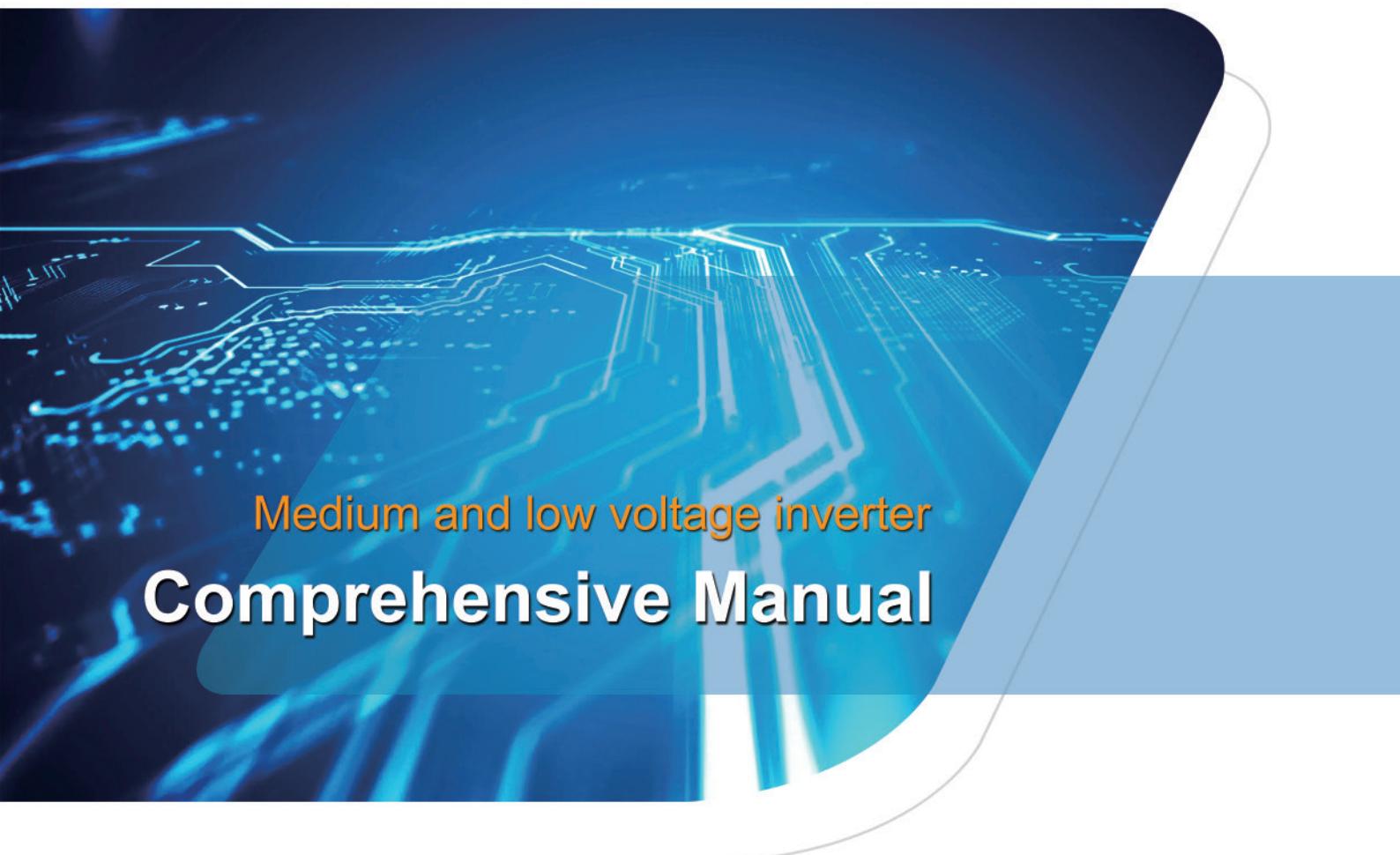




FGI 新风光
股票代码：688663



Medium and low voltage inverter

Comprehensive Manual

WINDSUN
新时代·新风光

SAVE ENERGY SERVE SOCIETY

Mission: Master core technology and continuously promote power electronic equipment to integrate various industries

Vision: save energy, serve society, to strive for centuries

Core values: Integrity, Innovation, Cooperation, Struggle

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Application Fields

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Full Life Cycle Service

- Full life cycle Worry-free service/55

**3**

Participated in 3 "863" programs

15

15 power electronics performance laboratories

27

Formulation of national/industrial standards

12

1 station / 2 rooms / 1 base / 8 R&D centers

50+

More than 50 years of power electronics R & D and manufacturing experience

350+

National patents

28000+

High-voltage cascade products have been put into operation

Company Profile

Accompanied by China's 30-year history of energy-saving development
7 mergers and reorganizations, 4 factory relocations, and over 300 product honors
Customer recognition stems from the pursuit of excellence in FGI Manufacturing

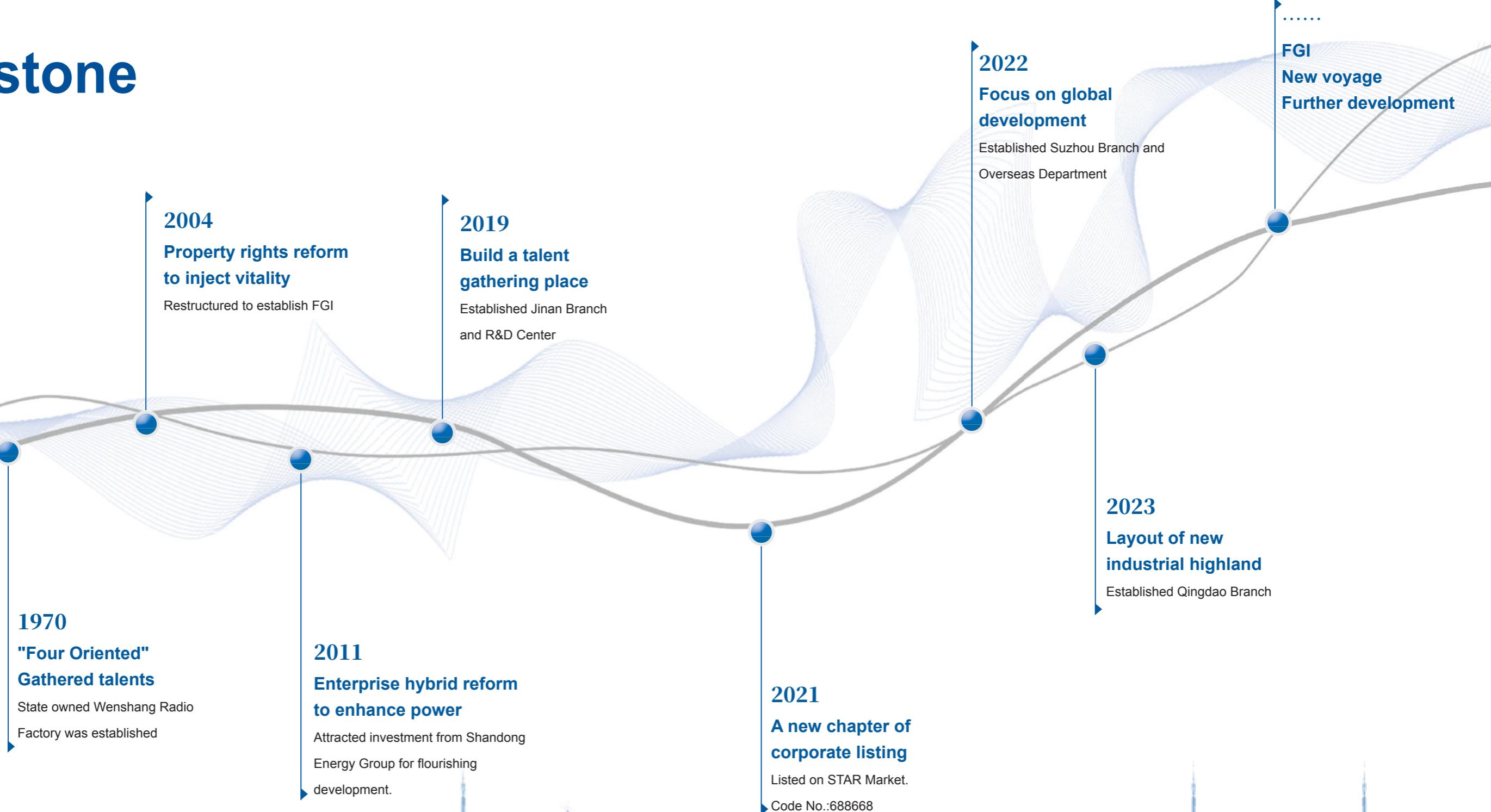
FGI originated from 1970, it has undergone over 50 years of development and transformation. In 1970, the state-owned Wenshang Wireless Power Plant(FGI)was established. From 1990 to 1992, under the leadership of Li Ruilai (former factory director and chief engineer), the first generation of controllable silicon thyristor low-voltage VFD was developed, which pioneered the early research on domestic low-voltage VFD in China. In 1992, the first low-voltage VFD get the technique authentication report which comes from Electric Product Intendance and Checking Institution of Shandong Province. Through the persistent efforts of the team, the products have gradually been serialized, contributing to the development of the national energy-saving cause and industry. Since then, the leading product series of VFD has continued to this day.

In order to seek development, the enterprise underwent multiple restructuring and reorganization, and in April 2002, Shandong Fengguang Electronics Co., Ltd. was established. In August 2004, the company was restructured and reorganized into Shandong Xinfengguang Electronic Technology Development Co., Ltd. In 2008, venture capital was introduced, and the new factory area of Wenshang Economic Development Zone was completed and relocated as a whole. In 2011, Shandong Energy Strategic Investment was introduced, forming a mixed ownership enterprise consisting of multiple types of equity controlled by Shandong Energy Group today. In 2015, a shareholding reform was carried out and Windsun Science & Technology Co., Ltd. (FGI) was established, forming a sound modern enterprise management structure including the Party Committee, Shareholders' Meeting, Board of Directors, Supervisory Board, Senior Management, and Trade Union.

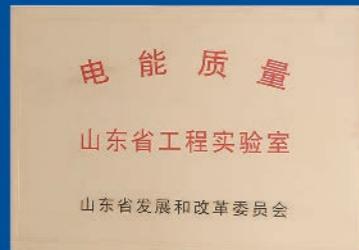
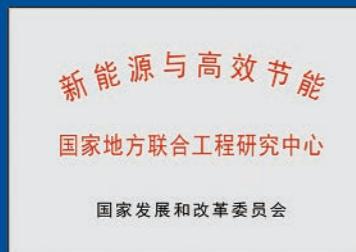
On April 13, 2021, FGI successfully landed on STAR Market, becoming the seventh listed company in the "Renewable industry", the second in the "smart grid industry", and the first listed company in the "Shandong Provincial State owned Enterprise" on the board, achieving new development for traditional enterprises.

Power electronics technology is changing the global energy system and will gradually spread to every corner of the world! We have always been based on power electronics technology, striving and constantly exploring to provide solutions and services covering the entire value chain and lifecycle for customers in the fields of power, industry, and infrastructure. We are always committed to the construction of a new type of power system, accelerating energy transformation through digitization, helping to achieve carbon neutrality, and jointly creating a better future for humanity.

Milestone



Honors & Certifications



National Type-test Report



Utility model patent certificate



Quality Assurance



Purification parts manufacturing center



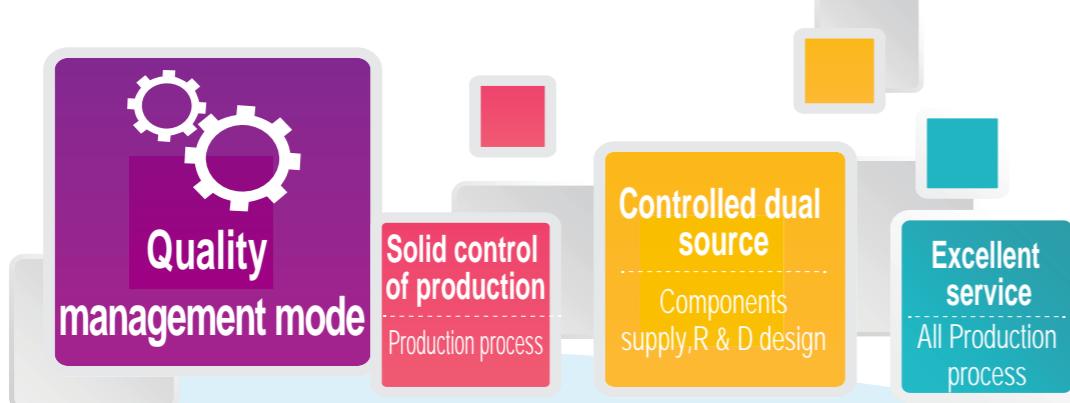
PCB three-proof painting line



PCB board testing - FCT, ICT function test line



SMT-AOI automatic mounter—Optical detection line



FGI has passed the ISO certification of quality, environment and safety, and has been rated as an AAAA enterprise with good standardized behavior, an advanced enterprise with excellent performance in quality and management in Shandong Province, and a qualified enterprise with measurement assurance.

Production management has a rigorous quality control plan, strictly implements the requirements of ISO9001 standard, pays attention to PDCA management of production process, strict process control, production process control, and implements the whole process quality control. Combined with the on-site "6S" management tools, the qualified rate of product delivery inspection is 100%.

The production and test system covers an area of 80000m², has a product test centralized control center with complete machine detection automation function and high degree of integration, introduces automatic SMT, wave soldering and automatic paint spraying lines imported from Germany and South Korea, and develops testing equipment and environmental testing equipment. It has 5 unit assembly lines, with an annual production capacity of 3000-5000 sets of high-voltage products.



Low pressure, high and low temperature environment simulator



Temperature shock environment simulator



Salt spray environment simulator



PRODUCT SERIES

FD300 series
High performance vector inverter



FD290 series
Universal vector inverter



FD200 series
Compact inverter



FD2000 series
Mine explosion-proof frequency
conversion movement

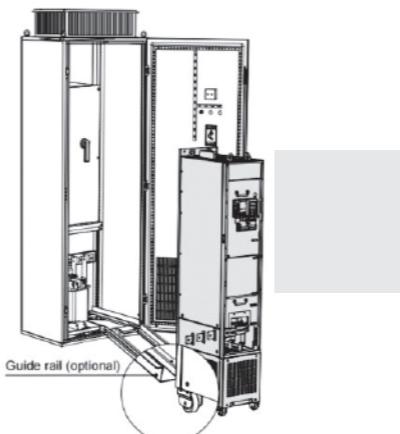


FD300 series High performance vector inverter



Product advantage

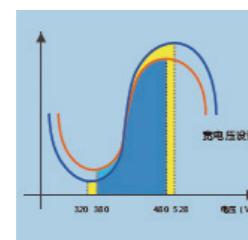
■ Compact structure, easy to install and save space



■ Environmental adaptability

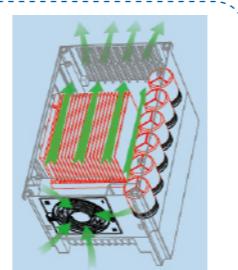
Wide voltage range design

Rated voltage: 380 - 480 V
Rated frequency: 50 / 60Hz
Allowable voltage fluctuation range: 320 - 485 Vac
Unbalance: < 3%
Frequency range: 47-63Hz



Independent air duct

Completely independent air duct, truly realizing "driver and control" isolation.



■ Function Introduction

■ Improving performance

High-efficiency operation of synchronous asynchronous motor can be realized by advanced motor driving technology.



Rich motor identification methods

Efficient and fast motor parameter identification algorithm, supporting multiple self-learning modes, accurate and consistent dynamic and static learning, no manual adjustment required, and giving full play to driving performance



Reliable braking performance

Integrated with DC, magnetic flux, short circuit and other braking modes, which can realize safe and fast shutdown of large inertia load



No impact speed tracking

The software can automatically search the motor speed and direction, and realize the smooth and impact-free start of the motor at any speed



Stable low frequency heavy duty performance

Under the closed-loop vector mode, the low frequency torque is large and the torque pulsation is small, so the extremely low speed 0.01HZ stable on-load operation can be realized, and the torque and speed modes can be switched smoothly online



Excellent motor control algorithm

- New magnetic field directional control algorithm, excellent low frequency and heavy load performance, improving torque control accuracy;
- New speed observer reduces motor parameter dependency and improves speed control stability

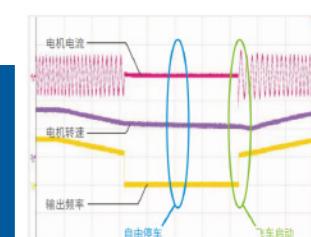


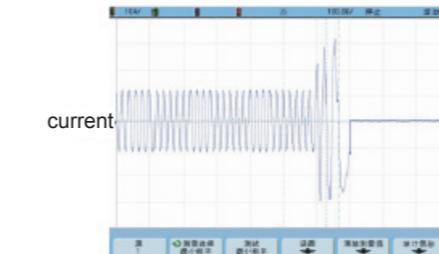
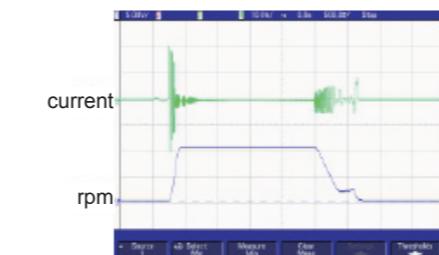
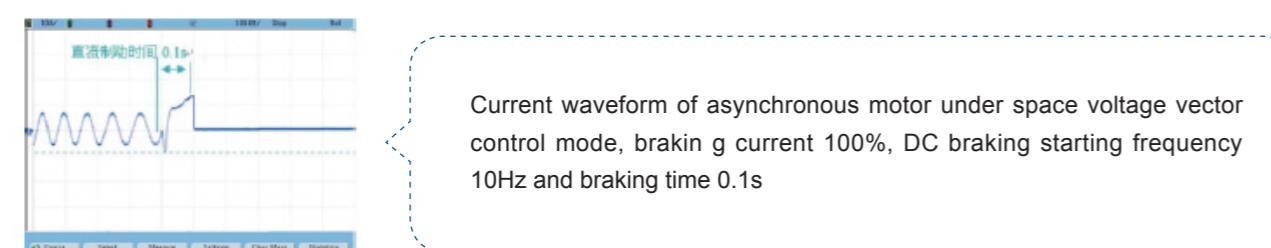
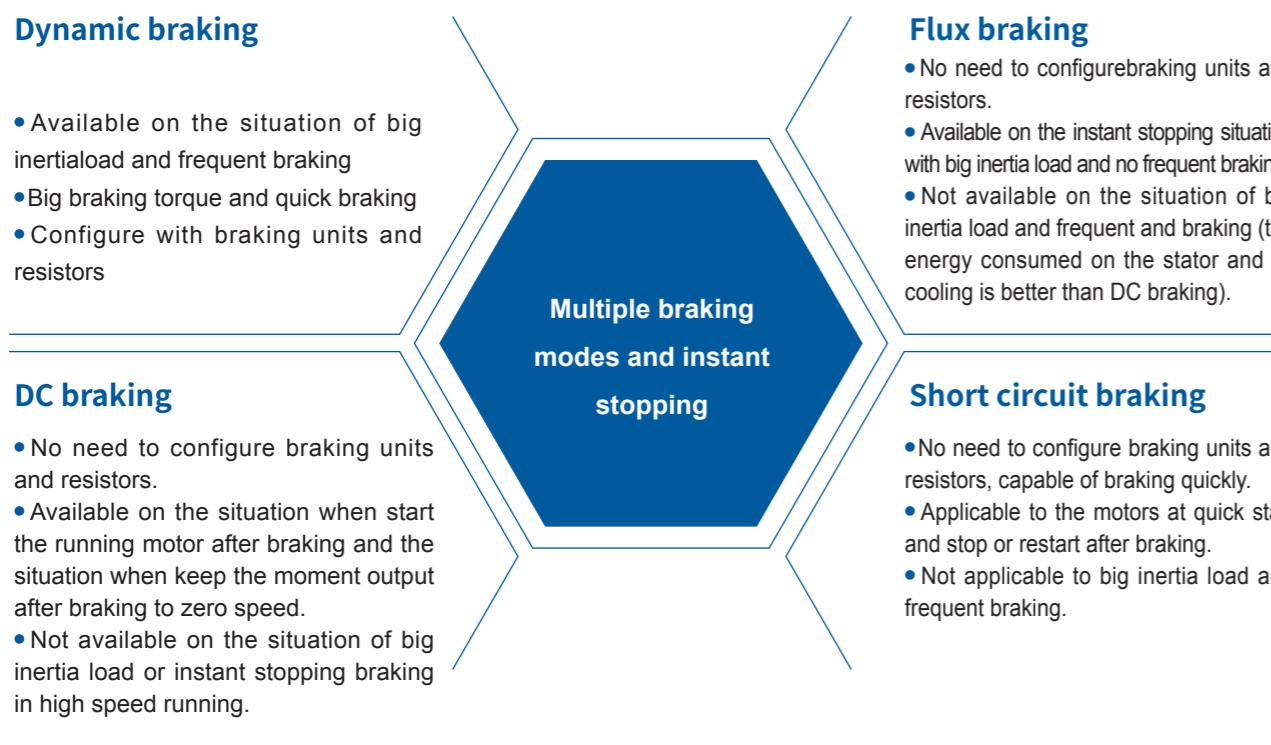
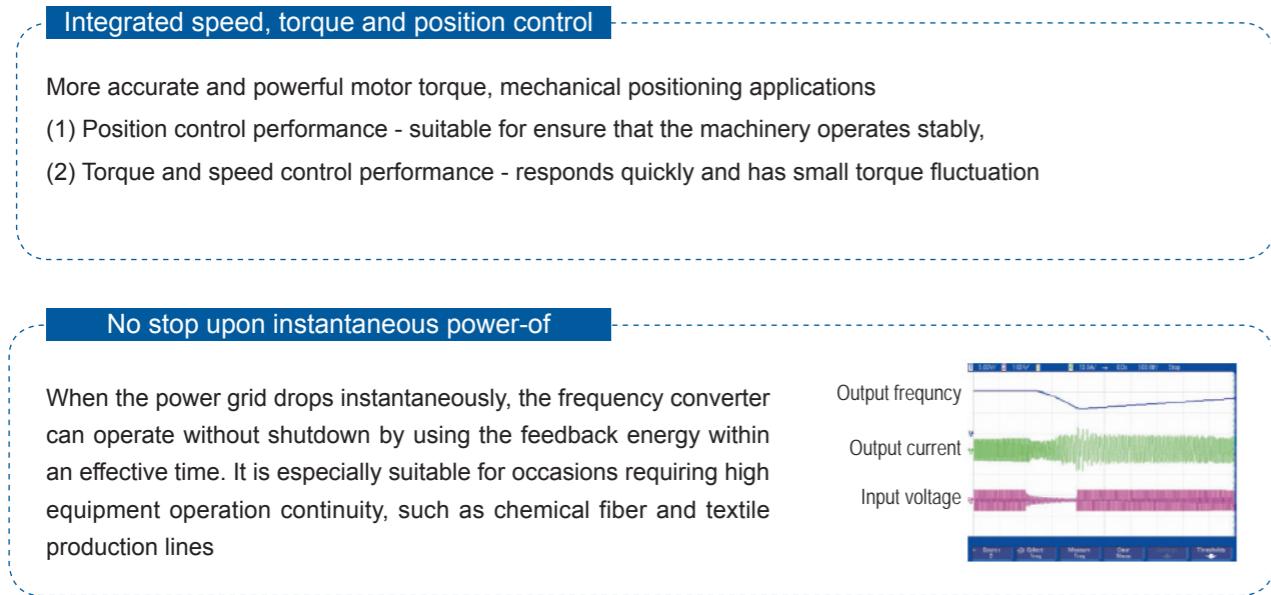
Reliable torque limits

"Digger" feature: limit the torque output through high-precision torque limiting function, so as to safely and effectively protect the mechanical equipment in case of sudden load change

■ Full-band rotation speed tracking

Full-band rotation speed tracking technology ensures a smooth operation without any impact, effectively reduces motor and mechanical impact, and facilitates the implementation of the process.





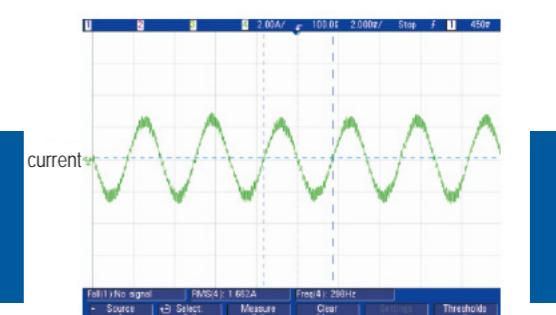
Permanentmagnet synchronous motor short-circuit braking waveform, acceleration time 0.1s, deceleration time 0.4s motor rated frequency 100Hz, short-circuit braking frequency 20Hz, braking time 0.5s)

■ Integrated synchronous and asynchronous motor control

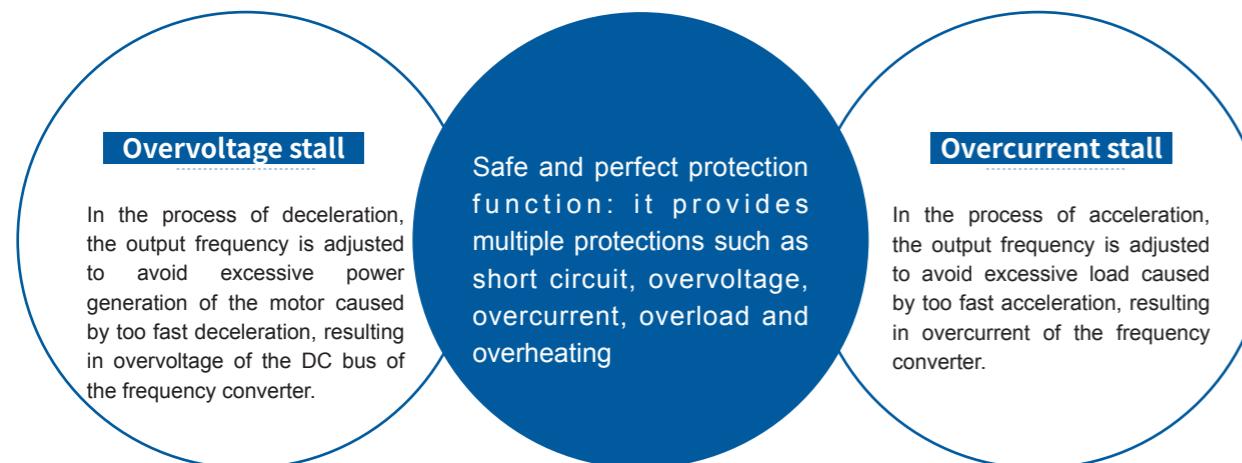
It can drive all kinds of motors: direct drive motor, permanent magnet synchronous motor, motorized spindle, asynchronous servo motor, ordinary asynchronous motor, variable frequency motor, servo motor, etc



■ Synchronous and asynchronous drive integration, open-loop and closed-loop comprehensiveness, excellent motor driving performance

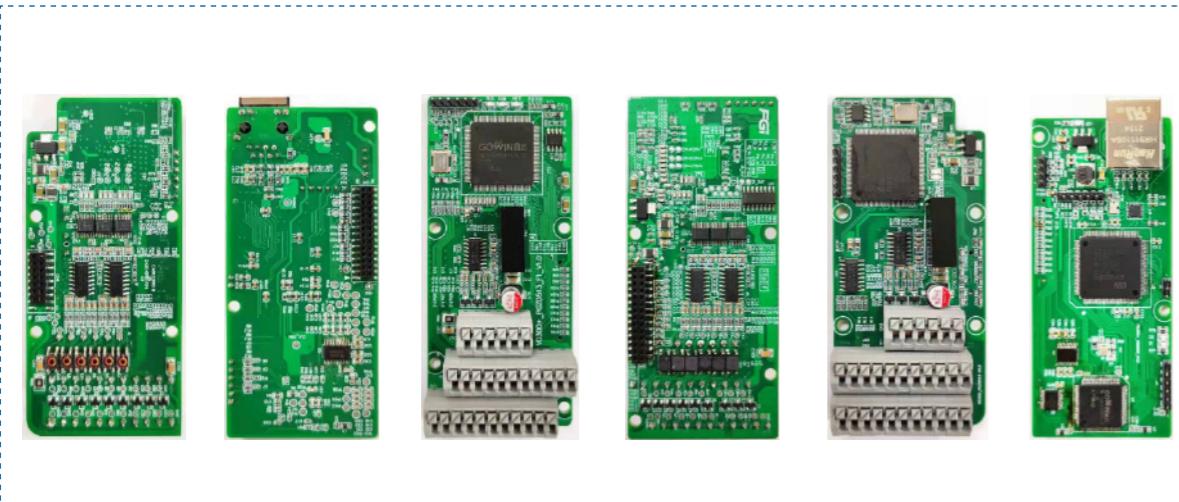


Current waveform of synchronous motor under open-loop vector control mode 300Hz with 100% rated load



■ Abundant extended functions

- Strengthen the expansion capability and meet the needs of a variety of applications at the same time

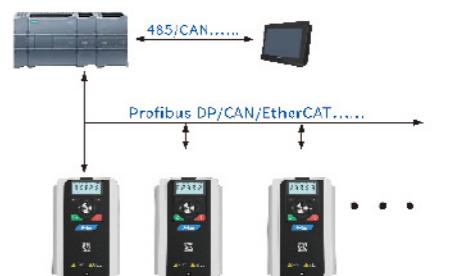


- (1) Optional I / O card, CANopen communication card, PROFIBUS DP communication card, isolated 485 communication card and various types of PG cards can meet the needs of various expansion cards at the same time and quickly meet the personalized needs of customers.
- (2) It supports various encoder interfaces such as differential, rotary transformer and collector signal, and can realize highprecision closed-loop vector control.
- (3) Simple and fashionable segment code screen keyboard design makes debugging more smooth and convenient.

■ Multi-functions

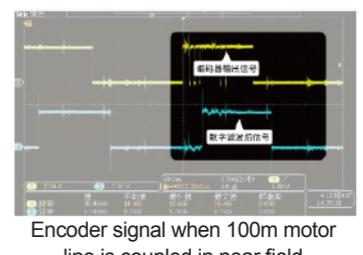
- Support various industrial communication protocols and be compatible with various industrial control systems

RS485 communication is configured as standard and supported by expansion card:Ethernet,CANopen,CAN,Profibus DP,Profinet,Modbus-TCP,EtherCAT



- PG card adopts digital filtering technology to improve electromagnetic compatibility and realize long-distance stable reception of encoder signals. Compared with traditional schemes, the anti-interference performance is doubled

Support pulse setting and frequency division output; It has the function of quick detection of encoder disconnection to avoid the expansion of the influence of system failure

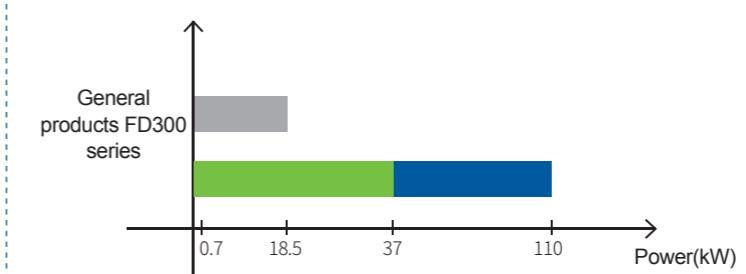


Encoder signal when 100m motor line is coupled in near field

- Two channels of HDI are equipped as standard, which can be used as speed source and support high-speed AB pulse input signal to form a simple closed-loop application and provide customers with a cost-effective closed-loop application scheme



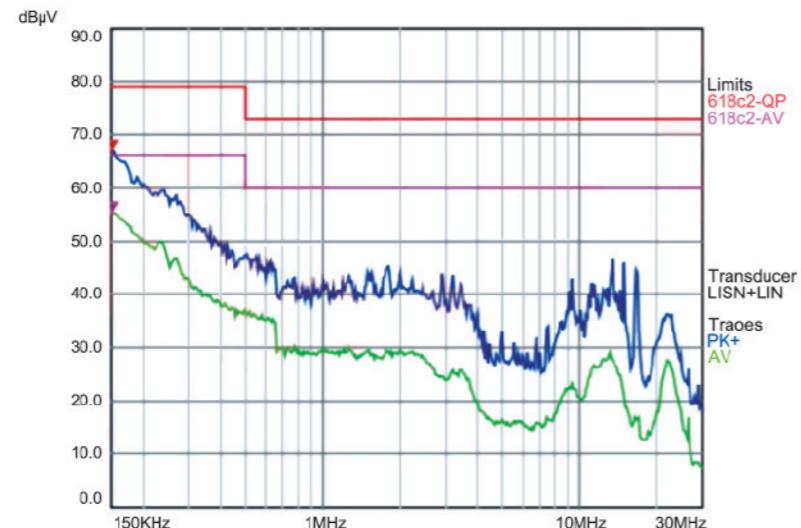
- Maximum support for 110KW built-in braking unit, saving cost and installation space for customers



Note:37KW and below products support standard built-in braking unit, and 45 ~ 110KW products support optional builtin braking unit

■ 380 volt level products standard equipped with C3 filter, and optional C2 filter

In order to meet different application requirements in various places, 380 volt class product is equipped with builtin C3 input filter as standard and assembled before leaving the factory, so as to save external installation space and avoid electromagnetic interference caused by improper selection and on-site installation caused by the use of external filter

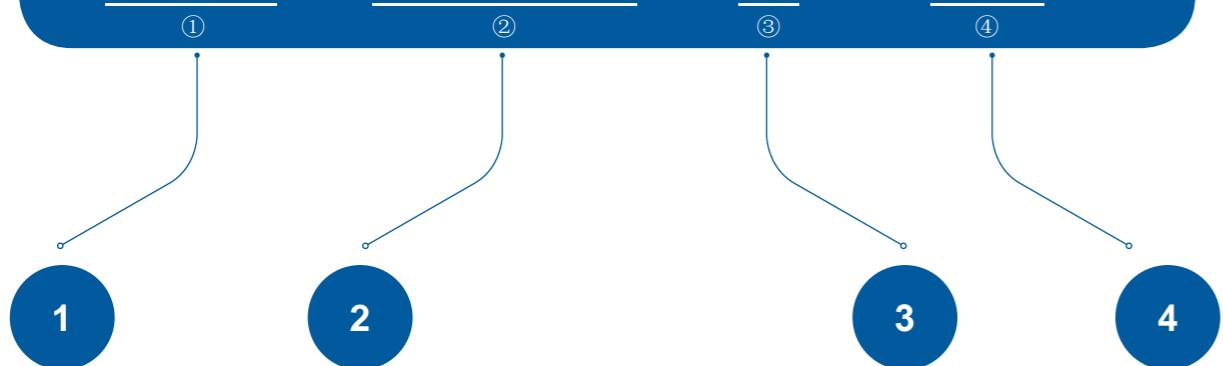


Remarks:

C2 filter: EMC performance of the VFD achieves the limited usage requirement in civil environment.C3 filter: EMC performance of the VFD achieves the limited usage requirement in industrial environment.

Product model and Parameters

FD300 — 055G/075P — 4 — BL1



FD300:300series 055G - Constant torque load 55 kW
075P - Constant power load 75 kW

Input voltage class
4:Three-phase 380V
(-15%)~440V (+10%)
6:Three-phase 690V

L0: Built-in input reactor
L1: Built-in DC reactor
L2: Built-in output reactor
B: Built-in brake unit model

Model No. description

Product Model and Rated Current Parameters(380V)

| Model No. | Output power (kW) | | Input current(A) | | Output current(A) | | Standard | Apogamic |
|-----------------------|-------------------|--------|------------------|--------|-------------------|--------|----------------------------------|-------------------------|
| | G Type | P Type | G Type | P Type | G Type | P Type | | |
| FD300-1R5G/2R2P-4-B | 1.5 | 2.2 | 5.0 | 5.8 | 3.7 | 5 | Standard brake unit | |
| FD300-2R2G/004P-4-B | 2.2 | 4 | 5.8 | 13.5 | 5 | 9.5 | | |
| FD300-004G/5R5P-4-B | 4 | 5.5 | 13.5 | 19.5 | 9.5 | 14 | | |
| FD300-5R5G/7R5P-4-B | 5.5 | 7.5 | 19.5 | 25 | 14 | 18.5 | | |
| FD300-7R5G/011P-4-B | 7.5 | 11 | 25 | 32 | 18.5 | 25 | | |
| FD300-011G/015P-4-B | 11 | 15 | 32 | 40 | 25 | 32 | | |
| FD300-015G/018P-4-B | 15 | 18.5 | 40 | 47 | 32 | 38 | | |
| FD300-018G/022P-4-BL1 | 18.5 | 22 | 47 | 51 | 38 | 45 | | |
| FD300-022G/030P-4-BL1 | 22 | 30 | 51 | 70 | 45 | 60 | Standard brake unit,DC reactor | |
| FD300-030G/037P-4-BL1 | 30 | 37 | 70 | 80 | 60 | 75 | | |
| FD300-037G/045P-4-BL1 | 37 | 45 | 80 | 98 | 75 | 92 | | |
| FD300-045G/055P-4-L1 | 45 | 55 | 98 | 128 | 92 | 115 | | |
| FD300-055G/075P-4-L1 | 55 | 75 | 128 | 139 | 115 | 150 | Standard DC reactor | Optional brake unit |
| FD300-075G/090P-4-L1 | 75 | 90 | 139 | 168 | 150 | 180 | | |
| FD300-090G/110P-4-L1 | 90 | 110 | 168 | 201 | 180 | 215 | | |
| FD300-110G/132P-4-L1 | 110 | 132 | 201 | 265 | 215 | 260 | | |
| FD300-132G/160P-4-L1 | 132 | 160 | 265 | 310 | 260 | 305 | Standard DC reactor | Optional output reactor |
| FD300-160G/185P-4-L1 | 160 | 185 | 310 | 345 | 305 | 340 | | |
| FD300-185G/200P-4-L1 | 185 | 200 | 345 | 385 | 340 | 380 | | |
| FD300-200G/220P-4-L1 | 200 | 220 | 385 | 430 | 380 | 425 | | |
| FD300-220G/250P-4-L1 | 220 | 250 | 430 | 460 | 425 | 480 | Standard DC reactor | Optional output reactor |
| FD300-250G/280P-4-L1 | 250 | 280 | 460 | 500 | 480 | 530 | | |
| FD300-280G/315P-4-L1 | 280 | 315 | 500 | 580 | 530 | 600 | | |
| FD300-315G/355P-4-L1 | 315 | 355 | 580 | 625 | 600 | 650 | | |
| FD300-355G/400P-4-L1 | 355 | 400 | 625 | 715 | 650 | 720 | Standard DC reactor | Optional output reactor |
| FD300-400G/450P-4-L1 | 400 | 450 | 715 | 840 | 720 | 820 | | |
| FD300-450G/500P-4-L1 | 450 | 500 | 840 | 890 | 820 | 860 | | |
| FD300-500G/560P-4-L02 | 500 | 560 | 890 | 997 | 860 | 1020 | | |
| FD300-560G/630P-4-L02 | 560 | 630 | 997 | 1121 | 1020 | 1100 | Standard input+output DC reactor | |
| FD300-630G-4-L02 | 630 | 710 | 1121 | / | 1100 | / | | |

1.FD300 380V Single Unit maximum is 630KW.
2.The input current is the actual test result when the input voltage is 380V, and the input current above 30kW (included) is the measured current value after the DC reactor is configured.
3.Under the allowable input voltage range, the output current shall not exceed the rated output current; The output power shall not exceed the rated output power.
4.Built-in brake unit shall be configured below 37kW (included); 45-110KW optional built-in brake unit.
5. 18.5-315KW standard DC reactor.6. 132-450KW optional output reactor.

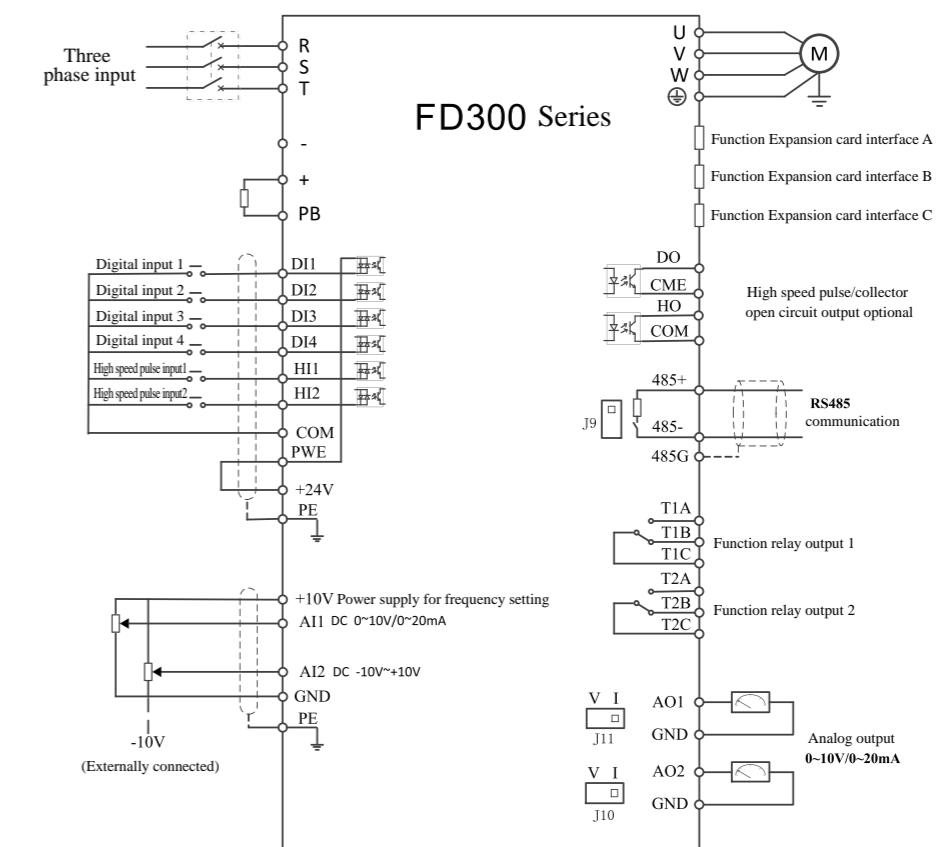
Remark

Product Model and Rated Current Parameters(690V)

| Model No. | Output power(kW) | Input current(A) | Output current(A) | Carrier frequency(kHz) |
|---------------|------------------|------------------|-------------------|------------------------|
| FD300-022G-6 | 22 | 35 | 27 | 1~15 |
| FD300-030G-6 | 30 | 40 | 35 | 1~15 |
| FD300-037G-6 | 37 | 47 | 45 | 1~15 |
| FD300-045G-6 | 45 | 52 | 52 | 1~15 |
| FD300-055G-6 | 55 | 65 | 62 | 1~15 |
| FD300-075G-6 | 75 | 85 | 86 | 1~15 |
| FD300-090G-6 | 90 | 95 | 98 | 1~15 |
| FD300-110G-6 | 110 | 118 | 120 | 1~15 |
| FD300-132G-6 | 132 | 145 | 150 | 1~15 |
| FD300-160G-6 | 160 | 165 | 175 | 1~15 |
| FD300-185G-6 | 185 | 190 | 200 | 1~15 |
| FD300-200G-6 | 200 | 210 | 220 | 1~15 |
| FD300-220G-6 | 220 | 230 | 240 | 1~15 |
| FD300-250G-6 | 250 | 255 | 270 | 1~15 |
| FD300-280G-6 | 280 | 286 | 300 | 1~15 |
| FD300-315G-6 | 315 | 334 | 350 | 1~15 |
| FD300-355G-6 | 355 | 360 | 380 | 1~15 |
| FD300-400G-6 | 400 | 411 | 430 | 1~15 |
| FD300-450G-6 | 450 | 461 | 480 | 1~15 |
| FD300-500G-6 | 500 | 518 | 540 | 1~15 |
| FD300-560G-6 | 560 | 578 | 600 | 1~15 |
| FD300-630G-6 | 630 | 655 | 680 | 1~15 |
| FD300-710G-6 | 710 | 750 | 750 | 1~15 |
| FD300-800G-6 | 800 | 860 | 860 | 1~15 |
| FD300-1000G-6 | 1000 | 1036 | 1080 | 1~15 |
| FD300-1250G-6 | 1250 | 1310 | 1360 | 1~15 |

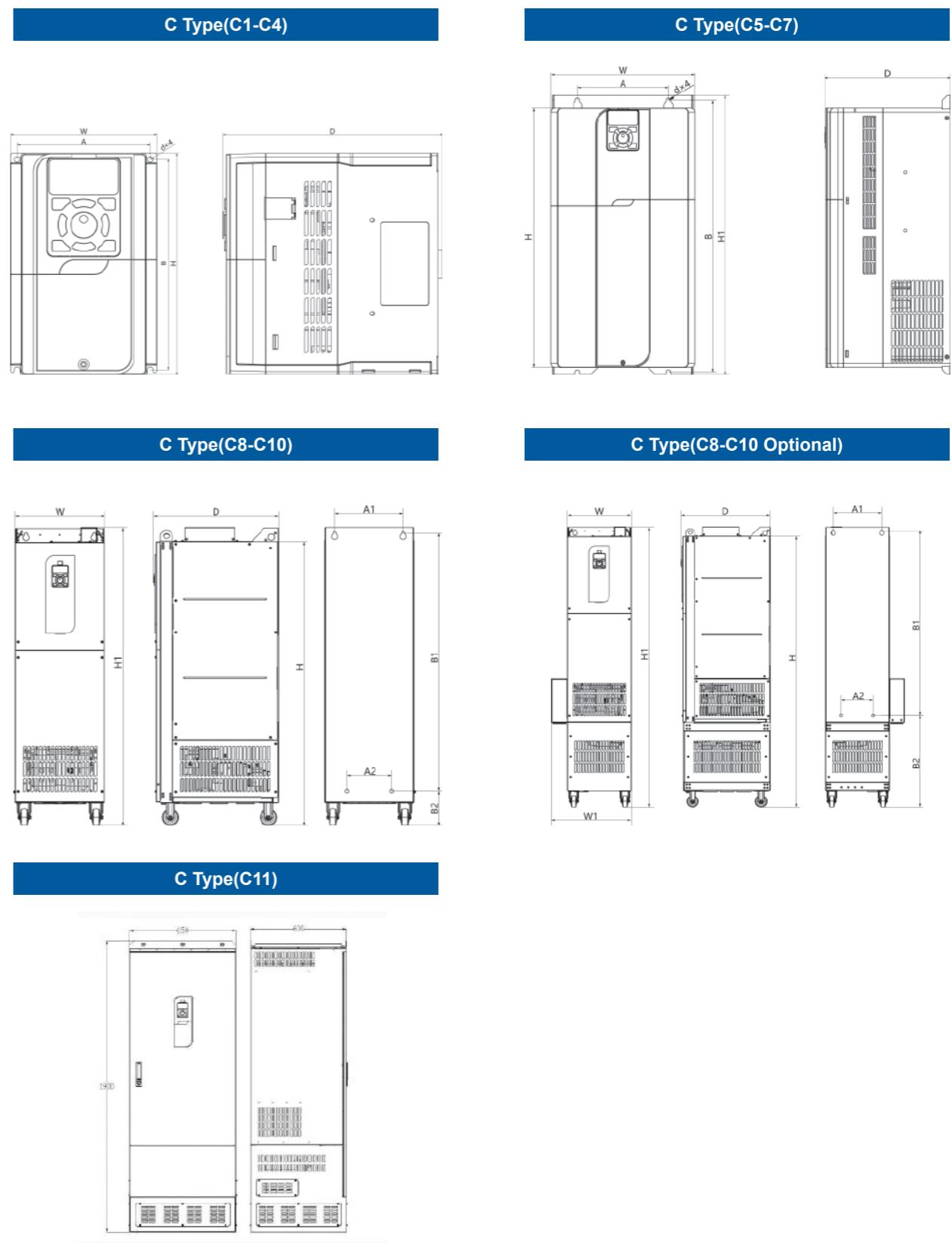
■ Rich external interfaces, meeting most application sites

| | Function | Specification |
|----------------------|--|---|
| Peripheral interface | Analog input | 1(AI1)0~10V/0~20mA,1(AI2)-10~10V |
| | Analog output | 2way(AO1 AO2)0~10V /0~20mA |
| | Terminal analog input resolution | ≤ 20mV |
| | Terminal switch input resolution | ≤ 2ms |
| | Digital input | 4 common input, maximum frequency 1kHz, internal impedance: 3.3kΩ; 2 high-speed input, maximum frequency 100kHz |
| | Digital output | 1 high-speed pulse output, maximum frequency 100kHz; 1 DO terminal output collector open-circuit output |
| | Relay Output | 2 programmable relay outputsT1A normally open, T1B normally closed, T1C common terminalT2A normally open, T2B normally closed, T2C common terminalContact capacity: 3A/AC250V, 1A/DC30V |
| | communication interface | 1 RS485 (non-isolated) |
| Expansion interface | 2 expansion interfaces are supported below 5.5kW: Slot1 and Slot2;Three expansion interfaces are supported for devices above 7.5kW: Slot1, Slot2, and Slot3;Scalable PG card, communication card, programmable card, IoT card, I/O card, etc | |



Control loop wiring diagram

| Technical Specifications | |
|---------------------------------|--|
| Function | Specification |
| Input Power | Input Voltage(V) AC 3PH 380V(-15%)~440V(+10%)Rated Voltage:380V AC 3PH 520V(-15%)~690V(+10%)Rated Voltage:690V |
| | Input current(A) Please refer to "Product rated current parameters" |
| | Input frequency(Hz) 50Hz or 60Hz, allowable range:47~63Hz |
| Output Power | Output voltage(V) 0~ Input voltage |
| | Output current (A) Please refer to "Product rated current parameters" |
| | Output Power(kW) Please refer to "Product rated current parameters" |
| | Output frequency(Hz) 0~600H(zexport product 0~400Hz) |
| Technical control performance | Control Mode Space voltage vector control mode, no PG vector control mode, PG vector control mode asynchronous motor, synchronous motor. |
| | Motor type Asynchronous motor, synchronous motor. |
| | Speed regulation ratio Asynchronous motor 1:200 (SVC), synchronous motor 1:50 (SVC), 1:1000 (VC) |
| | Speed control accuracy ±0.2% (without PG vector control), ±0.02% (with PG vector control) |
| | Speed fluctuation ± 0.3% (without PG vector control) |
| | Torque response <20ms (without PG vector control), <10ms (with PG vector control) |
| | Torque control accuracy 10% (without PG vector control), 5% (with PG vector control) |
| | Starting Torque Asynchronous motor: 0.25Hz/150% (without PG vector control) Synchronous motor: 1Hz/150% (without PG vector control)Hz/ 200% (with PG vector control) |
| | Overload Capacity (G type machine): 150% rated current 1min, 180% rated current 10S, 200% rated current 1s (P type machine): 120% rated current 1min, 150% rated current 3S, 160% rated current 1s |
| Operational control performance | Frequency setting mode Digital setting, analog setting, pulse frequency setting, multi-stage speed operation setting, simple PLC setting, PID setting, Modbus communication setting, Profibus communication setting, etc; Realize setting combination and setting channel switching |
| | Automatic voltage adjustment function When the grid voltage changes, it can automatically keep the output voltage constant |
| | Failsafe function Provide more than thirty fault protection functions: overcurrent, overvoltage, undervoltage, overtemperature, phase loss, overload and other protection functions |
| | Speed tracking restart function The inverter(VFD) can track the rotating speed of the rotating motor in full frequency band and Smooth starting of the rotating motor |



Note: Customized development is supported. If you need the size of the inverter cabinet, please contact the manufacturer

| Volume (case code) | Inverter Model | Mounting hole location(mm) | | | Dimension(mm) | | | | | Mounting Hole Dia(mm) | |
|----------------------------------|-----------------------|-------------------------------|-----|------|---------------|------|-----|-----|-----|--------------------------|-----|
| | | A1 | A2 | B | H | H1 | W | W1 | D | | |
| C1 | FD300-1R5G/2R2P-4-B | 114 | 180 | 190 | / | 125 | / | 185 | φ5 | φ5 | |
| | FD300-2R2G/003P-4-B | | | | | | | | | | |
| | FD300-004G/5R5P-4-B | | | | | | | | | | |
| | FD300-5R5G/7R5P-4-B | | | | | | | | | | |
| C2 | FD300-7R5G/011P-4-B | 147 | 298 | 310 | / | 160 | / | 208 | φ6 | φ6 | |
| | FD300-011G/015P-4-B | | | | | | | | | | |
| | FD300-015G/018P-4-B | | | | | | | | | | |
| C3 | FD300-018G/022P-4-BL1 | 187 | 333 | 345 | / | 200 | / | 208 | φ6 | φ6 | |
| | FD300-022G/030P-4-BL1 | | | | | | | | | | |
| C4 | FD300-030G/037P-4-BL1 | 227 | 378 | 390 | / | 240 | / | 222 | φ6 | φ6 | |
| | FD300-037G/045P-4-BL1 | | | | | | | | | | |
| C5 | FD300-045G/055P-4-L1 | 180 | 540 | 515 | 555 | 285 | / | 252 | φ9 | φ9 | |
| | FD300-055G/075P-4-L1 | | | | | | | | | | |
| | FD300-075G/090P-4-L1 | | | | | | | | | | |
| C6 | FD300-090G/110P-4-L1 | 260 | 535 | 511 | 555 | 340 | / | 336 | φ11 | φ11 | |
| | FD300-110G/132P-4-L1 | | | | | | | | | | |
| C7 | FD300-132G/160P-4-L1 | 260 | 800 | 775 | 825 | 340 | / | 400 | φ11 | φ11 | |
| | FD300-160G/185P-4-L1 | | | | | | | | | | |
| | FD300-185G/200P-4-L1 | | | | | | | | | | |
| No built-in output reactor | | | | | | | | | | | |
| C8 | FD300-200G/220P-4-L1 | 260 | 170 | 980 | 1080 | 1133 | 340 | / | 475 | φ11 | φ11 |
| | FD300-220G/250P-4-L1 | | | | | | | | | | |
| C9 | FD300-250G/280P-4-L1 | 260 | 170 | 1149 | 1260 | 1313 | 340 | / | 550 | φ11 | φ11 |
| | FD300-280G/315P-4-L1 | | | | | | | | | | |
| | FD300-315G/355P-4-L1 | | | | | | | | | | |
| C10 | FD300-355G/400P-4-L1 | 260 | 170 | 1259 | 1370 | 1423 | 340 | / | 550 | φ11 | φ11 |
| | FD300-400G/450P-4-L1 | | | | | | | | | | |
| | FD300-450G/500P-4-L1 | | | | | | | | | | |
| Optional built-in output reactor | | | | | | | | | | | |
| C8 | FD300-200G/220P-4-L12 | 260 | 170 | 980 | 1440 | 1493 | 340 | 422 | 475 | φ11 | φ11 |
| | FD300-220G/250P-4-L12 | | | | | | | | | | |
| C9 | FD300-250G/280P-4-L12 | 260 | 170 | 1149 | 1591 | 1644 | 340 | 478 | 550 | φ11 | φ11 |
| | FD300-280G/315P-4-L12 | | | | | | | | | | |
| | FD300-315G/355P-4-L12 | | | | | | | | | | |
| C10 | FD300-355G/400P-4-L12 | 260 | 170 | 1259 | 1701 | 1754 | 340 | 478 | 550 | φ11 | φ11 |
| | FD300-400G/450P-4-L12 | | | | | | | | | | |
| | FD300-450G/500P-4-L12 | | | | | | | | | | |
| C11 | FD300-500G/560P-4-L02 | / | / | / | 1900 | / | 650 | / | 600 | / | 600 |
| | FD300-560G/630P-4-L02 | | | | | | | | | | |
| | FD300-630G/630P-4-L02 | | | | | | | | | | |

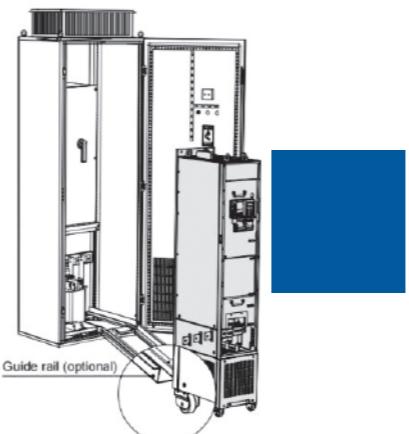
| Volume (case code) | Inverter Model | Mounting hole location(mm) | | | Dimension(mm) | | | | | Mounting Hole Dia(mm) |
|-----------------------|----------------|-------------------------------|-----|-----|---------------|-----|---|-----|---|--------------------------|
| | | A1 | A2 | B | H | H1 | W | W1 | D | |
| C3 | FD300-022G-6 | 187 | 333 | 345 | / | 200 | / | 208 | / | φ6 |
| | FD300-030G-6 | | | | | | | | | |
| C4 | FD300-037G-6 | 227 | 378 | 390 | / | 240 | / | 222 | / | φ6 |
| | FD300-045G-6 | | | | | | | | | |
| C5 | FD300-055G-6 | 180 | | | | | | | | |

FD290 series universal vector inverter



Product advantage

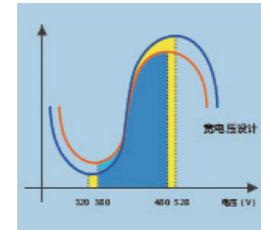
Compact structure, easy to install and save space



Environmental adaptability

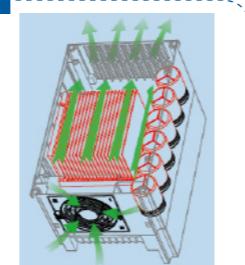
Wide voltage range design

Rated voltage: 380 - 480 V
Rated frequency: 50/60Hz
Allowable voltage fluctuation range:
320 - 485 Vac
Unbalance: < 3%
Frequency range: 47 - 63Hz



Independent air duct

Completely independent air duct, truly realizing "driver and control" isolation.



Performance introduction

Performance improvement

Advanced motor drive technology can realize high-efficiency operation of synchronous and asynchronous motors

Rich motor identification methods

Efficient and fast motor parameter identification algorithm, supporting multiple self-learning modes, accurate and consistent dynamic and static learning, no manual adjustment required, and giving full play to driving performance



No impact speed tracking

The software can automatically search the motor speed and direction, and realize the smooth and impact-free start of the motor at any speed

Reliable braking performance

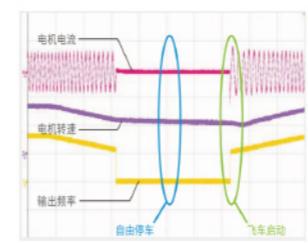
Integrated with DC, magnetic flux, short circuit and other braking modes, which can realize safe and fast shutdown of large inertia load

Excellent motor control algorithm

- New magnetic field directional control algorithm, excellent low frequency and heavy load performance, improving torque control accuracy;
- New speed observer reduces motor parameter dependency and improves speed control stability

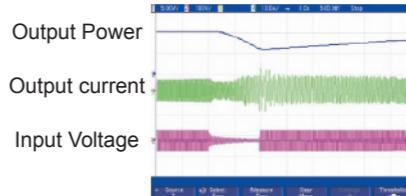
Full band speed tracking

Full-band rotation speed tracking technology ensures a smooth operation without any impact, effectively reduces motor and mechanical impact, and facilitates the implementation of the process.



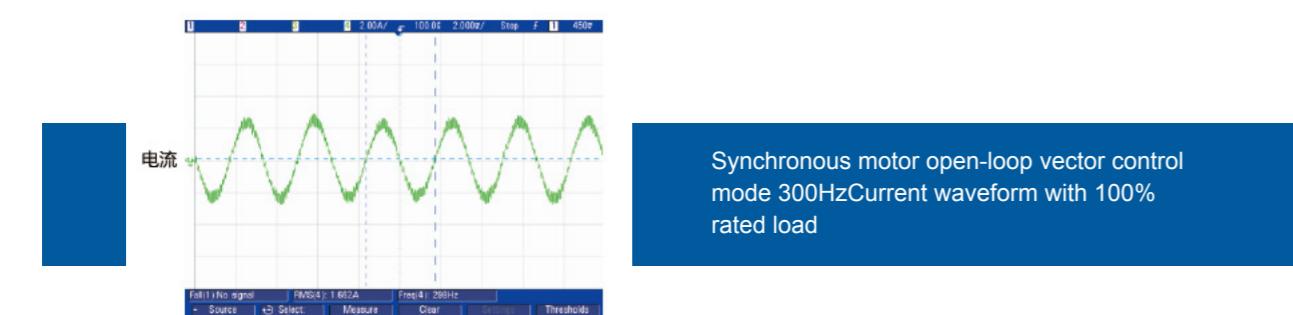
No stop upon instantaneous power-off

When the power grid drops instantaneously, the inverter can operate with the feedback energy within the effective time without shutdown, which is especially applicable to the occasions with high requirements for equipment operation continuity, such as chemical fiber and textile production lines.

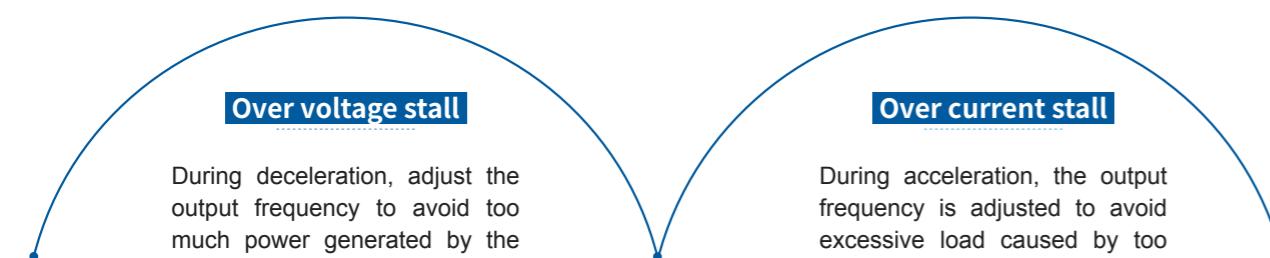


■ Integration of synchronous and asynchronous motor drive

Various types of motors can be driven, including direct-drive motors, permanent magnet synchronous motors, conventional asynchronous motors, and variable frequency motors, among others.



■ Safe and perfect protection function: provide multiple protections such as short circuit, overvoltage, overcurrent, overload and overheating



Over voltage stall

During deceleration, adjust the output frequency to avoid too much power generated by the motor due to too fast deceleration DC bus overvoltage of inverter.

Over current stall

During acceleration, the output frequency is adjusted to avoid excessive load caused by too fast acceleration, which will lead to overcurrent of inverter.

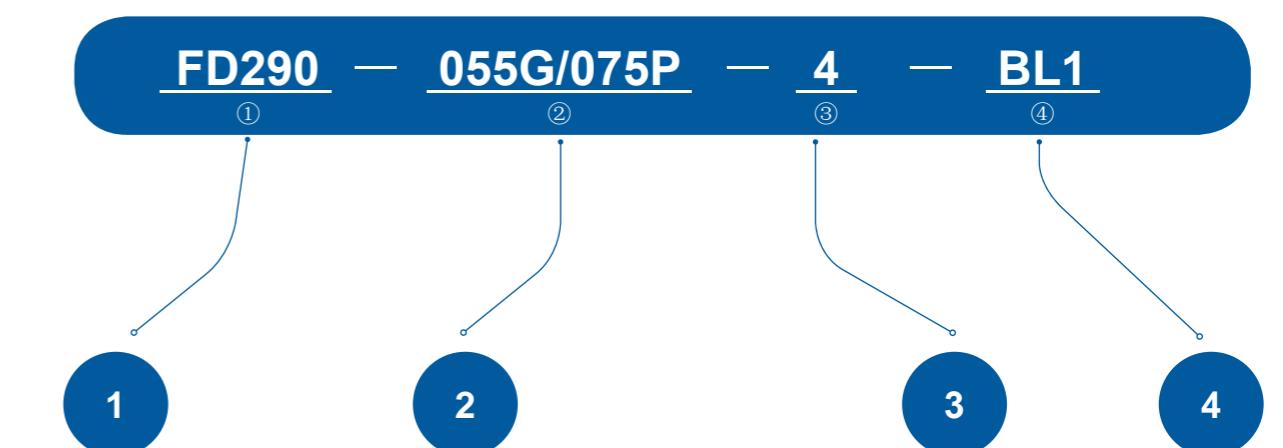
■ Abundant extended functions

■ Strengthen the expansion capability and meet the needs of a variety of applications at the same time



- (1) Optional I/O card, CANopen communication card, Profibus-DP communication card and isolated 485 communication card can quickly meet the personalized needs of customers.
- (2) Support external keyboard for more convenient debugging operation

Product model and Parameters



FD290:290Series

055G—Constant torque load 55kW
075P—Constant power load 75kW

Input Voltage: L0: Built-in input reactor
4:Three phase 380V (-15%)~440V(+10%) L1: Built-in DC reactor
L2: Built-in output reactor
B: Built-in brake unit model

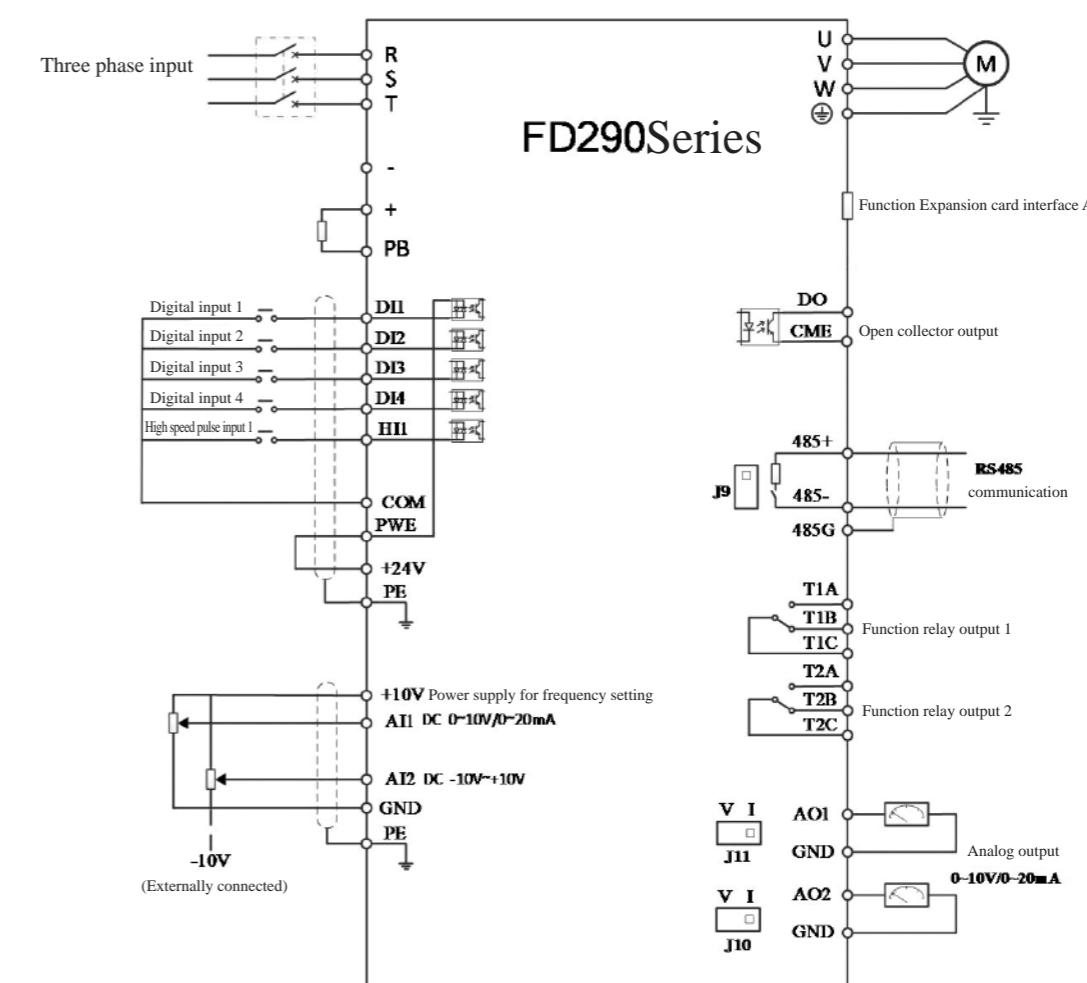
Model No. description

Product Model and Rated Current Parameters

| ModelNo. | Output power (kW) | | Input current(A) | | Output current(A) | | Standard | Apogamic | |
|-----------------------|---|--------|------------------|--------|-------------------|--------|-----------------------------------|----------|--|
| | G Type | P Type | G Type | P Type | G Type | P Type | | | |
| FD290-1R5G/2R2P-4-B | 1.5 | 2.2 | 5.0 | 5.8 | 3.7 | 5 | Standard brake unit | | |
| FD290-2R2G/003P-4-B | 2.2 | 4 | 5.8 | 13.5 | 5 | 9.5 | | | |
| FD290-004G/5R5P-4-B | 4 | 5.5 | 13.5 | 19.5 | 9.5 | 14 | | | |
| FD290-5R5G/7R5P-4-B | 5.5 | 7.5 | 19.5 | 25 | 14 | 18.5 | | | |
| FD290-7R5G/011P-4-B | 7.5 | 11 | 25 | 32 | 18.5 | 25 | | | |
| FD290-011G/015P-4-B | 11 | 15 | 32 | 40 | 25 | 32 | | | |
| FD290-015G/018P-4-B | 15 | 18.5 | 40 | 47 | 32 | 38 | | | |
| FD290-018G/022P-4-B | 18.5 | 22 | 47 | 51 | 38 | 45 | | | |
| FD290-022G/030P-4-B | 22 | 30 | 51 | 70 | 45 | 60 | | | |
| FD290-030G/037P-4-B | 30 | 37 | 70 | 80 | 60 | 75 | | | |
| FD290-037G/045P-4-B | 37 | 45 | 80 | 98 | 75 | 92 | Standard brake unit | | |
| FD290-045G/055P-4 | 45 | 55 | 98 | 128 | 92 | 115 | | | |
| FD290-055G/075P-4 | 55 | 75 | 128 | 139 | 115 | 150 | | | |
| FD290-075G/090P-4 | 75 | 90 | 139 | 168 | 150 | 180 | | | |
| FD290-090G/110P-4 | 90 | 110 | 168 | 201 | 180 | 215 | | | |
| FD290-110G/132P-4 | 110 | 132 | 201 | 265 | 215 | 260 | | | |
| FD290-132G/160P-4 | 132 | 160 | 265 | 310 | 260 | 305 | | | |
| FD290-160G/185P-4 | 160 | 185 | 310 | 345 | 305 | 340 | | | |
| FD290-185G/200P-4 | 185 | 200 | 345 | 385 | 340 | 380 | | | |
| FD290-200G/220P-4 | 200 | 220 | 385 | 430 | 380 | 425 | Optional DC reactor | | |
| FD290-220G/250P-4 | 220 | 250 | 430 | 460 | 425 | 480 | | | |
| FD290-250G/280P-4 | 250 | 280 | 460 | 500 | 480 | 530 | | | |
| FD290-280G/315P-4 | 280 | 315 | 500 | 580 | 530 | 600 | | | |
| FD290-315G/355P-4 | 315 | 355 | 580 | 625 | 600 | 650 | | | |
| FD290-355G/400P-4 | 355 | 400 | 625 | 715 | 650 | 720 | | | |
| FD290-400G/450P-4 | 400 | 450 | 715 | 840 | 720 | 820 | | | |
| FD290-450G/500P-4 | 450 | 500 | 840 | 890 | 820 | 860 | | | |
| FD290-500G/560P-4-L02 | 500 | 560 | 890 | 997 | 860 | 1020 | Standard input+output DC react or | | |
| FD290-560G/630P-4-L02 | 560 | 630 | 997 | 1121 | 1020 | 1100 | | | |
| FD290-630G-4-L02 | 630 | / | 1121 | / | 1100 | / | | | |
| Remark | 1. FD290 380V Single Unit maximum is 630kW. 2. Under the allowable input voltage range, the output current shall not exceed the rated output current; The output power shall not exceed the rated output power. 3. Built-in brake unit shall be configured below 37kW (included); 45-110kW optional built-in brake unit. 4. 18.5-450kW standard DC reactor.5. 200-450kW optional output reactor. | | | | | | | | |

■ Abundant external interfaces to meet most of the application

| Terminals | Quantity | Specification | Scalable quantity |
|-------------------------|----------|---|-------------------|
| Digital input | 4 | Programmable multifunctional terminalMaximum input frequency: 1kHzCompatible with NPN and PNP inputs | 4 |
| High speed pulse input | 1 | Maximum input frequency: 50KHzCompatible with NPN and PNP inputsIt supports orthogonal encoder input and has speed measurement function | 1 |
| Analog input | 2 | 0~10V,0~20mA; -10~10V | 1 |
| Digital output | 1 | Max. output frequency:1KHz | 0 |
| High speed pulse output | 0 | Max. output frequency:100kHz | 1 |
| Analog output | 2 | 0-10V,0-20mA | 1 |
| Relay output | 2 | 3AIAC250V, 1ADC30V,NO+NC | 2 |



Control circuit wiring diagram

Technical Parameters

| Function | | Specification |
|---------------------------------|---------------------------------------|---|
| Power input | Input Voltage(V) | AC 3PH 380V(-15%)~440V(+10%) Rated Voltage:380V |
| | Input Current(A) | Please refer to "Product rated current parameters" |
| | Input Frequency(Hz) | 50Hz or 60Hz,Allowance range:47~63Hz |
| Power output | Output Voltage(V) | 0~Input Voltage |
| | Output Current(A) | Please refer to "Product rated current parameters" |
| | Output Power(kW) | Please refer to "Product rated current parameters" |
| | Output Frequency(Hz) | 0~400Hz |
| Technical control performance | Control Mode | Space voltage vector control mode, no PG vector control mode |
| | Motor Type | Asynchronous motor, synchronous motor. |
| | Speed regulation ratio | Asynchronous motor 1:200 (SVC), synchronous motor 1:50 (SVC), 1:1000 (VC) |
| | Speed control accuracy | ±0.2%(no PG vector control mode) |
| | Speed fluctuation | ± 0.3%(no PG vector control mode) |
| | Torque response | <20ms(no PG vector control mode) |
| | Torque control accuracy | 10%(no PG vector control mode) |
| | Starting Torque | Asynchronous motor:0.25Hz/150%(no PG vector control mode) Synchronous motor:1Hz/150%(no PG vector control mode) |
| | Overload Capacity | (G type machine): 150% rated current 1min, 180% rated current 10S, 200% rated current 1s (P type machine): 120% rated current 1min, 150% rated current 3S, 160% rated current 1s |
| | | Digital setting, analog setting, pulse frequency setting, multi-step speed running setting, simple PLC setting, PID setting, Modbus communication setting, PROFIBUS communication setting. Switch between the combination and single setting channel. |
| Operational control performance | Frequency setting mode | |
| | Automatic voltage adjustment function | Keep constant voltage automatically when the grid voltage transients |
| | Failsafe function | 4 common inputs, the Max. frequency: 1kHz, internal impedance: 3.3kΩ; 2 high speed input, the Max. frequency: 100kHz |
| | Speed tracking restart function | The inverter(VFD) can track the rotating speed of the rotating motor in full frequency band and Smooth starting of the rotating motor |
| Peripheral interface | Analog input | 1(AI1)0~10V/0~20mA,1(AI2)-10~10V |
| | Analog output | 2(AO1,AO2)0~10V /0~20mA |
| | Terminal analog input resolution | ≤ 20mV |
| | Terminal switch input resolution | ≤ 2ms |
| | Digital input | 4 common inputs, the Max. frequency: 1kHz, internal impedance: 3.3kΩ; 2 high speed input, the Max. frequency: 100kHz |
| | Digital output | 1 DO terminal output collector open-circuit output |
| | Relay output | 2 programmable relay outputs T1A NO, T1B NC, T1C common terminal T2A NO, T2B NC, T2C common terminal Contactor capability: 3A/AC250V,1A/DC30V |
| | Communication interface | 1 RS485 (non-isolated) |
| | Extended interfaces | Support 1-channel expansion card slot, which can install I/O card, communication card, etc |

| Volume (case code) | Inverter Model | Mounting hole location(mm) | | | | Dimension(mm) | | | | Mounting Hole Dia(mm) |
|----------------------------------|-----------------------|----------------------------|-----|------|------|---------------|-----|-----|-----|-----------------------|
| | | A1 | A2 | B | H | H1 | W | W1 | D | |
| C1 | FD290-1R5G/2R2P-4-B | 114 | 180 | 190 | / | 125 | / | 185 | φ5 | φ5 |
| | FD290-2R2G/003P-4-B | | | | | | | | | |
| | FD290-004G/5R5P-4-B | | | | | | | | | |
| | FD290-5R5G/7R5P-4-B | | | | | | | | | |
| C2 | FD290-7R5G/011P-4-B | 147 | 298 | 310 | / | 160 | / | 208 | φ6 | φ6 |
| | FD290-011G/015P-4-B | | | | | | | | | |
| | FD290-015G/018P-4-B | | | | | | | | | |
| C3 | FD290-018G/022P-4-B | 187 | 333 | 345 | / | 200 | / | 208 | φ6 | φ6 |
| | FD290-022G/030P-4-B | | | | | | | | | |
| C4 | FD290-030G/037P-4-B | 227 | 378 | 390 | / | 240 | / | 222 | φ6 | φ6 |
| | FD290-037G/045P-4-B | | | | | | | | | |
| C5 | FD290-045G/055P-4 | 180 | 540 | 515 | 555 | 285 | / | 252 | φ9 | φ9 |
| | FD290-055G/075P-4 | | | | | | | | | |
| | FD290-075G/090P-4 | | | | | | | | | |
| C6 | FD290-090G/110P-4 | 260 | 535 | 511 | 555 | 340 | / | 336 | φ11 | φ11 |
| | FD290-110G/132P-4 | | | | | | | | | |
| | FD290-132G/160P-4 | | | | | | | | | |
| C7 | FD290-160G/185P-4 | 260 | 800 | 775 | 825 | 340 | / | 400 | φ11 | φ11 |
| | FD290-185G/200P-4 | | | | | | | | | |
| No built-in output reactor | | | | | | | | | | |
| C8 | FD290-200G/220P-4 | 260 | 170 | 980 | 1080 | 1133 | 340 | / | 475 | φ11 |
| | FD290-220G/250P-4 | | | | | | | | | |
| C9 | FD290-250G/280P-4 | 260 | 170 | 1149 | 1260 | 1313 | 340 | / | 550 | φ11 |
| | FD290-280G/315P-4 | | | | | | | | | |
| | FD290-315G/355P-4 | | | | | | | | | |
| C10 | FD290-355G/400P-4 | 260 | 170 | 1259 | 1370 | 1423 | 340 | / | 550 | φ11 |
| | FD290-400G/450P-4 | | | | | | | | | |
| | FD290-450G/500P-4 | | | | | | | | | |
| Optional built-in output reactor | | | | | | | | | | |
| C8 | FD290-200G/220P-4-L2 | 260 | 170 | 980 | 1440 | 1493 | 340 | 422 | 475 | φ11 |
| | FD290-220G/250P-4-L2 | | | | | | | | | |
| C9 | FD290-250G/280P-4-L2 | 260 | 170 | 1149 | 1591 | 1644 | 340 | 478 | 550 | φ11 |
| | FD290-280G/315P-4-L2 | | | | | | | | | |
| | FD290-315G/355P-4-L2 | | | | | | | | | |
| C10 | FD290-355G/400P-4-L2 | 260 | 170 | 1259 | 1701 | 1754 | 340 | 478 | 550 | φ11 |
| | FD290-400G/450P-4-L2 | | | | | | | | | |
| | FD290-450G/500P-4-L2 | | | | | | | | | |
| C11 | FD290-500G/560P-4-L02 | / | / | / | 1900 | / | 650 | / | 600 | / |
| | FD290-560G/630P-4-L02 | | | | | | | | | |

FD200 series compact inverter



Compact and smart drive

FD200 series inverter is a compact inverter launched by FGI based on the market demand of small size, costeffective and high reliability. FD200 adopts vector control technology without speed sensor, with excellent control and drive performance, voltage level covers 220V, 380V, with high power density, small size, easy integration, high EMC design specifications, high protection performance, widely used in textile, centrifuge, machine tools, filling, lithium, ceramics, wood engraving, glass grinding and other automated machinery fields.



Compact and delicate structural design

Small size and high power density can be installed side by side, effectively reducing the space into a cabinet support wall mounting, rail mounting and side wall mounting



Mini design

Multiple machines can be installed side by sideSave system integration space



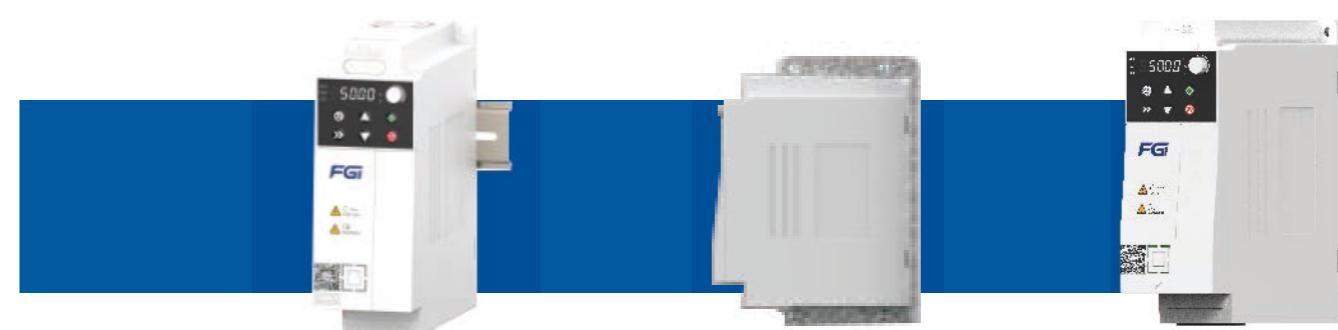
Independent air duct design



>>>>>>>>
Reduce volume by more than 30%



Flexible installation



Guide rail mounting

Sidewall mounting

Wall mounting

Performance Introduction

■ Improved performance

Advanced motor drive technology for high-efficiency operation of synchronous asynchronous motors

 **Rich motor identification methods**

Efficient and fast motor parameter identification algorithm, support a variety of self-learning methods, dynamic and static learning is accurate and consistent, no manual adjustment, give full play to the drive performance.

 **Reliable braking performance**

Integrated DC, flux, short circuit and other various braking methods, can realize large inertia safe and fast stopping of the load.

 **Shock-free speed tracking**

The software automatically searches for motor speed and direction, allowing the motor to be started at any speed smoothly.

 **Stable low frequency heavy load performance**

In closed-loop vector mode, lowfrequency torque large, small torque pulsation, can achieve very Low speed 0.01HZ stable operation with load. Torque and speed modes can be smoothly switched on line.

 **Superior motor control algorithm**

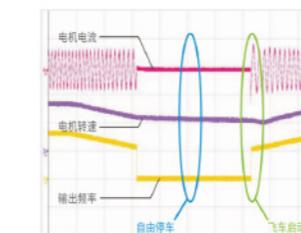
- New magnetic field orientation control algorithm, superior performance in low frequency and heavy load, and improved torque control accuracy.
- New speed observer, reducing motor parameter dependence and improving speed control stability.

 **Precise torque limiting**

The " digger" feature limits torque output through highly precise torque limiting function, in case of sudden load changes can protect machinery effectively.

■ Bus voltage stability control

New high-speed weak-magnetic algorithm enables 10 times weak-magnetic speed range Highly accurate speed output.



■ Integrates speed, torque and position control

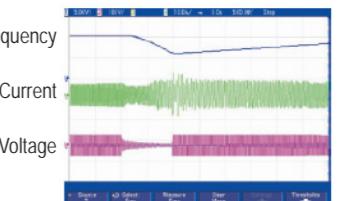
More accurate and powerful motor torque, speed and position control capability

(1) Position control performance applicable to mechanical positioning

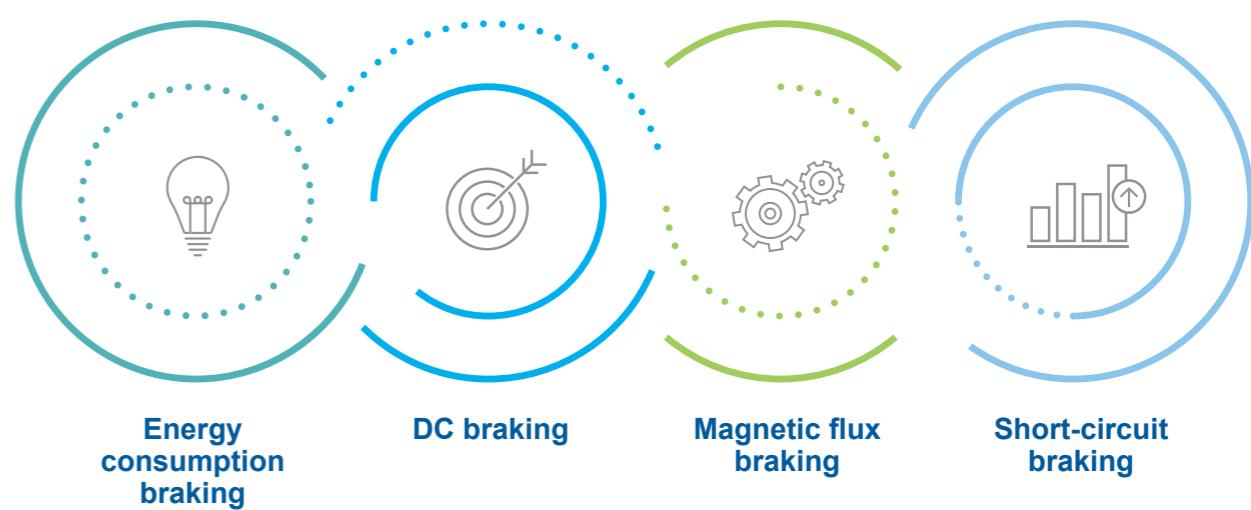
(2) Torque and speed control performance to ensure smooth and fast response and low torque fluctuation

■ Non-stop automatic frequency reduction function for sudden drop

When the power grid suddenly drops, the inverter can operate within the effective time by feed-back energy without stopping. It is especially suitable for applications requiring high continuity of equipment operation, such as chemical fiber and textile production lines.



■ Provides multiple braking methods for quick stopping



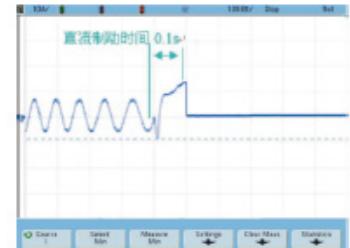
Energy consumption braking

- High braking torque and fast braking speed
- Suitable for frequent braking of large inertial loads.
- Must be equipped with braking unit and Braking resistor.

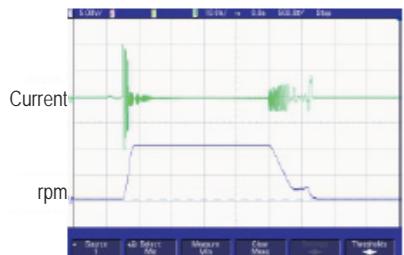
- No need to configure a braking unit and braking resistor.
- Suitable for braking then starting a motor in free running. Suitable for applications where torque output needs to be maintained after braking to zero speed.
- Not suitable for frequent or fast braking of large inertia loads. Not suitable for braking when the motor is running at high speed.

- Fast braking without the need for a braking unit and braking resistor.
- Suitable for fast stopping of large inertia loads where braking is not too frequent.
- Not applicable to frequent braking of large inertia loads. (Energy consumption on the stator, motor cooling effect is better than DC braking)

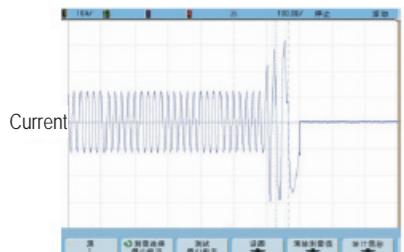
- Quick braking is possible without the need to configure a braking unit and braking resistor.
- Only applicable to permanent magnet synchronous motor in fast stopping or braking before starting free running.
- Not suitable for frequent braking of large inertia loads.



Asynchronous motor space voltage vector control mode braking current 100%, DC braking start frequency 10Hz, braking time 0.1s current waveform.



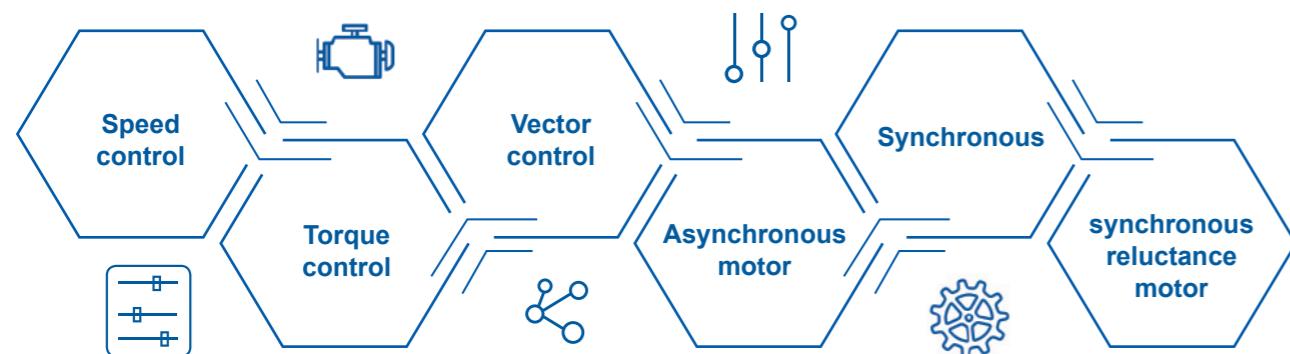
Short-circuit braking waveform of permanent magnet synchronous motor, acceleration time 0.1s, deceleration time 0.4s (motor rated frequency 100Hz, short-circuit braking frequency 20Hz, braking time 0.5s)



Asynchronous motor space voltage vector control mode operating frequency 50Hz, with 100% rated load deceleration time 0.1s, flux braking current waveform.

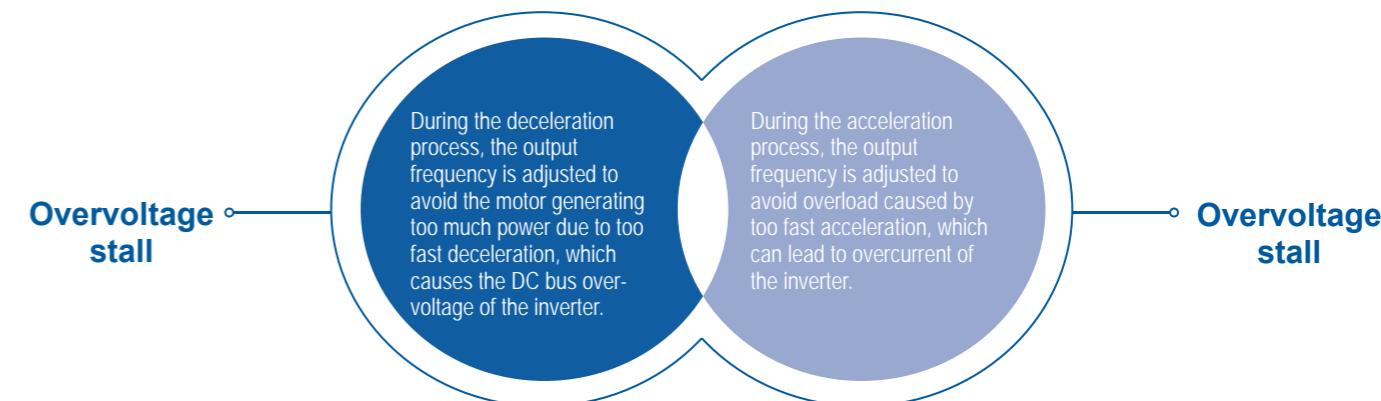
Integrates synchronous and asynchronous motor drives

Drive all kinds of motors: direct-drive motors, permanent magnet synchronous motors, electric spindles, asynchronous servo motors, general asynchronous motors, inverter motors, servo motors, etc.

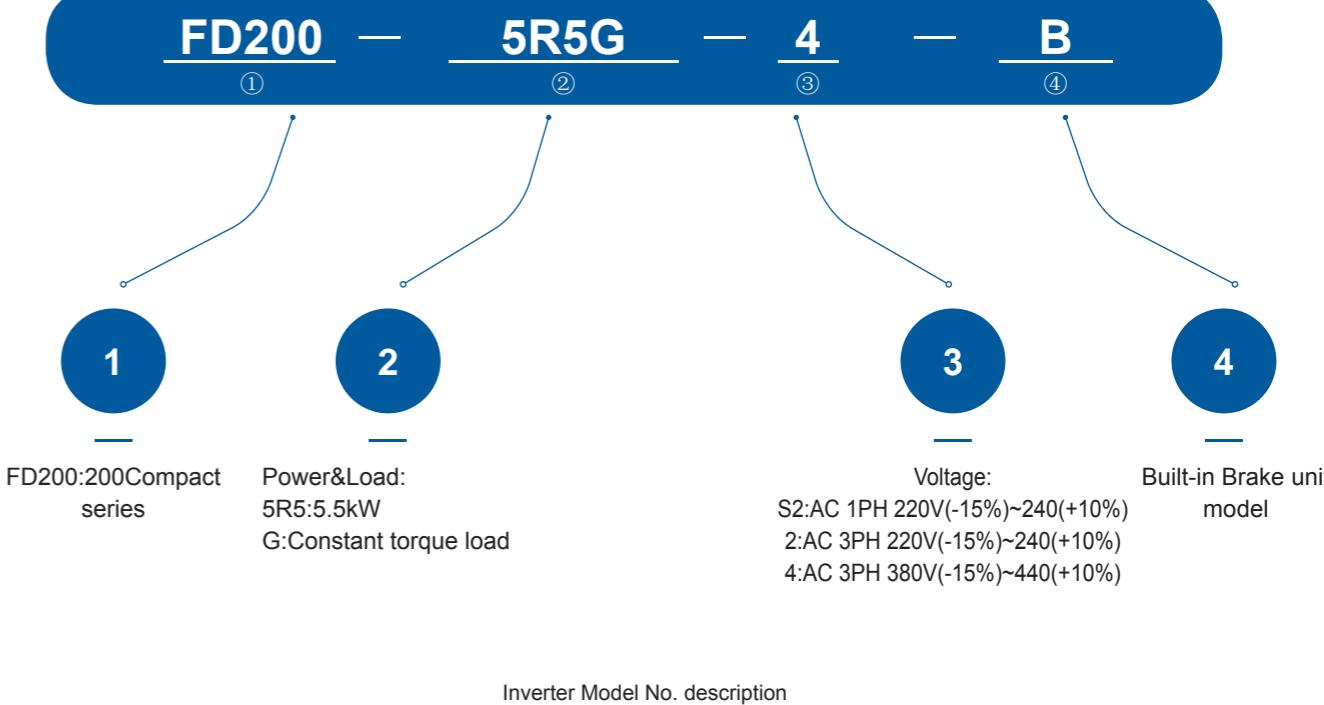


Safe and perfect protection function:

Provide multiple protection such as short circuit, over voltage, over current, over load and over heat



Product model and Parameters



Product Model and Rated Current Parameters

| Size Code | Model | Voltage | Output Power(kW) | Input Current(A) | Output Current(A) | Carrier Frequency(kHz) |
|-----------|---------------|-------------------|------------------|------------------|-------------------|------------------------|
| A1 | FD200-0R4G-S2 | Single Phase 220V | 0.4 | 6.5 | 2.5 | 1~15(4) |
| A1 | FD200-0R7G-S2 | | 0.75 | 9.3 | 4.2 | 1~15(4) |
| A1 | FD200-1R5G-S2 | | 1.5 | 15.7 | 7.5 | 1~15(4) |
| A1 | FD200-2R2G-S2 | | 2.2 | 24 | 10 | 1~15(4) |
| A1 | FD200-0R4G-2 | 3-Phase 220V | 0.4 | 3.7 | 2.5 | 1~15(4) |
| A1 | FD200-0R7G-2 | | 0.75 | 5 | 4.2 | 1~15(4) |
| A1 | FD200-1R5G-2 | | 1.5 | 7.7 | 7.5 | 1~15(4) |
| A1 | FD200-2R2G-2 | | 2.2 | 11 | 10 | 1~15(4) |
| A1 | FD200-0R7G-4 | 3-Phase 380V | 0.75 | 3.4 | 2.5 | 1~15(4) |
| A1 | FD200-1R5G-4 | | 1.5 | 5.0 | 4.2 | 1~15(4) |
| A1 | FD200-2R2G-4 | | 2.2 | 5.8 | 5.5 | 1~15(4) |
| A1 | FD200-004G-4 | | 4 | 13.5 | 9.5 | 1~15(4) |
| A2 | FD200-5R5G-4 | | 5.5 | 17 | 14 | 1~15(4) |
| A3 | FD200-7R5G-4 | | 7.5 | 25 | 18.5 | 1~15(4) |
| A3 | FD200-011G-4 | | 11 | 32 | 25 | 1~15(4) |

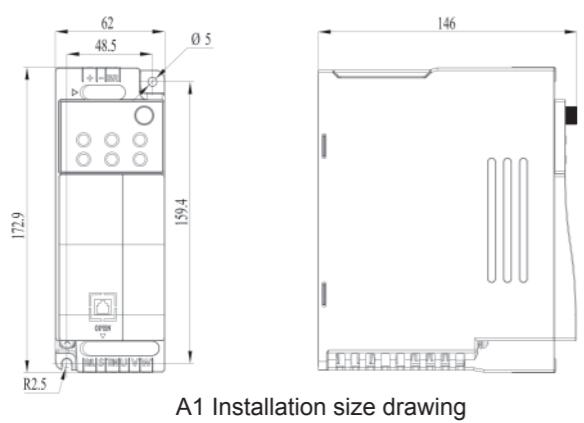
Technical Specification

| Function | | Specification |
|-------------------------------|-------------------------|--|
| Input Power | Input voltage | AC 1PH 220V,AC 3PH 220V,AC 3PH 380V |
| | Input current | Please refer to "Product rated current parameters" |
| | Input frequency | 50Hz or 60Hz, allowable range: 47~63Hz |
| Output Power | Output voltage | 0~Input Voltage |
| | Output Current | Please refer to "Product rated current parameters" |
| | Output power | Please refer to "Product rated current parameters" |
| | Output frequency | 0~400Hz |
| Technical control performance | Control mode | Space voltage vector control mode/no PG vector control mode/PG vector control mode |
| | Motor type | Asynchronous motor, synchronous motor |
| | Speed regulation ratio | Asynchronous motor:200(SVC),synchronous motor 1:20(SVC),1:1000(VC) |
| | Speed control accuracy | ±0.2% (without PG vector control), ±0.02% (with PG vector control) |
| | Speed fluctuation | ± 0.3% (without PG vector control) |
| | Torque Response | <20ms (without PG vector control), <10ms (with PG vector control) |
| | Torque control accuracy | 10% (without PG vector control), 5% (with PG vector control) |
| | Start torque | Asynchronous motor: 0.25Hz/150% (without PG vector control) Synchronous motor: 2.5Hz/150% (without PG vector control) |
| | Overload capacity | 150% rated current for 1min, 180% rated current for 3s |
| | Frequency setting mode | Digital setting, analog setting, pulse frequency setting, multi-speed operation setting, simple PLC setting, PID setting, Modbus communication setting, Profibus communication setting, etc. Combination of settings and switching of setting channels can be realized |
| Operation control performance | Auto voltage adjustment | When the grid voltage changes, it can automatically keep the output voltage constant |
| | Failsafe function | Provide more than thirty kinds of fault protection functions: over-current, over-voltage, under-voltage, over-temperature, phase-loss, overload and other protection functions |
| | RPM tracking start | Full range of speed tracking for rotating motors and achieves smooth start without shocks |
| | Analogue input | 1 (AI1) 0~10V/0~20mA, Channel 1 (AI2) -10~10V [increase or decrease according to the case] |
| Peripheral Interface | Analogue output | 1(AO1)0~10V /0~20mA |
| | Digital input | 3 normal input, maximum frequency 1kHz, internal capacitance: 3.3kΩ; 1 high speed input, maximum frequency 50kHz |
| | Digital output | 1 high speed pulse output, maximum frequency 50kHz; 1 DO terminal output open collector output |
| | Relay output | 1 programmable relay output T1A normally open, T1B normally closed, T1C public port |

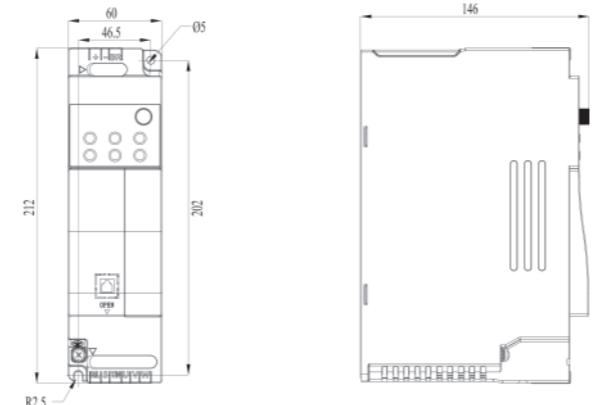
■ Extensive external interfaces to meet most application areas

Installation dimensions

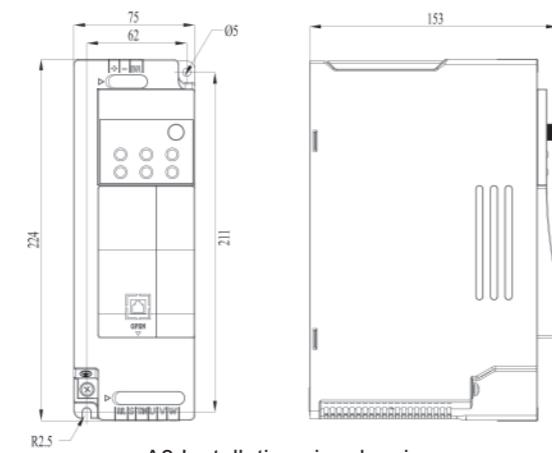
■ Wall mounting size



A1 Installation size drawing



A2 Installation size drawing

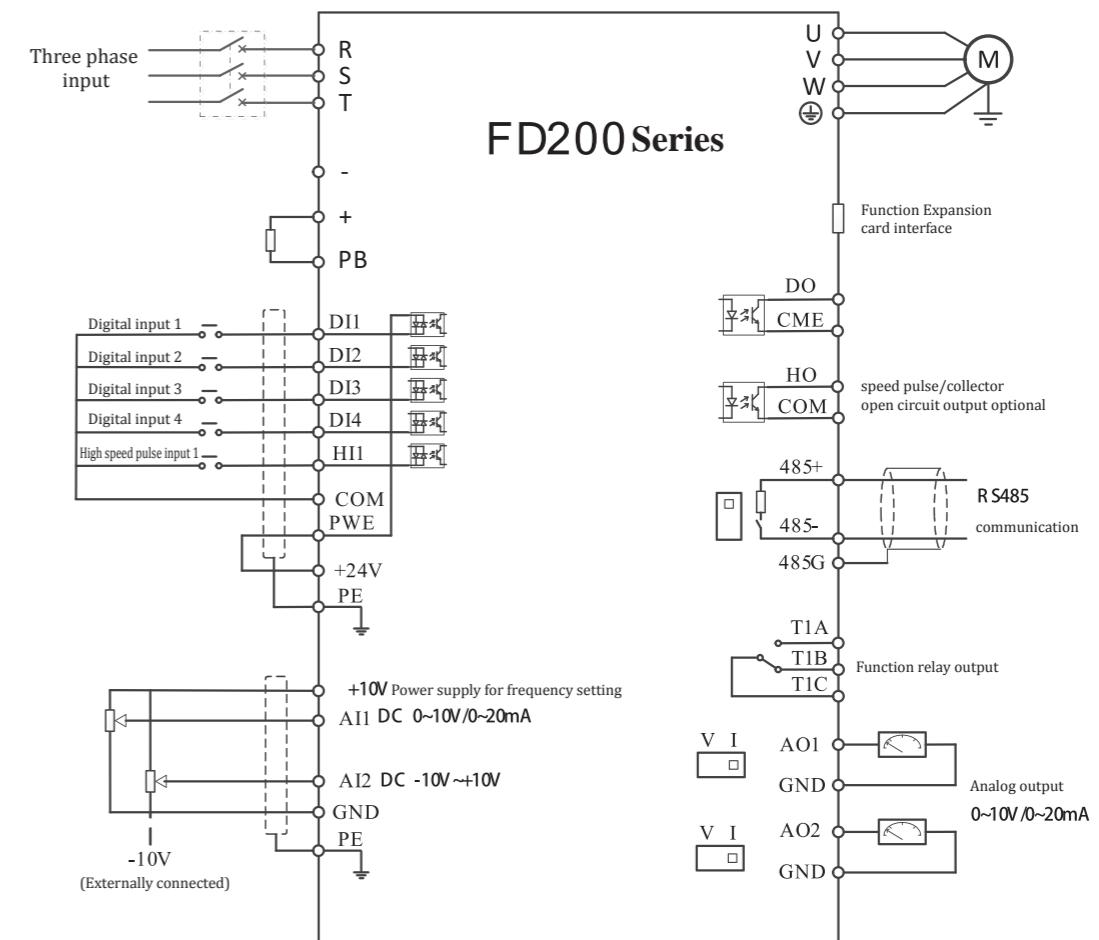


A3 Installation size drawing

Wall mounting size comparison

| Size code | Inverter model | size(mm) | | | Mounting hole position(mm) | | | Mounting hole Dia | Set screw |
|-----------|----------------|----------|-------|-----|----------------------------|-------|----|-------------------|-----------|
| | | W | H1 | D | A1 | A2 | B1 | | |
| A1 | FD200-0R7G-4 | 62 | 172.9 | 146 | 48.5 | 159.4 | Φ5 | M4 | |
| A1 | FD200-1R5G-4 | 62 | 172.9 | 146 | 48.5 | 159.4 | Φ5 | M4 | |
| A1 | FD200-2R2G-4 | 62 | 172.9 | 146 | 48.5 | 159.4 | Φ5 | M4 | |
| A2 | FD200-004G-4 | 60 | 212 | 146 | 46.5 | 202 | Φ5 | M4 | |
| A2 | FD200-5R5G-4 | 60 | 212 | 146 | 46.5 | 202 | Φ5 | M4 | |
| A3 | FD200-7R5G-4 | 75 | 224 | 153 | 62 | 224 | Φ5 | M4 | |
| A3 | FD200-011G-4 | 75 | 224 | 153 | 62 | 224 | Φ5 | M4 | |

| Feature | Quantity | Feature |
|-------------------------|----------|---|
| On-off input | 4 | Programmable multi-function terminal |
| High speed pulse input | 1 | Maximum input frequency: 50kHz |
| Analog quantity input | 2 | 0~10V/0~20mA;-10V~10V |
| On-off output | 1 | Maximum output frequency 1kHz |
| High speed pulse output | 2 | 0~10V/0~20mA |
| Relay output | 1 | T1A normally open, T1B normally close, T1C public port 3A/AC250V,1A/DC30V |
| 485 Communication port | 1 | 485+, 485- |



Control circuit wiring diagram

FD2000 series mine explosion-proof frequency conversion movement



Product advantage

Wide power range



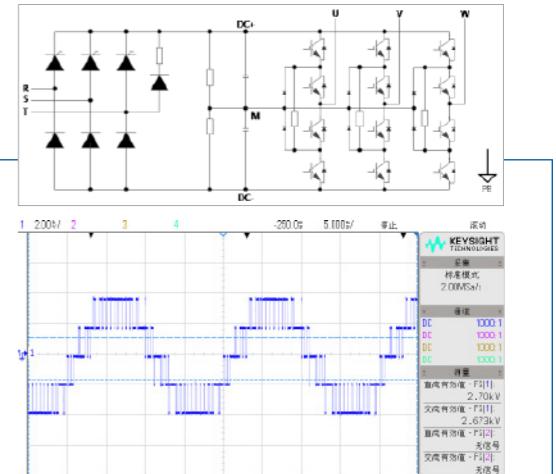
660V 22~500kW

1140V 55~1250kW

3300V 630~2500kW

Three level topology and control technology

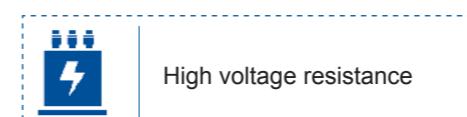
- Three level output, low harmonic content, reduces filter cost and size
- Reduce the output du/dt (voltage change rate) and minimize insulation damage to the motor
- Reduce the common mode voltage of the motor and decrease the shaft current



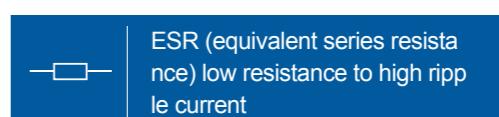
Integrating asynchronous motor and synchronous motor control



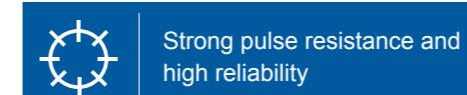
Design of Long Life Thin Film Capacitors



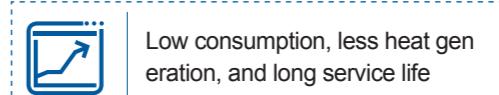
High voltage resistance



ESR (equivalent series resistance) low resistance to high ripple current



Strong pulse resistance and high reliability

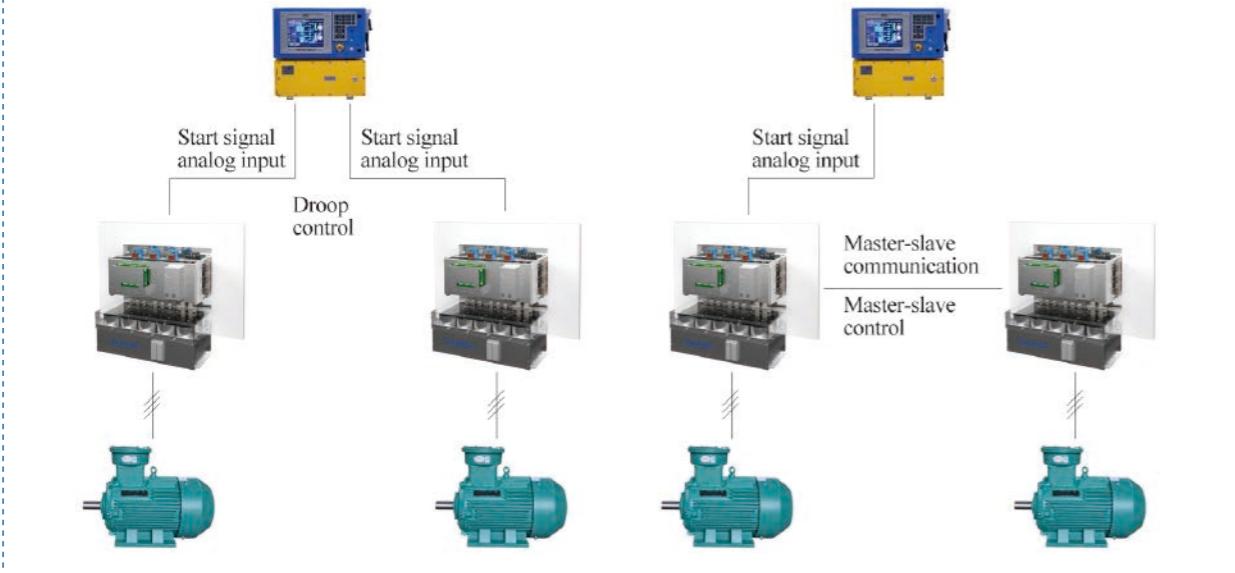


Low consumption, less heat generation, and long service life



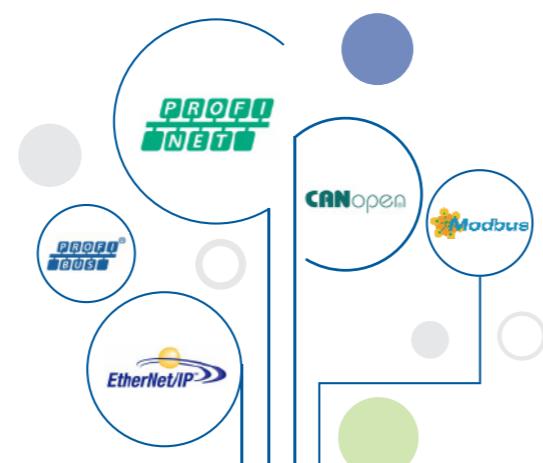
■ Master slave control technology, multi machine power balance

Master slave control technology, built-in speed control mode and torque control mode, achieving power balance of multiple motors



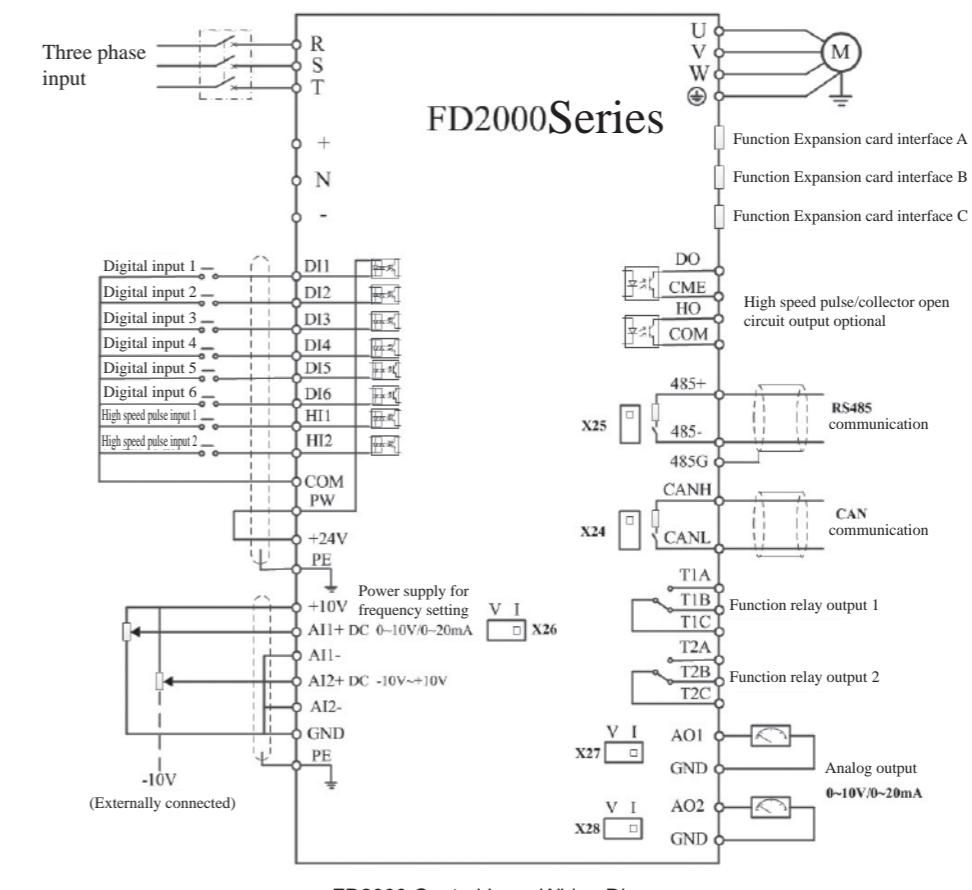
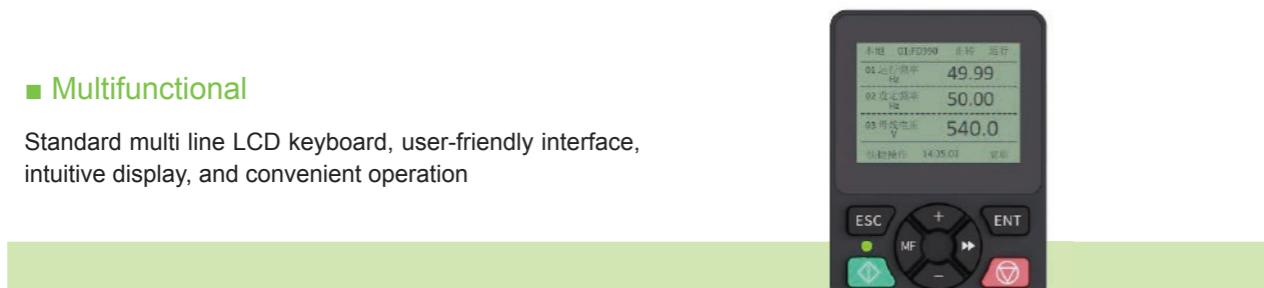
■ Rich communication protocols

Supporting mainstream industrial fieldbus protocols and optional cards, facilitating customer system integration, achieving centralized and intelligent management of equipment



■ Multifunctional

Standard multi line LCD keyboard, user-friendly interface, intuitive display, and convenient operation



FD2000 Control Loop Wiring Diagram

Product model and Parameters

FD2000 — 02 — 1000G — 6 — A2B2

| 1 | 2 | 3 | 4 | 5 |
|-------------------------------|--|---------------------------|---|--|
| Product Series | Product Type | Rated Power | Voltage | Marking |
| FD2000Medium Voltage Inverter | 10: Two quadrant movement 80: Four quadrant movement 10F: Two quadrant cabinet machine 80F: Four quadrant cabinet machine | 075G:75kW 1000G:1000kW | 6:660V 12:1140V 23: 2300V 33:3300V | A:Cooling method 2:IP grade B:Reserved 2:Reserved |

3300V Product Model and Rated Current Parameters

| Model | Type | Power(kW) | Rated input current(A) | Rated output current(A) |
|----------------------|-------------------------|-----------|------------------------|-------------------------|
| FD2000-10-1000G-33 | Two quadrant movement | 1000 | 206 | 214 |
| FD2000-10-1250G-33 | Two quadrant movement | 1250 | 228 | 280 |
| FD2000-10-1600G-33 | Two quadrant movement | 1600 | 303 | 328 |
| FD2000-10-2000G-33 | Two quadrant movement | 1600 | 410 | 408 |
| FD2000-10-2500G-33 | Two quadrant move | 2500 | 515 | 535 |
| FD2000-10-2*1000G-33 | 2 Combination movements | 2*1000 | 2*206 | 2*214 |
| FD2000-10-2*1250G-33 | 2 Combination movements | 2*1250 | 2*228 | 2*280 |
| FD2000-10-2*1600G-33 | 2 Combination movements | 2*1600 | 2*303 | 2*328 |
| FD2000-10-2*2000G-33 | 2 Combination movements | 2*1600 | 2*410 | 2*408 |
| FD2000-10-2*2500G-33 | 2 Combination movements | 2*2500 | 2*515 | 2*535 |
| FD2000-10-3*1000G-33 | 3 Combination movements | 3*1000 | 3*206 | 3*214 |
| FD2000-10-3*1250G-33 | 3 Combination movements | 3*1250 | 3*228 | 3*280 |
| FD2000-10-3*1600G-33 | 3 Combination movements | 3*1600 | 3*303 | 3*328 |
| FD2000-10-3*2000G-33 | 3 Combination movements | 3*1600 | 3*410 | 3*408 |
| FD2000-10-3*2500G-33 | 3 Combination movements | 3*2500 | 3*515 | 3*535 |

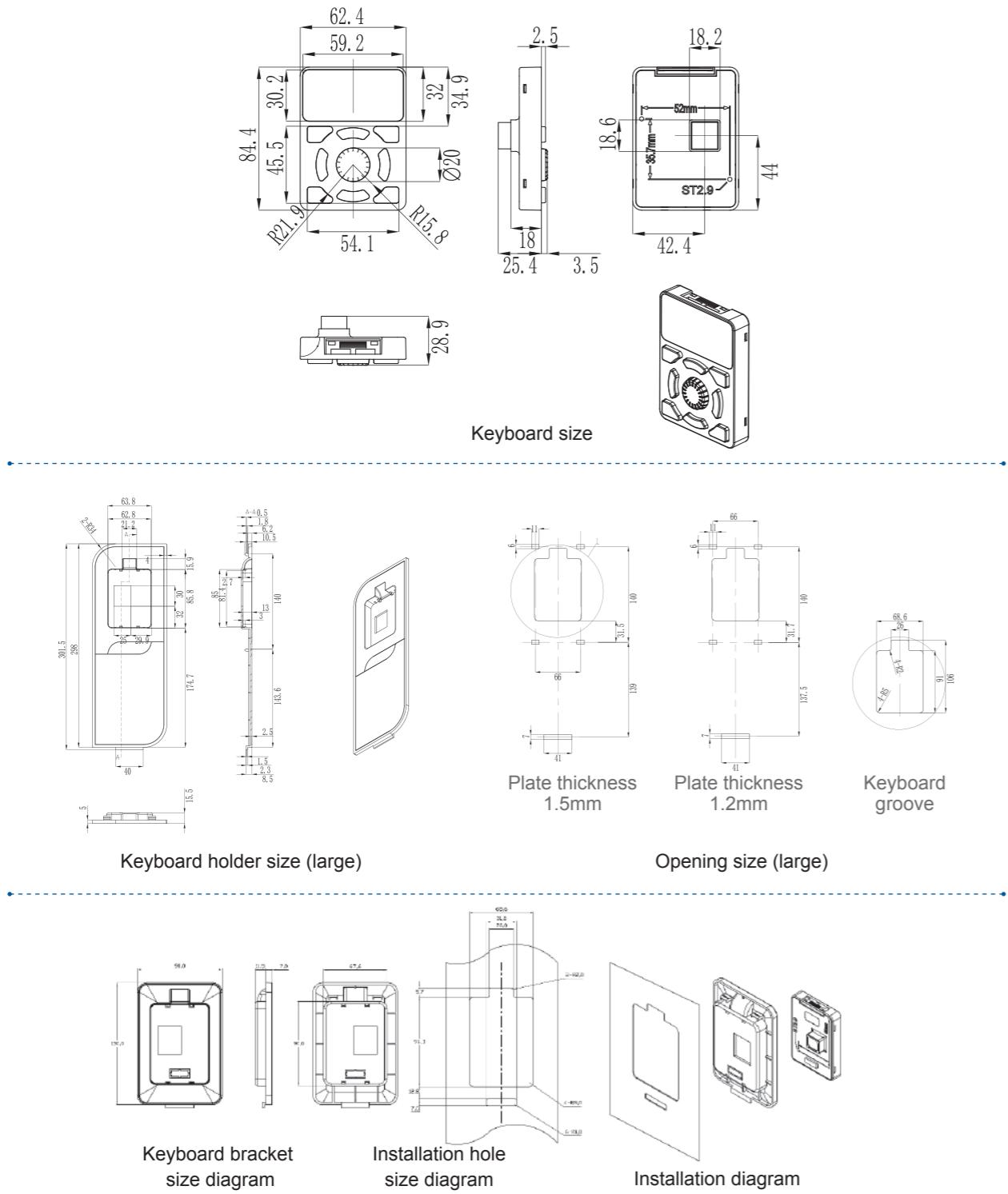
660V Product Model and Rated Current Parameters

| Model | Type | Power(kW) | Rated input current(A) | Rated output current(A) |
|------------------|------------------------|-----------|------------------------|-------------------------|
| FD2000-10-075G-6 | Two quadrant movement | 75 | 85 | 86 |
| FD2000-10-090G-6 | Two quadrant movement | 90 | 95 | 98 |
| FD2000-10-110G-6 | Two quadrant movement | 110 | 118 | 120 |
| FD2000-10-132G-6 | Two quadrant movement | 132 | 145 | 150 |
| FD2000-10-160G-6 | Two quadrant movement | 160 | 165 | 175 |
| FD2000-10-185G-6 | Two quadrant movement | 185 | 190 | 200 |
| FD2000-10-200G-6 | Two quadrant movement | 200 | 210 | 220 |
| FD2000-10-250G-6 | Two quadrant movement | 250 | 255 | 270 |
| FD2000-10-315G-6 | Two quadrant movement | 315 | 334 | 350 |
| FD2000-10-400G-6 | Two quadrant movement | 400 | 411 | 430 |
| FD2000-10-500G-6 | Two quadrant movement | 500 | 518 | 540 |
| FD2000-80-075G-6 | Four quadrant movement | 75 | 69 | 86 |
| FD2000-80-090G-6 | Four quadrant movement | 90 | 83 | 98 |
| FD2000-80-110G-6 | Four quadrant movement | 110 | 101 | 120 |
| FD2000-80-132G-6 | Four quadrant movement | 132 | 122 | 150 |
| FD2000-80-160G-6 | Four quadrant movement | 160 | 147 | 175 |
| FD2000-80-185G-6 | Four quadrant movement | 185 | 170 | 200 |
| FD2000-80-200G-6 | Four quadrant movement | 200 | 184 | 220 |
| FD2000-80-250G-6 | Four quadrant movement | 250 | 230 | 270 |
| FD2000-80-315G-6 | Four quadrant movement | 315 | 290 | 350 |
| FD2000-80-400G-6 | Four quadrant movement | 400 | 368 | 430 |
| FD2000-80-500G-6 | Four quadrant movement | 500 | 460 | 540 |

1140V Product Model and Rated Current Parameters

| Model | Type | Power(kW) | Rated input current(A) | Rated output current(A) |
|--------------------|------------------------|-----------|------------------------|-------------------------|
| FD2000-10-055G-12 | Two quadrant movement | 55 | 34 | 36 |
| FD2000-10-075G-12 | Two quadrant movement | 75 | 47 | 50 |
| FD2000-10-090G-12 | Two quadrant movement | 90 | 56 | 60 |
| FD2000-10-110G-12 | Two quadrant movement | 110 | 68 | 73 |
| FD2000-10-132G-12 | Two quadrant movement | 132 | 82 | 85 |
| FD2000-10-160G-12 | Two quadrant movement | 160 | 98 | 104 |
| FD2000-10-200G-12 | Two quadrant movement | 200 | 122 | 128 |
| FD2000-10-250G-12 | Two quadrant movement | 250 | 150 | 160 |
| FD2000-10-315G-12 | Two quadrant movement | 315 | 185 | 195 |
| FD2000-10-400G-12 | Two quadrant movement | 400 | 235 | 250 |
| FD2000-10-500G-12 | Two quadrant movement | 500 | 300 | 310 |
| FD2000-10-630G-12 | Two quadrant movement | 630 | 380 | 395 |
| FD2000-10-800G-12 | Two quadrant movement | 800 | 480 | 500 |
| FD2000-10-1000G-12 | Two quadrant movement | 1000 | 600 | 620 |
| FD2000-80-055G-12 | Four quadrant movement | 55 | 30 | 36 |
| FD2000-80-075G-12 | Four quadrant movement | 75 | 40 | 50 |
| FD2000-80-090G-12 | Four quadrant movement | 90 | 49 | 60 |
| FD2000-80-110G-12 | Four quadrant movement | 110 | 58 | 73 |
| FD2000-80-132G-12 | Four quadrant movement | 132 | 70 | 85 |
| FD2000-80-160G-12 | Four quadrant movement | 160 | 85 | 104 |
| FD2000-80-200G-12 | Four quadrant movement | 200 | 106 | 128 |
| FD2000-80-250G-12 | Four quadrant movement | 250 | 133 | 160 |
| FD2000-80-315G-12 | Four quadrant movement | 315 | 168 | 195 |
| FD2000-80-400G-12 | Four quadrant movement | 400 | 213 | 250 |
| FD2000-80-500G-12 | Four quadrant movement | 500 | 265 | 310 |
| FD2000-80-630G-12 | Four quadrant movement | 630 | 335 | 395 |
| FD2000-80-800G-12 | Four quadrant movement | 800 | 425 | 500 |
| FD2000-80-1000G-12 | Four quadrant movement | 1000 | 530 | 620 |

External keyboard mounting size (medium and low voltage products)



Application Field



Safe and Reliable

| Test type | Test Name | Subcategory |
|---|-------------------|--|
| Mechanical reliability testing | Packaging test | Packaging compression test |
| | | Resonance scanning and residence testing of packaging components |
| | | Random vibration test of packaging components |
| | | Packaging drop test |
| | | Rolling test of packaging components |
| | | Packaging drop test |
| | | Packaging oblique impact test |
| | Impact test | Half sine wave impact test (product working/row working state) |
| | | Trapezoidal wave impact test (product not in working condition) |
| | Vibration test | Positive child vibration test (product working state) |
| | | Random perturbation test (working status of product work schedule) |
| Climate based environmental reliability testing | Temperature test | Low temperature storage test |
| | | High temperature storage test |
| | | Low temperature working test |
| | | High temperature working test |
| | | Temperature gradient test |
| | | Temperature shock test |
| | Damp heat test | Constant humidity and heat test |
| | | Alternating humidity and heat test |
| | Salt spray test | Continuous salt spray test |
| | | Alternating salt spray test |
| | Low pressure test | Low temperature and low pressure comprehensive test |
| | | High temperature and low pressure comprehensive test |



Vibration test bench



High and low temperature test chamber



Low pressure test chamber

Full life cycle Worry-free service



Pre-sale, in-sale and after-sale

- Full life cycle management
- It is more reasonable for professional technicians to diagnose power consumption and select equipment
- Offer installation and commission guidance, training, and Q&A

Remote Monitoring

- Remote data monitoring center
- Master the equipment operation status in real time
- Timely maintenance alerts
- Predict faults

Service Organization

- 5 service centers
- 21 branches
- 24-hour response with solutions and online guidance
- Experienced and highly skilled technical team

Sunshine Service

- Regularly launch the "customer care, sunshine service" activities, in-depth user site to provide one-stop free service.
- Customers can come to the company for free visit, and the company organizes four times a year for customers to come to the company for training.



Stock: FGI
Stock Code: 688663



Website



Wechat Official
Account

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