Installation Structure Size

Keypad with Base Mounting Hole Size Drawing

Keypad Without Base Installation Cut-out Size Diagram

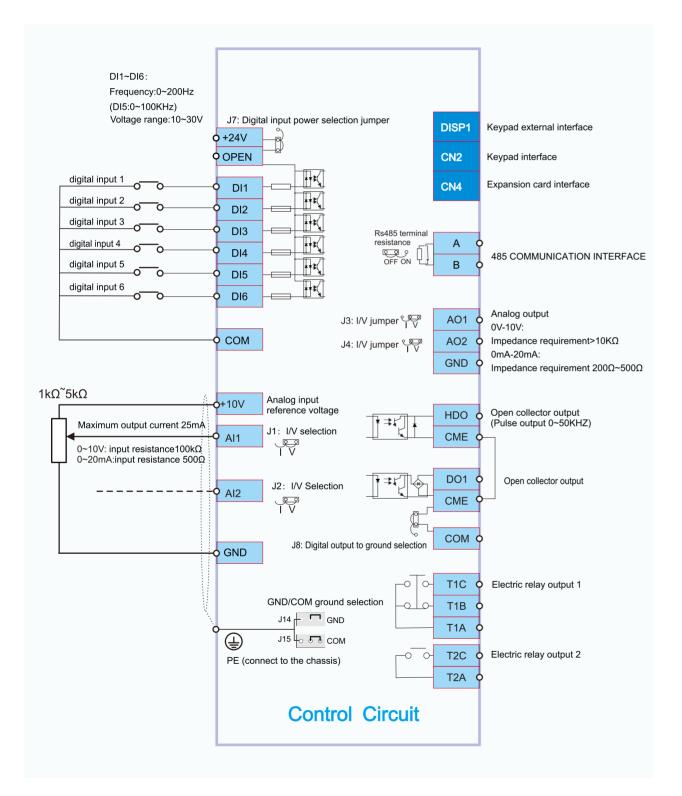
## Technical Data

| Model  |
|--|
| SD600-2S-0.7G         1.5         8.2         4.7         0.75         SD600-4T-30G         40         62.5         60         30           SD600-2S-1.5G         4.0         23.0         10.0         2.2         SD600-4T-37G         57         76         75         37           SD600-2S-2.2G         4.0         23.0         10.0         2.2         SD600-4T-45G         69         92         91         45           SD600-2T : 0.7KW-2.2KW 3 phase 220V 50/60Hz         SD600-4T-55G         85         113         112         555           SD600-2T-0.7G         1.5         5.5         4.7         0.75         SD600-4T-55G         85         113         112         555           SD600-2T-1.5G         3.0         7.7         7.5         1.5         SD600-4T-90G         134         180         176         90           SD600-2T-2.2G         4.0         12.0         12.0         2.2         SD600-4T-10G         134         180         176         90           SD600-4T-0.7G         1.5         3.4         2.3         0.75         SD600-4T-110G         160         214         210         110           SD600-4T-0.7G         1.5         3.4         2.3         0. |
| SD600-2S-1.5G       4.0       23.0       10.0       2.2       SD600-4T-37G       57       76       75       37         SD600-2S-2.2G       4.0       23.0       10.0       2.2       SD600-4T-45G       69       92       91       45         SD600-2T: 0.7KW-2.2KW 3 phase 220V 50/60Hz       SD600-4T-55G       85       113       112       555         SD600-2T-0.7G       1.5       5.5       4.7       0.75       SD600-4T-75G       114       157       150       75         SD600-2T-1.5G       3.0       7.7       7.5       1.5       SD600-4T-90G       134       180       176       90         SD600-2T-2.2G       4.0       12.0       12.0       2.2       SD600-4T-110G       160       214       210       110         SD600-4T: 0.7KW-500KW 3 phase 380V SD600-4T: 50/60Hz       SD600-4T-132G       192       256       253       132         SD600-4T-0.7G       1.5       3.4       2.3       0.75       SD600-4T-160G       231       307       304       160         SD600-4T-1.5G       3.0       5.0       3.7       1.5       SD600-4T-200G       287       380       377       200         SD600-4T-2.2G       4.0       <  |
| SD600-2S-2.2G       4.0       23.0       10.0       2.2       SD600-4T-45G       69       92       91       45         SD600-2T : 0.7KW-2.2KW 3 phase 220V 50/60Hz       SD600-4T-55G       85       113       112       555         SD600-2T-0.7G       1.5       5.5       4.7       0.75       SD600-4T-75G       114       157       150       75         SD600-2T-1.5G       3.0       7.7       7.5       1.5       SD600-4T-90G       134       180       176       90         SD600-2T-2.2G       4.0       12.0       12.0       2.2       SD600-4T-110G       160       214       210       110         SD600-4T: 0.7KW-500KW 3 phase 380V SD600-4T: 50/60Hz       SD600-4T-132G       192       256       253       132         SD600-4T-0.7G       1.5       3.4       2.3       0.75       SD600-4T-160G       231       307       304       160         SD600-4T-1.5G       3.0       5.0       3.7       1.5       SD600-4T-185G       255       333       330       185         SD600-4T-2.2G       4.0       5.8       5.1       2.2       SD600-4T-200G       287       380       377       200  |
| SD600-2T : 0.7KW-2.2KW 3 phase 220V 50/60Hz         SD600-4T-55G         85         113         112         555           SD600-2T-0.7G         1.5         5.5         4.7         0.75         SD600-4T-75G         114         157         150         75           SD600-2T-1.5G         3.0         7.7         7.5         1.5         SD600-4T-90G         134         180         176         90           SD600-2T-2.2G         4.0         12.0         12.0         2.2         SD600-4T-110G         160         214         210         110           SD600-4T: 0.7KW-500KW 3 phase 380V SD600-4T: 50/60Hz         SD600-4T-132G         192         256         253         132           SD600-4T-0.7G         1.5         3.4         2.3         0.75         SD600-4T-160G         231         307         304         160           SD600-4T-1.5G         3.0         5.0         3.7         1.5         SD600-4T-185G         255         333         330         185           SD600-4T-2.2G         4.0         5.8         5.1         2.2         SD600-4T-200G         287         380         377         200   |
| SD600-2T-0.7G         1.5         5.5         4.7         0.75         SD600-4T-75G         114         157         150         75           SD600-2T-1.5G         3.0         7.7         7.5         1.5         SD600-4T-90G         134         180         176         90           SD600-2T-2.2G         4.0         12.0         12.0         2.2         SD600-4T-110G         160         214         210         110           SD600-4T: 0.7KW-500KW 3 phase 380V SD600-4T: 50/60Hz         SD600-4T-132G         192         256         253         132           SD600-4T-0.7G         1.5         3.4         2.3         0.75         SD600-4T-160G         231         307         304         160           SD600-4T-1.5G         3.0         5.0         3.7         1.5         SD600-4T-185G         255         333         330         185           SD600-4T-2.2G         4.0         5.8         5.1         2.2         SD600-4T-200G         287         380         377         200   |
| SD600-2T-1.5G         3.0         7.7         7.5         1.5         SD600-4T-90G         134         180         176         90           SD600-2T-2.2G         4.0         12.0         12.0         2.2         SD600-4T-110G         160         214         210         110           SD600-4T: 0.7KW-500KW 3 phase 380V SD600-4T: 50/60Hz         SD600-4T-132G         192         256         253         132           SD600-4T-0.7G         1.5         3.4         2.3         0.75         SD600-4T-160G         231         307         304         160           SD600-4T-1.5G         3.0         5.0         3.7         1.5         SD600-4T-185G         255         333         330         185           SD600-4T-2.2G         4.0         5.8         5.1         2.2         SD600-4T-200G         287         380         377         200  |
| SD600-2T-2.2G       4.0       12.0       12.0       2.2       SD600-4T-110G       160       214       210       110         SD600-4T: 0.7KW-500KW 3 phase 380V SD600-4T: 50/60Hz       SD600-4T-132G       192       256       253       132         SD600-4T-0.7G       1.5       3.4       2.3       0.75       SD600-4T-160G       231       307       304       160         SD600-4T-1.5G       3.0       5.0       3.7       1.5       SD600-4T-185G       255       333       330       185         SD600-4T-2.2G       4.0       5.8       5.1       2.2       SD600-4T-200G       287       380       377       200  |
| SD600-21-2.2G       4.0       12.0       12.0       2.2       SD600-4T-110G       214       210       110         SD600-4T: 0.7KW-500KW 3 phase 380V SD600-4T: 50/60Hz       SD600-4T-132G       192       256       253       132         SD600-4T-0.7G       1.5       3.4       2.3       0.75       SD600-4T-160G       231       307       304       160         SD600-4T-1.5G       3.0       5.0       3.7       1.5       SD600-4T-185G       255       333       330       185         SD600-4T-2.2G       4.0       5.8       5.1       2.2       SD600-4T-200G       287       380       377       200  |
| SD600-4T: 0.7KW-500KW 3 phase 380V SD600-4T: 50/60Hz       SD600-4T-132S       230       233       132         SD600-4T-0.7G       1.5       3.4       2.3       0.75       SD600-4T-160G       231       307       304       160         SD600-4T-1.5G       3.0       5.0       3.7       1.5       SD600-4T-185G       255       333       330       185         SD600-4T-2.2G       4.0       5.8       5.1       2.2       SD600-4T-200G       287       380       377       200  |
| SD600-4T-0.7G     1.5     3.4     2.3     0.75     SD600-1 1000       SD600-4T-1.5G     3.0     5.0     3.7     1.5     SD600-4T-185G     255     333     330     185       SD600-4T-2.2G     4.0     5.8     5.1     2.2     SD600-4T-200G     287     380     377     200  |
| SD600-4T-1.5G 3.0 5.0 3.7 1.5 SD600-4T-103G 353 350 103<br>SD600-4T-2.2G 4.0 5.8 5.1 2.2 SD600-4T-200G 287 380 377 200   |
| SD600-4T-2.2G 4.0 5.8 5.1 2.2 SD500-4T-2.0G 500 377 200  |
| ODCOO 4T 0000 311  |
| SD600-4T-4.0G 5.9 10.5 8.5 4.0   |
| SD600-4T-5.5G 8.9 14.6 13 5.5 SD600-4T-250G 355 470 465 250  |
| SD600-4T-7.5G 11 20.5 17 7.5 SD600-4T-280G 396 525 520 280   |
| SD600-4T-315G 439 605 600 315<br>SD600-4T-11G 17 28 25 11 SD600-4T-350G 479 665 660 355  |
| SD600-4T-15G 21 35 32 15 500   |
| SD600-4T-18.5G 24 38.5 37 18.5 SD600-4T-450G 600 825 820 450   |
| SD600-4T-22G 30 46.5 45 22 SD600-4T-500G 660 900 900 500   |

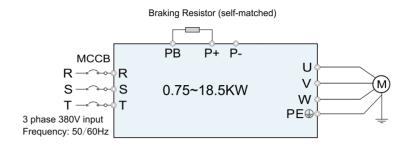
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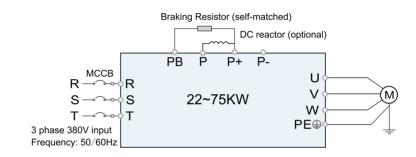
## Basic Wiring Diagram

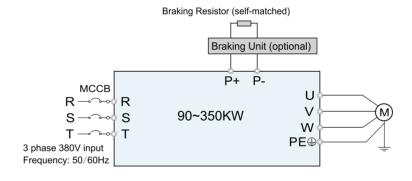
## Control Terminal Wiring Diagram

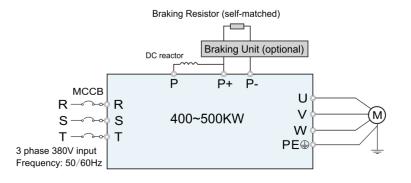


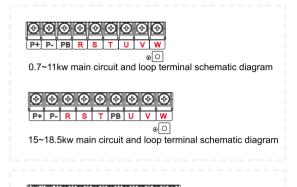
## Control Terminal Wiring Diagram

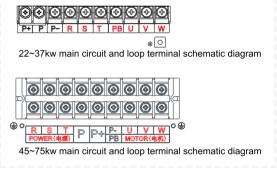


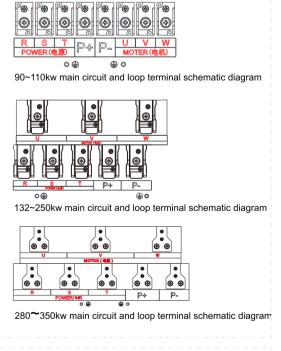


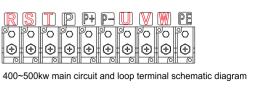












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## **Technical Specification**

|                                   | Items                                   | Specification  |  |  |  |  |  |
|-----------------------------------|---|--|--|--|--|--|--|
|                                   | Maximum Frequency                       | Vector control: 0.00~500.00Hz; V/F control: 0.00~500.00Hz  |  |  |  |  |  |
|                                   | Carrier frequency                       | 0.5kHz~16kHz; the carrier frequency is automatically adjusted based on the load features.  |  |  |  |  |  |
|                                   | Input frequency resolution              | Digital setting 0.01Hz; Analog setting: Max frequency × 0.025%   |  |  |  |  |  |
|                                   | Control Mode                            | V/F control; Open loop vector control (SVC) Closed loop vector control (FVC)   |  |  |  |  |  |
|                                   | Start Torque                            | 0.25Hz/150% (SVC); 0Hz/180% ( FVC )  |  |  |  |  |  |
|                                   | Speed range                             | 1~200 (SVC); 1: 1000 (FVC)   |  |  |  |  |  |
| Functions                         | Stable speed accuracy                   | ±0.5% (SVC); ±0.02% (FVC)  |  |  |  |  |  |
|                                   | Torque control accuracy                 | ± 5% (SVC)(5Hz above); ± 3% (FVC)  |  |  |  |  |  |
|                                   | Overload capacity                       | G type: 150% rated current for 60s   |  |  |  |  |  |
|                                   | Torque boost                            | Auto torque boost; Manual torque boost: 0.1%~30.0%   |  |  |  |  |  |
|                                   | V/F control                             | 4 ways: Line multi-point Square V/F curve V/F separation   |  |  |  |  |  |
|                                   | Accelerate/Decelerate curve             | Line or S-curve Acc/Dec mode, four kinds of Acc/Dce time,; Ranges of Acc/Dec time is 0.0s-6500.0s  |  |  |  |  |  |
|                                   | DC braking                              | DC braking frequency 0.00Hz~Maximum frequency Braking current: 0.0%~100.0% (rated current) Braking 1000.0s   |  |  |  |  |  |
|                                   | Jog control                             | Jog frequency range:0.00Hz Maximum frequency; Jog Accelerate time:0.0s~6500.0s   |  |  |  |  |  |
|                                   | Simple PLC . Multi-speed                | Realize up to 16 - speed operation through built - in PLC or control terminal  |  |  |  |  |  |
|                                   | Inbuilt PID                             | It is convenient to realize the process control closed-loop control system   |  |  |  |  |  |
|                                   | Auto voltage regulation(AVR)            | ) When the grid voltage changes, it can automatically keep the output voltage constant   |  |  |  |  |  |
|                                   | Overvoltage/over - currentstall control | Automatically limit current and voltage during operation to prevent frequent over-current and-over voltage trips   |  |  |  |  |  |
|                                   | Torque limit and control                | The torque is automatically limited during operation to prevent frequent over - current trips; closed - loop vector mode can realize torque control  |  |  |  |  |  |
|                                   | Non stop function                       | In case of instantaneous power failure, the load feedback energy is used to compensate for the voltage drop to keep the inverter running for a short time  |  |  |  |  |  |
|                                   | Speed tracking start                    | Speed identification of the motor under high - speed rotation to achieve smooth start without impact   |  |  |  |  |  |
| Features                          | Rapid current limit                     | Fast software and hardware current limiting technology to avoid frequent over-current faults of the inverter   |  |  |  |  |  |
|                                   | Virtual IO                              | Five virtual DO, five virtual DI, can realize simple logic control   |  |  |  |  |  |
|                                   | Timing Control                          | Timing control function: setting time ranges - 0.0Min~6500.0Min  |  |  |  |  |  |
|                                   | Multi-motor switch                      | Two groups of independent motor parameters can realize switching control of two motors   |  |  |  |  |  |
|                                   | Bus support                             | One independent MODBUS communication, one CAN communication, one Profibus-DP   |  |  |  |  |  |
|                                   | Multi-encoder support                   | Support differential, open- collector photoelectric encoder, resolver and other position sensors   |  |  |  |  |  |
| Running                           | Command Source                          | Operation panel setting, control terminal setting, serial communication port setting. Can be switched in many ways   |  |  |  |  |  |
|                                   | Frequency source                        | 10 kinds of frequency sources: no binding, digital setting, analog current setting (Al1/Al2), pulse setting (DI5),Multi-speed, simple PLC, PID, communication setting; Can be switched in many ways                |  |  |  |  |  |
|                                   | Auxiliary Frequency source              | 10 kinds of auxiliary frequency sources. Flexible realization of auxiliary frequency fine-tuning and frequency synthesis   |  |  |  |  |  |
|                                   | Input terminal                          | Standard configuration: 6 digital input terminals, one of which supports high speed pulse input; 2 analog input terminals. Expansion capacity: 4 digital input terminals; 1 analog input terminal.                 |  |  |  |  |  |
|                                   | Output terminal                         | Standard configuration: 1 high speed pulse output terminal; 1 digital output terminal; 2 relay output terminals; 2 analog output terminals. Expansion capacity: 1 relay output terminal; 1 analog output terminal. |  |  |  |  |  |
| Display and —<br>Keypad Operation | LED display                             | Double LED display keyboard, more convenient to monitor parameters   |  |  |  |  |  |
|                                   | LCD display                             | Optional, Chinese/English/Russian display function parameters and status information   |  |  |  |  |  |
|                                   | Specification Copy                      | The parameters can be quickly copied through the standard operation panel and optional LCD   |  |  |  |  |  |
|                                   | The key lock and function selection     | Realize partial or full lock of keys, define the scope of action of some keys, to prevent misoperation operation par options   |  |  |  |  |  |
| Protection<br>Function            | Protection function                     | Motor to ground short circuit detection, input and output phase loss protection, overcurrent protection, overvoltage protection, undervoltage protection, overheating protection, Overload protection, etc.        |  |  |  |  |  |
| Accessories                       | Accessories                             | Brake components, simple IO expansion card, multi - function IO expansion card, CAN communication expansion card, differential input PG card, Resolver PG card   |  |  |  |  |  |

