Customer hotline: *400-619-2001*

EXCELLENT & SMART

**Create a better life with smart drive**

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CUMARK

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CUMARK



# ES Series

## High-performance Vector Control Low-voltage Frequency Converter



Official website

WeChat public platform

# *ES* Series Frequency Converter

## *Excellent & Efficient*
## *Intelligence Drives the Future*

Cumark elaborately produces ES series high-performance vector frequency converters, based on many years of experience accumulation in electric drive R&D and various industrial automation applications, in combination with internationally first-class drive technologies.

ES series products can meet industrial control demands from different fields under severe environments with their high performance, rich functions and perfect structures, and provide all-round competitive advantages including excellent quality, friendly human-machine interface, and convenient services.

Rich functions

High reliability

Intelligent fault diagnosis

Intelligent LCD Control Keyboard

Intelligent temperature monitoring

Intelligent setting of industry applications parameters

Intelligent V/F curve setting

Compact structure

Excellent performance

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# Company Profile

SHENZHEN CUMARK SCI.& TECH CO.,LTD. was founded on March 19, 2001. It has been focusing on R&D, production and sales of power electronic transmission and automation products . It is a national high-tech enterprise and awarded as "special frequency conversion engineering technology R&D center of Guangdong Province" . It relies on excellent technology and many years accumulated industry application experience, and provides users with efficient and reliable intelligent drive products and complete automation solutions.



CUMARK' s high, medium and low voltage series of intelligent frequency inverters and their relatd automation integrated products have a wide range of application prospects. They can be widely used in CNC machine tools and robots, marine engineering equipment, ships, rail transit equipment, Energy-saving and new energy vehicles, agricultural machinery and equipment, logistics and warehousing, electric power, coal, petrochemical, chemical, environmental protection, pharmaceuticals, non-ferrous metals, steel and other fields can help manufacturers improve equipment automation, energy conservation and efficiency, and reduce production costs, help the equipment manufacturing industry products green and intelligent upgrades and improve market competitiveness.

## Service Network



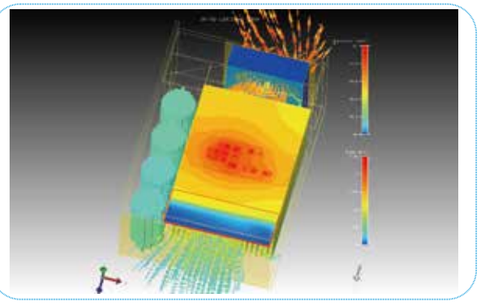

# List of ES Series Frequency Converters

| Type | Performance | Target market | Series | Appearance |
|---|---|---|---|---|
| General-purpose vector low-voltage variable frequency drive | 1) Standard configura☒on STO safety torque off func☒on<br>2) Support V/F and SVC vector control<br>3) Support permanent magnet synchronous motor/asynchronous motor control<br>4) Standard C3 filter<br>5) Large screen LCD or LED keyboard can be connected externally<br>6) All DI terminals both support PNP & NPN input, DI4 supports 60kHz high-speed input<br>7) Standard configura☒on of magne☒c flux braking func☒on<br>8) The carrier frequency can be adjusted intelligently according to the temperature | Food Machinery;<br>Tex☒le machinery;<br>Small water pump;<br>Packaging Machinery;<br>food processing;<br>Wood carving;<br>Blower;<br>Logis☒cs machinery;<br>Electronics manufacturing;<br>etc. | ES355(Asynchronous )<br>ES355L(Asynchronous & PM Synchronous )<br>220V 1PH 0.4~2.2kW<br>220V 3PH 0.4~2.2kW<br>380V 3PH 0.75~4.0kW |  |
| | 1) High reliability<br>2) Easy operation<br>3) Open-loop control & vector control<br>4) Compatible permanent magnet synchronization & 3phase asynchronous motor<br>5) Built in digital LED keyboard, optional Intelligent LCD display<br>6) Modular compact structure design | Ceramic equipment;<br>Dyeing & finishing equipment;<br>Woodworking machinery;<br>Glass mechanical;<br>Logistic & warehousing;<br>Extrusion equipment ;<br>Food machinery ;<br>Textile machinery ;<br>Rubber machine;<br>Conveyor;<br>Centrifuge ;<br>Compressor;<br>Fan;<br>Pump;<br>etc. | ES560 (Asynchr onous motor)<br>ES560 L (Asynchr onous, Synchronous )<br>380V 3PH 5.5~630KW |  |
| High-performance industrial variable frequency drive | 1) Small size and compact;<br>2) Easy commissioning, optional intelligent LCD keyboard;<br>3) Built-in RS485 communication included in standard configuration;<br>4) High-performance PID function; | Small water pumps,<br>Food packing,<br>Food processing<br>Wood working and engraving;<br>Air blower, etc. | ES350 (Asynchronous motor)<br>ES350L (Synchronous motor)<br>220V IPH 0.4-2.2KW<br>380V 3PH 0.75-4KW |  |
| | 1) High reliability;<br>2) precision control<br>3) Compatible with permanent magnet synchronous motor drive and three-phase asynchronous motor drive;<br>4) Intelligent LCD keyboard included in standard configuration;<br>5) Modular compact structure design | Ceramic equipment,<br>Dyeing and finishing,<br>Logistics sorting,<br>Logistics sorting,<br>woodworking machinery,<br>glass machinery,<br>food machinery,<br>equipment,<br>air compressor,<br>Centrifuge<br>Textiles<br>Fans<br>Pumps, etc. | ES580 (Asynchronous motor)<br>ES580L (Synchronous motor)<br>220V 3PH 0.4-75KW<br>380V 3PH 0.75-800KW<br>500V 3PH 15-900KW<br>690V 3PH 15-1400KW |  |
| | 1) Excellent performance;<br>2) Rich functions;<br>3) High reliability;<br>4) Comprehensive and systematic protection functions;<br>5) Intelligent LCD keyboard included in standard configuration;<br>6) Built-in various industry application standard macros;<br>7) Support multiple encoders for high performance and high precision control | Hoisting and lifting,<br>Digitally controlled, machine tools,<br>Forging machine tools,<br>Roots blower,<br>Food machinery,<br>Textiles,<br>Dyeing and finishing,<br>Plastic machine,<br>HVAC,<br>Petroleum,<br>Chemical engineering,<br>Medical, etc. | ES850 (Induction motor)<br>ES850L (Asynchronous motor,Synchronous motor)<br>220V 3PH 0.4-75KW<br>380V 3PH 0.75-800KW<br>500V 3PH 15-900KW<br>690V 3PH 15-1400KW |  |
| High Power Servo Driver | 1) Support driving asynchronous motor and permanent magnet synchronous motor;<br>2) The highest output frequency can reach 0-599Hz;<br>3) Support multiple encoders and fieldbus;<br>4) With high precise speed and position control;<br>5) With the function of fixed length and fixed angle;<br>6) Pulse input and pulse output; | CNC machine tool,<br>Machining Center,<br>Gantry machine tool,<br>CNC grinder,<br>High speed fan,<br>Hydrogen energy equipment,etc. | ES850S<br>220V 3PH 0.4-15KW<br>380V 3PH 0.75-55KW |  |

# High Reliability

## Innovative Thermal Design Philosophy and Professional Thermal Simulation Analysis

- The innovative thermal design philosophy and first-class efficient thermal simulation software bring about the innovative and unique design, which provides this product with a comprehensive and systematical heat dissipation structure and solution.
- Advanced heat test and verification technologies like thermal imaging efficiently and completely check theoretical results of the thermal design, and further guarantee thermal reliability of the product system.



## Rigorous Temperature RiseTest on the Whole Converter

- Rigorous testing procedures for full load and overload verification as well as strict temperature rise acceptance standards for key componentsare adopted to enable the product to operate reliably under extreme overload conditions for a long time.
- High temperature aging testing with 120%(G)/100% (P) at 40℃
- All products shall pass the loaded high temperature aging test before delivery, which can effectively prevent scattered components from being invalid, and guarantee product quality.



## Spraying Process of Conformal Coatings

- Multiple high-quality conformal coatings are sprayed to enhance the product's good applicability to the environment.
- The automatic spraying process of conformal coatings is adopted to effectively ensure uniform coating thickness of the circuit board and consistency of batched products.



Note: The automatic spraying process of conformal coatings

## High Protection Grade

- Especially applied in cables, machine tools, ceramics and textiles industries where the site environments are severe, humid or dusty. The innovative and tightly closed structure design can effectively reduce influence of such environments.
- The protection class can reach IP41(0.4-22KW).



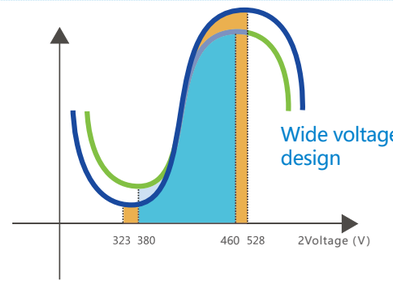
## High Anti-interference Capability

- In a standard configuration, the optimally designed built-in DC reactor (15KW and above) can effectively reduce interference from higher harmonic and foreign conduction radiation and strengthen the power grid adaptability.
- In a standard configuration, the built-in input C3 filter is equipped to reduce electromagnetic interference and guarantee steady operation of the device.
- Simple and friendly EMC cut-off point structure designs convenient for grounding and weakens electromagnetic interference.



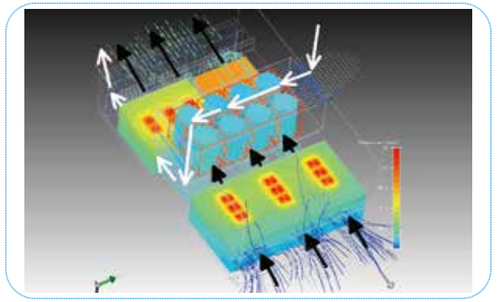
## Wide Voltage Range Design

- Rated voltage: single phase220V; three-phase 220V/380V/500V/690V
- Voltage frequency:50-60Hz±5Hz
- Allowable voltage fluctuation: -15% to +15%




## Innovative and Independent Air Duct Design

- The design can effectively prevent dust and other foreign matters from entering the inside of the frequency converter,thereby avoiding faults caused by electric short circuits and damaged components.
- Electronic components are separated from the main cooling system by the poor conductor or wind screen, to avoid component failuresdue to too high temperature caused by heat radiation from the main-power radiator.



## Selection and Design of Key Components

- Strict component selection testing procedures are adopted.All power components such as the rectifier bridge, IGBT and electrolytic capacitor use mainstream products of the first-class manufacturers. Performance and reliability of key components are guaranteed from selection to manufacturing
- Large allowance and derating design ensures reliability of key components.

## CE Certification Compliance

- The ES series products meet relevant requirements of European CE directives.

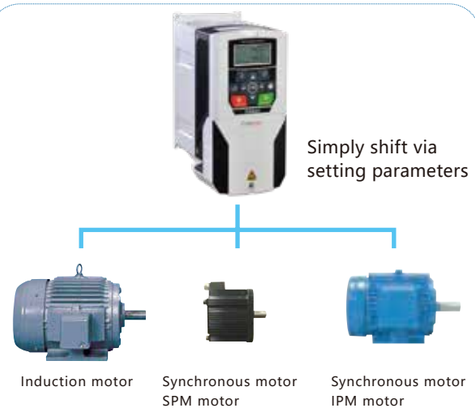
# Excellent Performance

## Comprehensive Motor Drive Technology

- Support drive control of all motors (three-phase asynchronous, permanent magnet synchronous).
- Support the speed and torque control modes.
- The frequency converter equipped with the synchronous motor delivers good energy-saving effects.

## Built-in Servo Function

- The built-in servo positioning is adopted for the device. When the PG vector control is available, the device supports control over positions including zero servo, principal axisorientation (4 orientation positions), simple carry control (8 carryovers setting) and pulse train position.
- Servo functions such as spindle positioning at any angle and stop at a specified angle can be realized.
- It can be used in most servo application fields.




## Accurate and Comprehensive Auto-turning Function

- The frequency converter can accomplish motor parameter auto-turning accurately, it will be more convenient to operate &commissioning and offers higher control precision and response speed.
- The comprehensive and rich Auto-turning functions cover various motor Auto-turning and mechanical Auto-turning functions.

| Motor Comprehensive Auto-turning | |
|---|---|
| Rotary Auto-turning | Mostly suitable in applications of high starting torque, high speed and high control precision. |
| Static Auto-turning | Mostly suitable in applications of commissioning when the motor and handling machines are connected. |

## Rich Fieldbus Communication

- Built in RS-485
- Built-in Modbus-RTU as standard
- Support several kinds of field bus communication protocols(PROFIBUS-DP、CANopen、Profinet、EtherCAT)

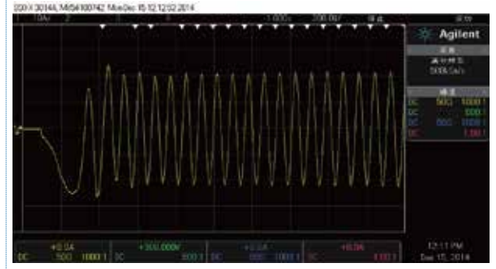





Turn complex into simple, computer monitoring software

## Large Startup Torque

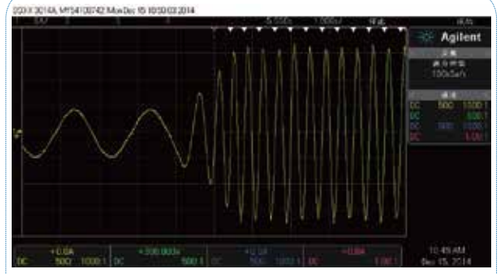
- Synchronous motor
  Open-loop vector : 0.5Hz/200%
  Close-loop vector : 0Hz/200%
- Asynchronous motor
  Open-loop vector : 0.25Hz/200%
  Close-loop vector : 0Hz/200%



Fast startup current waveforms of 4 kW synchronous motor at 200% load

## Fast Torque Response, Low Torque Pulse

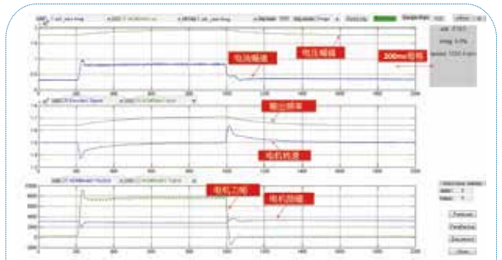
- Torque response open-loop vector : <20ms
- Torque response close-loop vector : <5ms
- The device can run steadily with load at a ultra-low speed of 0.01Hz. The low torque pulse ensures stable running.



Current waveforms of 4kW asynchronous motor with 0.5HZ at 200% load suddenly

## Wide Speed Range, High Steady-speed Precision

- Speed range :
  Open-loop vector : 1 : 200
  Close-loop vector : 1 : 3000
- Steady-speed precision :
  Open-loop vector : 10% rated slip



Waveforms of different key signals when the 4kW asynchronous motor is suddenly loaded or unloaded with 150% load at 1500 rpm in the open-loop state (data is collected from the frequency converter and the background tool of the computer only receives data and generates waveforms)

## High Overload Capacity

- Run steadily at 120% rated load
- Run for 60s at 150% rated load

# Rich and Easy Functions

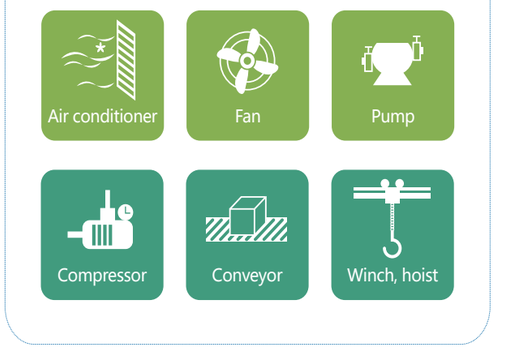
## LCD Smart Keyboard Adopted in Standard Configuration/optional LED keypad




- Large-text and multi-function Chinese or English LCD display for faster and more accurate parameter settings.
- Detailed status display for monitoring and setting.
- Detailed diagnosis information. Status information and waves of key nodes, fault records, and diagnosis information can be viewed for fault query and maintenance.
- Automatically setting of optimum parameter values. With the usage selection function, users need to only select the mechanical function. Then, the device automatically sets parameters to optimum values, thereby eliminating tedious parameter settingand shortening trial run time.
- Storage of application parameters of up to 4 user groups, which is convenient for fast process switching.
- Reliable built-in parameter backup &duplicating function
- Built-in parameter change logging function
- LCD/LED keypad can be connected for long distance by remote cable.
- ES355/ES560/ES350 LED Keypad standard, LCD optional.
- ES580/ES850 LCD Keypad standard.

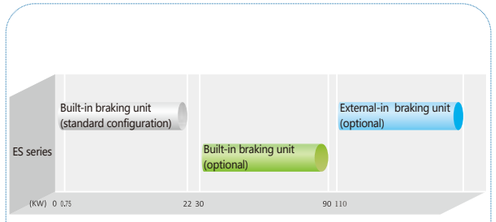
## Rich Application Macros

- Various built-in typical mechanical applications such as fans, water pumps, cables and unwinding and rewinding unit.
- Automatic setting of optimum parameter values.
- With the usage selection function, users need to only select the mechanical function. Then, the device automatically sets parameters to optimum values, thereby eliminating tedious parameter setting and shortening trial run time.




## Reliable Braking Function

- Over-excitation braking function achieves emergency braking even without brake resistor.
- The built-in braking unit is optional for the device with power of 30-90kW. The built-in braking unit is included in the standard configuration of the device with power of 22 kW and below (except ES355).
- The use of a brake resistor achieves better braking effects, saves electric installation space, and lowers electric costs for users.




## Rich Extension Functions

- Built in RS-485 communication interface.
- Support several kinds of field bus communication protocols
- Support various PG cards.
- Support collector open encoder, differential output encoder, rotary-transformer-type encoder,and sin-cos encoder.



## Rich I/O Interfaces

- Type of Terminals Qty Characteristics

| | | |
|---|---|---|
| Digital input | 7 | Maximum input frequency:1kHz, compatible with NPN and PNP input types |
| High-speed pulse input | 1 | Maximum input frequency: 50kHz, compatible with NPN and PNP input types |
| Analog Input | 3 | 0~10V, 0~20mA, -10V to +10V (Optional) |
| Digital output | 2 | Maximum output frequency: 1kHz |
| High-speed pulse output | 1 | Maximum output frequency: 50kHz |
| Analog output | 2 | 0~10V, 0~20mA |
| Relay output | 2 | 3A/250VAC,1A/30VDC, normally open+normally close |

Note: the interfaces above are for F1 and later models. For F0 / B0 series, the quantity of some function interfaces is lower. See the technical datasheet or standard wiring diagram for details.

## Systematic and Comprehensive Protection Functions

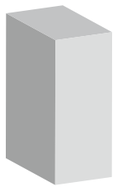
- Frequency converter protection function: short circuit protection, overcurrent protection, overvoltage protection, under-voltage protection, input & output phase loss protection, overload protection and overheat protection.
- Motor protection function: overload protection and motor temperature protection.
- Brake circuit protection function: brake transistor overload protection, brake transistor straight-through protection, and brake resistor protection

# Compact Modular Design

## Compact Structure Design

- The smaller size helps save installation space, facilitate electrial layout, and is more suitable to be used in combination with the synchronous motor.
- The standard configurations uses a built-in DC reactor (F3 and above model), which helps reduce electrical installation space eliminates potential safety risks in using anexternal DC reactor.
- For low-power models, the rear metal plate design can effectively prevent the installation environment like oily environment from influencing the frequency converter, and guarantee secure installation.
- For medium-/high-power models, the window/cover of the rear radiator can be periodically cleaned, which is convenient for routine maintenance and cleaning of the frequency converter and saves maintenance time and costs.
- Some medium-/high-power models can be installed laterally as a blade, greatly facilitating suite design and manufacturing of professional systems.





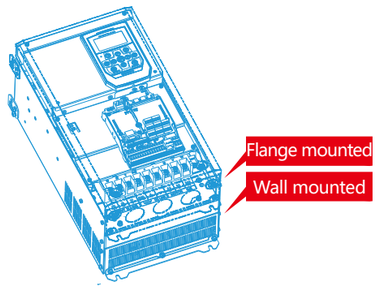
ES Series VS General model

The area is reduced by about 30 %

The volume is reduced by about 45 %

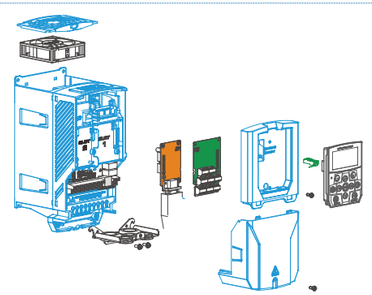
## Various Mounting Modes

- F0/B0: wall-mounted
- F1-F5:wall-mounted , flange (run-through wall) mounted optional
- F6-F9:wall-mounted , floor-mounted optional
- C10 and above floor-mounted
- B1-B5:wall-mounted
- B6-B9:wall-mounted , floor-mounted optional




## Modular Design

- Detachable terminal block, easy for maintenance.
- The main control unit, various PG cards and communication cards adopt the modular structure design. The joints of function modules are carefully designed and easy for universal application.
- Detachable fans, easy for cleaning and replacement.
- Hot pluggable LCD keyboard.





# Smart Drive

## Unique Smart Drive

- Intelligent LCD control keyboard: The friendly human-machine interface displays key parameters relevant to running of the frequency converter and motor in real time.
- Intelligent fault diagnosis: It records extreme operation conditions of the frequency converter, including the maximum current, voltage and maximum temperature, which are easy for fault locating and exception analysis. It also records device load conditions for customers, which are convenient for customers to optimize electric drive schemes.
- Intelligent temperature monitoring: It detects the temperature at key points inside the machine and intelligently controls the temperature of the whole machine by using adaptive algorithms.
- Intelligent V/F curve setting: It automatically matchthe most excellent performance parameters based on motor parameters, requiring no manual setting.
- Intelligent parameter setting for industry applications: Users only need to select an industry application, and the device automatically matches optimum parameters, eliminating tedious parameter setting.

## Naming Rules

ES XXX - XX - XXXG/XXXP - 3B - XXXX

**Drive product series**

850/850L SVC& FVC high performance vector control inverter suitable for asynchronous/ permanent magnet synchronous motor
850S high power servo driver
ES580/ 580L SVC high performance vector control inverter suitable for asynchronous/ permanent magnet synchronous motor
350/ 350L SVC& FVC vector control inverter suitable for asynchronous/ permanent magnet synchronous motor
ES560/ 560L SVC/ scalar control inverter suitable for asynchronous/ permanent magnet synchronous motor
355/ 355L SVC/ scalar control inverter suitable for asynchronous/ permanent magnet synchronous motor

**Rated power in general applications**

| | | | | | |
|---|---|---|---|---|---|
| 0K4 | ··· | 5K5 | ··· | 018 | ··· |
| 0.4kW | ··· | 5.5kW | ··· | 18.5kW | ··· |

**Rated power in heavy load applications**

| | | | | | |
|---|---|---|---|---|---|
| 0K4 | ··· | 5K5 | ··· | 018 | ··· |
| 0.4kW | ··· | 5.5kW | ··· | 18.5kW | ··· |

**Dimensions:**

01 : first dimension and structure

02 : second dimension and structure... and so on

**Voltage class :**

0 : single phase 110V
1 : single phase 220 V
2 : three phase 220V
3 : three phase 380V
5 : three phase 500 V
6 : three phase 690 V

**B : built-in brake chopper**
**/B : optional built-in brake chopper**
**None : without built-in brake chopper**

**Non-standard customized model**



## ES355/355L Technical Data

| Item | | Specification and Technical Data |
|---|---|---|
| Main power connection | Input voltage U1 | 1Ph ~220V±15%/3Ph ~220V±15%/3Ph ~380V±15% |
| | Input frequency f1 | 47~63Hz |
| | Output voltage U2 | 0...U1（V）(The maximum output voltage equals the input power voltage.) |
| | Output frequency f2 | 0-599Hz |
| | Carrier frequency | 2-12KHz (The device can intelligently and automatically make optimal adjustment according to load characteristics and drive temperature.) |
| | Input voltage unbalance degree | Maximum: ±3% of rated inter-phase input voltage |
| | Efficiency | ≈98% (when operating at ratedpower) |
| Basic functions | Input frequency resolution | Digital setting: 0.01Hz/RPM<br>Analog setting: Maximum Frequency/ RPM*0.05% |
| | Control mode | Scalar control, SVC control |
| | Startup torque | 100% @ 0.5Hz for V/F control,<br>100% @ 0.25Hz for SVC control. |
| | Speed adjustment range | 1: 100 @ V/F control ; 1: 200 @ SVC Control; |
| | Torque boost | Manual torque boost 0~10% |
| | V/F Curve | Intelligent adaptive |
| | V/F Separation | Full separation |
| | Acceleration & Deceleration curves | Straight-line/ Multi-segment/ S-curve acceleration& deceleration method,<br>Two acceleration time and its range : 0.0s-650.00s. |
| | Simple PLC function | Up-to-16-stages Speed ( acheived by PLC or output terminals) |
| | Built-in PID | Conveniently achieve the process control via close-loop feedback system |
| | Automatic voltage regulation (AVR) | When the grid voltage changes, the device automatically maintains constant output voltage. |
| | Automatic acceleration & deceleration function | Automatic extend the acceleration/deceleration time to avoid frequent overvoltage/overcurrent fault. |
| | Protection function | Output short circuit protection, input and output phase loss protection, overcurrent protection, overvoltage protection, undervoltage protection, overheat protection, overload protection, safe torque stop and other protection functions ect. |
| | STO safe torque stop function | When the equipment is overhauled, ensure that the equipment stops reliably. |
| | Non-stop during transient interruption | Keep the frequency inverter running in a short time during the sudden power failure (In case of instantaneous power failure, the load will feed back energy to compensate for the voltage drop). |
| | Flux brake | Can realize fast stop without braking resistor |
| | Synchronous stop after power failure | When the power grid is unexpectedly cut off, it can ensure that multiple inverters are steadily and synchronously stopped. |
| | Fieldbus communication | Built-in standard Modbus interface, self-defining simple CAN communication is optional. |

| Item | | Specification and Technical Data |
|---|---|---|
| I/O Interfaces | Command input mode | Keyboard input, Control terminals input, Field bus communication input |
| | Speed reference mode | Digital, Analog (AO termnials & Built-in potentiometer ),<br>Pulse , Fieldbus communication , and PID . |
| | Input terminal | The followings are included in standard configuration :<br>- 4 digital input terminals( suport PNP and NPN, among DI4 support 60kHz High-speed pulse)<br>- 1 analog input terminal( 0~+10V/4~20mA),<br>- 2 STO function terminals. |
| | Output terminal | The followings are included in standard configuration :<br>- 1 digital output DO1, support 60kHz hig-speed pulse & 0~50Hz squarewave pulse.<br>- 1 analog output terminal( 0~+10V/4~20mA),<br>- 1 relay output terminal, NO/NC selection. |
| Display and control | Man-machine interface | Standard fixed LED keyboard, support external detachable large-screen LCD or LED keyboard. |
| | Parameters duplicating | Rapidly duplicating parameters via the LCD control keyboard |
| Application environment | Application site | Indoor, free of direct sunshine, dusts, corrosive gases, flammable gases, oil mist, water vapor, drip or salts |
| | Altitude | 0-1000m ; When the altitude is 1000-4000m, the capacity is reduced by 1% as the altitude rises by 100m. (consult professionals for more accurate values) |
| | Operation ambient Temperature | -10℃ ~ +55℃ when the ambient temperature is 40℃-55℃, the driveis automatically derated to achieve self-protection) |
| | Relative humidity | Less than 95%RH. No droplets condensed (condensation) |
| | sinusoidal vibration | (IEC 60068- 2/-6.TestFc)<br>Max.0.1mm (5 to 13.2Hz) ; max.7m/ $s^2$ (13.2 to 100 Hz)<br>Max.0.1mm (10 to 57Hz) ; max.10m/ $s^2$ (57 to 150Hz) |
| | Impact | Not allowed (during operation); maximum 100m/$s^2$,11ms(during storage and transportation with packing) |
| | Free fall (Max.) | Not allowed (during operation); with packing : 100cm<br>@F0-2,76cm @F0-4,46cm @F5-7,15cm @F8-9 |
| | Storage & temperature | -40℃ to+70℃ |
| Protection grade | | IP20 |
| Cooling method | | The air flows from bottom to top. Air-cooled radiator. |
| Application standard | | IEC 61800-3 (2004), IEC61800-5-1 (2007) ; GB12668 |

Note: Note: "For higher frequency requirements, please specify when placing the order."

# ES560/560L Technical Data

| Item | | Specification and Technical Data |
|---|---|---|
| Item | Input voltage U1 | 380V~460V±15% |
| | Input frequency f1 | 50...60Hz ±5% |
| | Output voltage U2 | 0...U1 (V) (The maximum output voltage equals the input power voltage.) |
| | Output frequency f2 | 0-599Hz |
| | Carrier frequency | 2-8 KHz (The device can intelligently and automatically make optimal adjustment according to load characteristics and drive temperature.) Consult factory for higher carrier frequency. |
| | Input voltage unbalance degree | Maximum: ±3% of rated inter-phase input voltage |
| | Efficiency | ≈98% (when operating at rated power) |
| | Resolution of given speed | Digital setting: 1 RPM / 0.01Hz Analog setting: 0.025% of maximum RPM |
| | Control Mode | SVC control, scalar control |
| Basic functions | Startup Torque | SVC control : 150% @0.5Hz |
| | Speed Adjustment Range | 1 : 200 @ SVC vector control |
| | Overload capacity | Heavy load application: 60s at 150% rated current @40°C.The time depends on the drive temperature under other conditions.<br>Light load application: 60s at 120% rated current @40°C. The time depends on the drivetemperature under other conditions. |
| | Torque boost | Manual torque boost 1%-10% |
| | V/F curve | Intelligent adaptive |
| | V/ F Separation | Completely separated |
| | Acceleration and Deceleration curves | straight-line or S-curve acceleration and deceleration mode<br>Two acceleration time values. The acceleration and deceleration time range : 0.0s-650.00s |
| | Simple PLC function | Achieve operationof up-to-16-stages speed (via built-in PLC or control terminals) |
| | Built-in PID | Conveniently achieve the process control close-loop control system |
| | Automatic voltage | When the grid voltage changes, the device automatically maintains constant output voltage. |
| | Overvoltage and overcurrent stall control | The current and voltage are automatically limited during running to avoid jump faults due to frequent overcurrent and overvoltage |
| | Protection function | Output shortcircuit protection, input & output phase loss protection, overcurrent protection, overvoltage protection,undervoltage protection, overheat protection, overload protection, brake chopper overload protection, brake chopper shortcircuit protection, brake resistor overload protection |
| | Non-stop during transient interruption | When a short-term power failure occurs in the power grid, the drive will run at a reduced speed. After the power grid is on, the drive will back to normal working status.. |
| | Timing control | Timing control function. The time range and precision is 0.0-6500.0(min). |
| | Power failure | In the case of unexpected power failure, the inverter can be guaranteed to stop steadily |
| | Communication Bus | Standard built-in Modbus, can be extended to CANopen, Profibus-DP, Profinet, EtherCAT bus communication |

| Item | | Specification and Technical Data |
|---|---|---|
| I/O Input Output Interface | Command input mode | Control keyboard input, control terminal input, bus communication input, which can be switched mutually. |
| | Speed reference mode | Digital giving, analog voltage (current) giving, pulse giving, bus communication giving and PID giving, which are mutually switched. |
| | Input terminals | The followings are included in standard configuration :<br>7 digital input terminals, where DI7 supports the maximum of 50 kHz high-speed pulse input.<br>3 analog input terminals (where, at least 2 supports 0-10V voltage or 0-20mA). |
| | Output terminals | The followings are included in standard configuration :<br>1 high-speed pulse output terminal (supporting 0-50 kHZ square signal output);<br>2 digital output terminals;<br>2 relays output terminals;<br>2 analog output terminals (supporting0~10V output or 0~20mA). |
| Display | Man-machine interface | Removable LED keypad as standard configuration, LCD keypad is optional. |
| | Parameters Duplication | Rapidly duplicating parameters via the LCD control keyboard |
| Application environment | Application site | Indoor, free of direct sunshine, dusts, corrosive gases, flammable gases, oil mist, |
| | Altitude | When the altitude is 0~1000m or 1000~4000m, the capacity is reduced by 1% as the altitude rises by 100m. (consult professionals for more accurate values) |
| | Operation ambient temperature | -10℃ to+40℃ (when the ambient temperature is 40℃-55℃, the drive is automatically derated to achieve self-protection) |
| | Relative humidity | Less than 95%RH. No droplets condensed (condensation) |
| | Sinusoidal vibration | (IEC 60068- 2/ - 6.TestFc)<br>Max.0.1mm (5 to 13.2Hz) ; max.7m/S 2 (13.2 to 100 Hz) sinusoidal vibration (F1-B7)<br>Max.0.1mm (10 to 57Hz) ; max.l0m/S2 (57 to 150 Hz) sinusoidal vibration (B8-B9) |
| | Impact | Not allowed (during operation); maximum 100m/S 2 , 11ms (during storage and transportation with packing) |
| | Free fall (Max.) | Not allowed (during operation); with packing : 100cm@F1,F2,F2A ; 76cm @F3,B4, 46cm@B8-B9 |
| | Storage & transportation temperature | −40℃to+70℃ (-40to+158°F) |
| Protection grade | | Electrical cavity full closed design for small- and medium-power models, |
| Cooling mode | | Forced air cooling of the interior fan. The air flows from bottom to top. Air-cooled radiator. |
| Application standard | | IEC 61800-3(2004);IEC 61800-5-1(2007);GB 12668 |

Note: Note: "For higher frequency requirements, please specify when placing the order."

## (ES350/350L)-(ES580/580L)-(ES850/850L)Technical Data

| Item | | Specification and Technical Data |
|---|---|---|
| Main power connection | Input voltage U1 | 220V/380V/500/690V±15% ;signal/three-phase power |
| | Input frequency f1 | 50...60Hz ±5Hz |
| | Output voltage U2 | 0...U1 (V)(The maximum output voltage equals the input power voltage.) |
| | Output frequency f2 | 0-599Hz |
| | Carrier frequency | 2-8 KHz (The device can intelligently and automatically make optimal adjustment according to load characteristics and drive temperature.) |
| | Input voltage unbalance degree | Maximum: ±3% of rated inter-phase input voltage |
| | Efficiency | ≈ 98% (when operating at rated power) |
| Basic functions | Speed range | 0-599Hz ( 0~30000 rpm,<br>60000rpm is optional ) |
| | Resolution of given speed | Digital setting: 1RPM<br>Analog setting: 0.025% of maximum RPM |
| | Control mode | SVC control / FVC vector control |
| | Starting speed | 200% @ 0.25Hz@ SVC control<br>200% @0Hz@ FVC control |
| | Speed ratio | 1 : 200 @ SVC control 1 : 3000 @ FVC control |
| | Steady-speed precision | ±0.5% @ SVC control |
| | Overload capacity | Heavy load application: 60s at 150% rated current @40°C. The time depends on the drive temperature under other conditions.<br>General application: 60s at 120% rated current @40°C. The time depends on the drivetemperature under other conditions. |
| | Torque boost | Automatic torque boost. Manual torque boost 0.1%-30% |
| | Acceleration and deceleration curves | straight-line or S-curve acceleration and deceleration mode<br>Two acceleration time values. The acceleration and deceleration time range : 0.0s-650.00s |
| | Simple PLCfunction | Achieve operationof up-to-16-stages speed(via built-in PLC or control terminals) |
| | Built-in PID | Conveniently achieve the process control close-loop control system |
| | Automatic voltage regulation (AVR) | When the grid voltage changes, the device automatically maintainsconstant output voltage. |
| | Overvoltage and overcurrent stall control | The current and voltage are automatically limited during running to avoid jump faults due to frequent overcurrent and overvoltage |
| Enhancements | Torque limiting and control | The torque is automatically limited operating (to avoid frequent overcurrent jumping fault due to too large torque). |
| | Protection function | Output shortcircuit protection, input & output phase loss protection, overcurrent protection, overvoltage protection,undervoltage protection, overheat protection, overload protection, brake chopper overload protection, brake chopper shortcircuit protection, brake resistor overload protection |
| | Non-stop during transient interruption | Keep the frequency converteroperating in a short time (by reducing feedback energy compensation voltageat the moment of power outage). The duration depends on the mechanical inertia of the load at that time. |
| | Speed tracking restart | Asynchronous motor speed tracking start can be realized ( standard ) and synchronous motor speed tracking start ( optional) |
| | Timing control | Timing control function. The time range and precision is 0.0-6500.0(min). |
| | Switching multiple motors | Support switching among four groups of motor parameters. |
| | Bus communication | The standard configuration uses the built-in Modbus/communication, which can be extended to Profibus-DP, CANopen bus communication. Etc. |
| | Intelligent temperature control | Full cover system temperature testing, intelligent real-time IGBT chip temperature monitoring, and intelligent and optimized adjustment of the carrier and current based on drive temperature changes |
| | Type of encoders supported | Support differential encoders, collector open encoders, rotary transformer encoders , and Sin-Cos Encoders |
| | Communication linkage synchronization | Easily realize multi-motor synchronous transmission, and can freely choose to realize the linkage balance of multi-motor by current, torque or power. |
| | Debug window | Visual parameter debugging, fault display and waveform monitoring can be easily realized through the PC terminal etc. |

| Item | | Specification and Technical Data |
|---|---|---|
| I/O Input Output Interface | Command input mode | Control keyboard input, control terminal input, bus communication input, which can be switched mutually. |
| | Speed reference mode | Digital giving, analog voltage (current) giving, pulse giving, bus communication giving and PID giving, which are mutually switched. |
| | Input terminal (input) | The followings are included in standard configuration :<br>6 (F0) / 7 (F1 and above) digital input terminals, where,<br>DI6 (F0) DI7 (F1 and above)supports the maximum of 50 kHz high-speed pulse input.<br>2 (F0) /3 (F1 and above) analog input terminals (where, at least 2 supports 0-10V voltage input or 0-20 mA or 4-20mA voltage input)<br>The followings are extended as cards :<br>5 digital input terminals<br>2 analog input terminals, supporting input of -10V to+10V voltage (Optional) |
| | Output terminal (output) | The followings are included in standard configuration:<br>1 high-speed pulse output terminal (supporting 0-50 kHZ square signal output)<br>1 (F0) /2 (F1 and above) digital output terminals<br>1 (F0) /2 (F1 and above) relay output terminals<br>1 (F0) /2 (F1 and above) analog output terminals (supporting0-10V voltage output or 0- 20mA or 4-20 mA voltage output) |
| Display and control | Man-machine interface | F0 built in fixed LED keypad, and LCD keypad is optional.<br>F1 and above is built in standard smart LCD keyboard, LED keypad is optional |
| | Parameters duplicating | Rapidly duplicating parameters via the LCD control keyboard |
| Application environment | Application site | Indoor, free of direct sunshine, dusts, corrosive gases, flammable gases, oil mist, water vapor, drip or salts |
| | Altitude | At 0-1000m ; When the altitude is 1000-4000m, the capacity is reduced by 1% as the altitude rises by 100m. (consult professionals for more accurate values) |
| | Operation ambient temperature | -10℃ to+40℃ (when the ambient temperature is 40℃-55℃, the drive is automatically derated to achieve self-protection) |
| | Relative humidity | Less than 95%RH. No droplets condensed (condensation) |
| | Sinusoidal vibration | (IEC 60068- 2/ - 6.TestFc)<br>Max.0.1mm (5 to 13.2Hz) ; max.7m/$S^2$ (13.2 to 100 Hz) sinusoidal vibration (F0-F7)<br>Max.0.1mm (10 to 57Hz) ; max.l0m/$S^2$ (57 to 150 Hz) sinusoidal vibration (F8-F9) |
| | Impact | Not allowed (during operation); maximum 100m/$S^2$, 11ms (during storage and transportation with packing) |
| | Free fall (Max.) | Not allowed (during operation); with packing : 100cm<br>@F0-F2A, 76cm @F3-F4, 46cm @F5-F7, 15cm @F8-F9 |
| | Storage & transportation temperature | -40℃ to+70℃ (-40 to+158°F) |
| Protection grade | | IP20 (UL-open type), (the medium cavity with air vents on two sides for some F0** models)<br>Electrical cavity full closed design for small- and medium-power models, Top/Left and right sides can reach IP40 |
| Cooling mode | | Forced air cooling of the interior fan. The air flows from bottom to top. Air-cooled radiator. |
| Application standard | | IEC 61800-3 , IEC 61800-5-1 ; GB12668 (see the nameplate for details). |

Note: Note: "For higher frequency requirements, please specify when placing the order."

## ES850S Technical Data

| Item | | Specification and Technical Data |
|---|---|---|
| Main power connection | Input voltage U1 | 220V/380V/500/690V±15% ;signal/three-phase power |
| | Input frequency f1 | 50...60Hz ±5Hz |
| | Output voltage U2 | 0...U1 (V)(The maximum output voltage equals the input power voltage.) |
| | Output frequency f2 | 0-599Hz |
| | Carrier frequency | 2-8 KHz (The device can intelligently and automatically make optimal adjustment according to load characteristics and drive temperature.) |
| | Input voltage unbalance degree | Maximum: ±3% of rated inter-phase input voltage |
| | Efficiency | ≈ 98% (when operating at rated power) |
| Basic functions | Speed range | 0-599Hz ( 0~30000 rpm, 60000rpm is optional ) |
| | Resolution of given speed | Digital setting: 1RPM<br>Analog setting: 0.025% of maximum RPM |
| | Control mode | SVC control / FVC control |
| | Starting speed | 200% @ 0.25Hz@ SVC control<br>200% @0Hz@ FVC control |
| | Speed ratio | 1 : 200 @ SVC control 1 : 3000 @ FVC control |
| | Steady-speed precision | ±0.5% @ SVC control |
| | Overload capacity | Heavy load application: 60s at 150% rated current @40°C. The time depends on the drive temperature under other conditions.<br>General application: 60s at 120% rated current @40°C. The time depends on the drivetemperature under other conditions. |
| | Torque boost | Automatic torque boost. Manual torque boost 0.1%-30% |
| | Acceleration and deceleration curves | straight-line or S-curve acceleration and deceleration mode<br>Two acceleration time values. The acceleration and deceleration time range : 0.0s-650.00s |
| | Simple PLCfunction | Achieve operationof up-to-16-stages speed(via built-in PLC or control terminals) |
| | Built-in PID | Conveniently achieve the process control close-loop control system |
| | Automatic voltage regulation (AVR) | When the grid voltage changes, the device automatically maintainsconstant output voltage. |
| | Motor temperature protection | Support PTC, PT100, KTY84 temperature sensor input |
| | Overvoltage and overcurrent stall control | The current and voltage are automatically limited during running to avoid jump faults due to frequent overcurrent and overvoltage |
| Enhancements | Torque limiting and control | The torque is automatically limited operating (to avoid frequent overcurrent jumping fault due to too large torque). |
| | Protection function | Output shortcircuit protection, input & output phase loss protection, overcurrent protection, overvoltage protection,undervoltage protection, overheat protection, overload protection, brake chopper overload protection, brake chopper shortcircuit protection, brake resistor overload protection |
| | Non-stop during transient interruption | Keep the frequency converteroperating in a short time (by reducing feedback energy compensation voltageat the moment of power outage). The duration depends on the mechanical inertia of the load at that time. |
| | Speed tracking restart | Asynchronous motor speed tracking start can be realized ( standard ) and synchronous motor speed tracking start ( optional) |
| | Timing control | Timing control function. The time range and precision is 0.0-6500.0(min). |
| | Switching multiple motors | Support switching among four groups of motor parameters. |
| | Bus communication | Built-in Modbus, with Profibus-DP, Canopen, Profinet, EtherCat and other Fildbus communication optional |
| | Intelligent temperature control | Full cover system temperature testing, intelligent real-time IGBT chip temperature monitoring, and intelligent and optimized adjustment of the carrier and current based on drive temperature changes |
| | Type of encoders supported | Support differential encoders, collector open encoders, rotary transformer encoders , and Sin-Cos Encoders |
| | Positioning Function | Support any angle positioning from 0 to 360° |
| | Communication linkage synchronization | Easily realize multi-motor synchronous transmission, and can freely choose to realize the linkage balance of multi-motor by current, torque or power. |
| | Debug window | Visual parameter debugging, fault display and waveform monitoring can be easily realized through the PC terminal etc. |

| Item | | Specification and Technical Data |
|---|---|---|
| I/O Input Output Interface | Command input mode | Control keyboard input, control terminal input, bus communication input, which can be switched mutually. |
| | Speed reference mode | Digital giving, analog voltage (current) giving, pulse giving, bus communication giving and PID giving, which are mutually switched. |
| | Input terminal (input) | 7 (F1 and above) digital input terminals,<br>Among them, DI7 (F1 and above)<br>supports high-speed pulse input up to 50KHz,<br>3 (F1 and above) analog input terminals<br>(DI1 DI2 support signal 0-10V/ 0-20mA/ 4- 20mA) |
| | Output terminal (output) | 1 high-speed pulse output terminal (supports 0-50KHz square wave signal output)<br>2 (F1 and above) digital output terminals,<br>2 (F1 and above) relay output terminals,<br>2 (F1 and above) analog output terminals(support 0-10V/0-20mA/4~20mA) |
| Display and control | Man-machine interface | F1 and above is built in standard smart LCD keyboard, LED keypad is optional |
| | Parameters duplicating | Rapidly duplicating parameters via the LCD control keyboard |
| Application environment | Application site | Indoor, free of direct sunshine, dusts, corrosive gases, flammable gases, oil mist, water vapor, drip or salts |
| | Altitude | At 0-1000m ; When the altitude is 1000-4000m, the capacity is reduced by 1% as the altitude rises by 100m. (consult professionals for more accurate values) |
| | Operation ambient temperature | -10℃ to+40℃ (when the ambient temperature is 40℃-55℃, the drive is automatically derated to achieve self-protection) |
| | Relative humidity | Less than 95%RH. No droplets condensed (condensation) |
| | Sinusoidal vibration | (IEC 60068- 2/ - 6.TestFc)<br>Max.0.1mm (5 to 13.2Hz) ; max.7m/S (13.2 to 100 Hz) sinusoidal vibration (F0-F7)<br>Max.0.1mm (10 to 57Hz) ; max.l0m/$S^2$ (57 to 150 Hz) sinusoidal vibration (F8-F9) |
| | Impact | Not allowed (during operation); maximum 100m/$S^2$, 11ms (during storage and transportation with packing) |
| | Free fall (Max.) | Not allowed (during operation); with packing : 100cm<br>@F0-F2A, 76cm @F3-F4, 46cm @F5-F7, 15cm @F8-F9 |
| | Storage & transportation temperature | -40℃ to+70℃ (-40 to+158°F) |
| Protection grade | | IP20 (UL-open type), (the medium cavity with air vents on two sides for some F0** models)<br>Electrical cavity full closed design for small- and medium-power models, Top/Left and right sides can reach IP40 |
| Cooling mode | | Forced air cooling of the interior fan. The air flows from bottom to top. Air-cooled radiator. |
| Application standard | | IEC 61800-3 , IEC 61800-5-1 ; GB12668 (see the nameplate for details). |

Note: Note: "For higher frequency requirements, please specify when placing the order."

## Selection of ES355/355L Products

1) Standard configuration STO safety torque off function
2) Support SVC/ scalar control
3) Support permanent magnet synchronous motor/asynchronous motor control
4) Standard C3 filter
5) Large screen LCD or LED keyboard can be connected externally
6) All DI terminals both support PNP & NPN input, DI4 supports 60kHz high-speed input
7) Standard configuration of magnetic flux braking function
8) The carrier frequency can be adjusted intelligently according to the temperature



### Rated voltage 1ph 220V (adapted to working voltage range 220±15 %)

| Model Code | Rated Value | Rated Power | Power loss | Noise Level | Air Volume | Dimension |
|---|---|---|---|---|---|---|
| | ( A ) | ( kW ) | ( W ) | ( dB ) | ( m3/h ) | |
| ES355/355L-B0-0K4G-1 | 2.5 | 0.4 | 40 | * | * | B0 |
| ES355/355L-B0-0K7G-1 | 4.5 | 0.75 | 65 | 36 | 30.6 | |
| ES355/355L-B0-1K5G-1 | 7 | 1.5 | 80 | 36 | 30.6 | |
| ES355/355L-B0-2K2G-1 | 9 | 2.2 | 92 | 36 | 30.6 | |

Note: (1) * indicates no fan product, relying on natural air cooling, close to silent;
(2) Power rating is measured at rated voltage 220V.

### Rated voltage 3ph 220V (adapted to working voltage range 220±15 %)

| Model Code | Rated Value | Rated Power | Power loss | Noise Level | Air Volume | Dimension |
|---|---|---|---|---|---|---|
| | ( A ) | ( kW ) | ( W ) | ( dB ) | ( m3/h ) | |
| ES355/355L-B0-0K4G-2 | 2.5 | 0.4 | 40 | * | * | B0 |
| ES355/355L-B0-0K7G-2 | 4 | 0.75 | 76 | 36 | 30.6 | |
| ES355/355L-B0-1K5G-2 | 5 | 1.5 | 97 | 36 | 30.6 | |
| ES355/355L-B0-2K2G-2 | 8 | 2.2 | 125 | 36 | 30.6 | |

Note: (1) * indicates no fan product, relying on natural air cooling, close to silent;
(2) Power rating is measured at rated voltage 220V.

### Rated voltage 3ph 380V (adapted to working voltage range 380±15 %)

| Model Code | Rated Value | Rated Power | Power loss | Noise Level | Air Volume | Dimension |
|---|---|---|---|---|---|---|
| | ( A ) | ( kW ) | ( W ) | ( dB ) | ( m3/h ) | |
| ES355/355L-B0-0K7G-3 | 2.5 | 0.75 | 40 | * | * | B0 |
| ES355/355L-B0-1K5G-3 | 4 | 1.5 | 76 | 36 | 30.6 | |
| ES355/355L-B0-2K2G-3 | 5 | 2.2 | 97 | 36 | 30.6 | |
| ES355/355L-B0-4K0G-3 | 8 | 4.0 | 125 | 36 | 30.6 | |

Note: (1) * indicates no fan product, relying on natural air cooling, close to silent;
(2) Power rating is measured at rated voltage 380V.



## Selection of ES560/560L Products

1) High reliability
2) Easy operation
3) Support SVC/ scalar control
4) Compatible permanent magnet synchronization & 3phase asynchronous motor
5) Built in digital LED keyboard
optional Intelligent LCD display
6) Modular compact structure design



### 380V 3ph rated voltage( adapt to the working voltage range 380~460V ±15% )

| Model Code | Rated Value | | Heavy Load Application | | Noise Level | Heat Radiation | Air Volume | Shell code |
|---|---|---|---|---|---|---|---|---|
| | ILd(A) | PLd(kW) | IHd(A) | PHd(kW) | dBA | W | m³/h | |
| ES560/560L-01-5K5G/7K5P-3B | 17.5 | 7.5 | 14.5 | 5.5 | 55 | 210 | 130 | B1 |
| ES560/560L-02-7K5G/011P-3B | 25 | 11 | 17.6 | 7.5 | 55 | 325 | 130 | B2 |
| ES560/560L-02-011G-3B | / | / | 25 | 11 | 55 | 420 | 130 | |
| ES560/560L-02A-011G/015P-3B | 35 | 15 | 25 | 11 | 52 | 470 | 175 | B2A |
| ES560/560L-02A-015G/018P-3B | 38.6 | 18.5 | 35 | 15 | 52 | 550 | 175 | |
| ES560/560L-03-018G/022P-3B | 46 | 22 | 41 | 18.5 | 57 | 660 | 306 | B3 |
| ES560/560L-03-022G/030P-3B | 61 | 30 | 48 | 22 | 57 | 890 | 306 | |
| ES560/560L-04-030G/037P-3/B | 75 | 37 | 66 | 30 | 60 | 1114 | 610 | B4 |
| ES560/560L-04-037G/045P-3/B | 91 | 45 | 79 | 37 | 60 | 1140 | 610 | |
| ES560/560L-04-045G/055P-3/B | 115 | 55 | 94 | 45 | 60 | 1200 | 610 | |
| ES560/560L-05-055G/075P-3/B | 155 | 75 | 116 | 55 | 60 | 1440 | 610 | B5 |
| ES560/560L-05-075G/090P-3/B | 178 | 90 | 160 | 75 | 60 | 1940 | 610 | |
| ES560/560L-05-090G/110P-3/B | 215 | 115 | 179 | 90 | 68 | 2200 | 850 | |
| ES560/560L-06-110G/132P-3 | 261 | 132 | 215 | 110 | 68 | 3300 | 1275 | B6 |
| ES560/560L-06-132G/160P-3 | 310 | 160 | 259 | 132 | 68 | 3850 | 1275 | |
| ES560/560L-07-160G/200P-3 | 387 | 200 | 314 | 160 | 75 | 4100 | 1800 | B7 |
| ES560/560L-07-200G/220P-3 | 427 | 220 | 387 | 200 | 75 | 4600 | 1800 | |
| ES560/560L-07-220G/250P-3 | 450 | 250 | 427 | 220 | 75 | 5100 | 1800 | |
| ES560/560L-08-250G/280P-3 | 525 | 280 | 481 | 250 | 72 | 5782 | 2190 | B8 |
| ES560/560L-08-280G/315P-3 | 600 | 315 | 550 | 280 | 72 | 6252 | 2190 | |
| ES560/560L-08-315G/355P-3 | 660 | 355 | 616 | 315 | 72 | 7866 | 2190 | |
| ES560/560L-09-355G/400P-3 | 720 | 400 | 650 | 355 | 75 | 9100 | 2700 | B9 |
| ES560/560L-09-400G/450P-3 | 810 | 450 | 720 | 400 | 75 | 9900 | 2700 | |
| ES560/560L-09-450G/500P-3 | 870 | 500 | 810 | 450 | 75 | 10500 | 2700 | |
| ES560/560L-09-500G/560P-3 | 980 | 560 | 870 | 500 | 75 | 11500 | 2700 | |
| ES560/560L-09-560G/630P-3 | 1060 | 630 | 980 | 560 | 75 | 12600 | 2700 | |

Note: Rated power is measured under rated voltage 380V

G- constant torque load application, P-square torque load application, - indicate that the item is not supported.Rated value
IN Continuous and available rated current without load at 40℃
Imax Maximum output current..Ten seconds are allowable at startup. Under other circumstances, the time depends on temperature

General load application:
ILd Continuous rated output current of P converter s at ≤ 40℃. The overload current value is allowed to reach 120%of
ILD in 1 minute out of every five minutes. The time depends on the drive temperature under other circumstances.
PLd Typical motor power in the light load application.

Heavy load application:
IHd Continuous rated output current of G converters at ≤ 40℃. The overload current value is allowed to reach 150%of
IHD in 1 minute out of every five minutes. The time depends on the drive temperature under other circumstances.
PHd Typical motor power in the heavy load application.

## Selection of ES350/350L Products



1) Small size and compact
2) Easy commissioning, optional intelligent LCD keyboard
3) Support SVC/ FVC vector control
4) Support permanent magnet synchronous motor/asynchronous motor control
5) Smart PID function
6) With 6 digital input terminals
7) Support both speed & torque control

### 220V 3ph rated voltage( adapt to the working voltage range 208~240V ±15% )

| Model Code | Rated Value | | General Load Application | | Heavy Load Application | | Noise Level | Heat Radiation | Air Volume | Dimension |
|---|---|---|---|---|---|---|---|---|---|---|
| | IN(A) | Imax(A) | ILd(A) | PLd(kW) | IHd(A) | PHd(kW) | dBA | W | m³/h | |
| ES350-F0-0K4G/0K7P-2B | 5. 2 | 6 | 4.5 | 0.75 | 2.5 | 0.37 | 40 | 40 | 25 | F0＊3) |
| ES350-F0-0K7G/1K5P-2B | 6. 3 | 7. 5 | 7 | 1.5 | 4.5 | 0.75 | 40 | 65 | 25 | |
| ES350-F0-1K5G/2K2P-2B | 9. 5 | 11 | 8.5 | 2.2 | 7 | 1.5 | 40 | 80 | 25 | |
| ES350-F0-2K2G-2B | 10 | 12 | \ | \ | 9 | 2.2 | 40 | 92 | 25 | F0＊＊3) |

Note: Rated power is measured under rated voltage 220V

### 220V 1ph rated voltage( adapt to the working voltage range 208~240V ±15% )

| Model Code | Rated Value | | General Load Application | | Heavy Load Application | | Noise Level | Heat Radiation | Air Volume | Dimension |
|---|---|---|---|---|---|---|---|---|---|---|
| | IN(A) | Imax(A) | ILd(A) | PLd(kW) | IHd(A) | PHd(kW) | dBA | W | m³/h | |
| ES350-F0-0K4G/0K7P-1B | 4. 8 | 6 | 4.5 | 0.75 | 2.5 | 0.37 | 40 | 40 | 25 | F0＊3) |
| ES350-F0-0K7G/1K5P-1B | 7. 5 | 10 | 7 | 1.5 | 4.5 | 0.75 | 40 | 65 | 25 | |
| ES350_F0_1K5G/2K2P_1B | 9 | 11.5 | 8.5 | 2.2 | 7 | 1.5 | 40 | 80 | 25 | |
| ES350-F0-2K2G-1B | 10 | 12 | \ | \ | 9 | 2.2 | 40 | 92 | 25 | |

Note: Rated power is measured under rated voltage 220V

### 380V 3ph rated voltage( adapt to the working voltage range 380~460V ±15% )

| Model Code | Rated Value | | General Load Application | | Heavy Load Application | | Noise Level | Heat Radiation | Air Volume | Dimension |
|---|---|---|---|---|---|---|---|---|---|---|
| | IN(A) | Imax(A) | ILd(A) | PLd(kW) | IHd(A) | PHd(kW) | dBA | W | m³/h | |
| ES350-F0-0K7G/1K5P-3B | 5.2 | 6 | 5 | 1.5 | 2.5 | 0.75 | 40 | 40 | 25 | F0＊3) |
| ES350-F0-1K5G/2K2P-3B | 6.3 | 7.5 | 6 | 2.2 | 4 | 1.5 | 40 | 76 | 25 | |
| ES350-F0-2K2G/4K0P-3B | 9.5 | 11 | 9 | 4 | 5 | 2.2 | 40 | 97 | 25 | |
| ES350-F0-4K0G-3B | 10 | 12 | \ | \ | 8 | 4 | 40 | 125 | 25 | F0＊＊3) |

Note: Rated power is measured under rated voltage 380V

G- constant torque load application, P-square torque load application, - indicate that the item is not supported.Rated value
IN Continuous and available rated current without load at 40℃
Imax Maximum output current..Ten seconds are allowable at startup. Under other circumstances, the time depends on temperature

General load application:
ILD Continuous rated output current of P converter s at ≤ 40℃. The overload current value is allowed to reach 120%of
ILD in 1 minute out of every five minutes. The time depends on the drive temperature under other circumstances.
PLD Typical motor power in the light load application.

Heavy load application:
IHD Continuous rated output current of G converters at ≤ 40℃. The overload current value is allowed to reach 150%of
IHD in 1 minute out of every five minutes. The time depends on the drive temperature under other circumstances.
PHD Typical motor power in the heavy load application.
1)=110V , 115v series models need to be consulted to confirm inventory and supply cycle
2)=Contains 6 vein or 12 pulse rectifier power circuit, the specific order before please consult our company representative.
3)=* represent independent closed air duct structure, * * represent independent closed air duct with cooling hole structure,
- represent this item not supported.
4)=Manufacturers need to consult before ordering



## Selection of ES580/580L Products



1) High reliability
2) precision control
3) Intelligent LCD keyboard included in standard configuration
4) Modular compact structure design
5) Support SVC vector control
6) Support permanent magnet synchronous motor/asynchronous motor control
7) Support several kinds of field bus communication protocols (PROFIBUS-DP、CANopen、Profinet、EtherCAT)
8) Built-in logic arithmetic function

### 220V 3ph rated voltage( adapt to the working voltage range 208~240V ±15%)

| Model Code | Rated Value | | General Load Application | | Heavy Load Application | | Noise Level | Heat Radiation | Air Volume | Dimension |
|---|---|---|---|---|---|---|---|---|---|---|
| | IN(A) | Imax(A) | ILd(A) | PLd(kW) | IHd(A) | PHd(kW) | dBA | W | m³/h | |
| ES580-01-0K4G/0K7P-2B | 5.2 | 7 | 5 | 0.75 | 2.5 | 0.37 | 45 | 40 | 89 | F1 |
| ES580-01-0K7G/1K5P-2B | 6.3 | 9 | 6 | 1.5 | 4.2 | 0.75 | 45 | 76 | 89 | |
| ES580-01-1K5G/2K2P-2B | 10.5 | 15 | 9.8 | 2.2 | 5.6 | 1.5 | 45 | 97 | 89 | |
| ES580-01-2K2G/4K0P-2B | 18.2 | 25 | 17.5 | 4 | 14.5 | 2.2 | 45 | 172 | 130 | |
| ES580-02-4K0G/5K5P-2B | 26 | 36 | 25 | 5.5 | 17.6 | 4 | 45 | 325 | 130 | F2 |
| ES580-02-5K5G-2B | 28 | 35 | \ | \ | 25 | 5.5 | 45 | 420 | 130 | |
| ES580-02A-5K5G/7K5P-2B | 37 | 50 | 35 | 7.5 | 25 | 5.5 | 52 | 470 | 175 | F2A |
| ES580-02A-7K5G/011P-2B | 41 | 57 | 38.6 | 11 | 35 | 7.5 | 52 | 550 | 175 | |
| ES580-03-7K5G/011P-2B | 41 | 57 | 38.6 | 11 | 35 | 7.5 | 57 | 550 | 306 | F3 |
| ES580-03-011G/015P-2B | 63.5 | 89 | 61 | 15 | 48 | 11 | 57 | 890 | 306 | |
| ES580-04-015G/018P-2 | 78 | 109 | 75 | 18.5 | 66 | 15 | 60 | 1114 | 610 | F4 |
| ES580-04-018G/022P-2 | 95 | 133 | 91 | 22 | 79 | 18.5 | 60 | 1140 | 610 | |
| ES580-04-022G/030P-2 | 120 | 168 | 115 | 30 | 94 | 22 | 60 | 1200 | 610 | |
| ES580-05-030G/037P-2 | 162 | 227 | 155 | 37 | 116 | 30 | 60 | 1440 | 610 | F5 |
| ES580-05-037G/045P-2 | 185 | 222 | 178 | 45 | 160 | 37 | 60 | 1940 | 610 | |
| ES580-05-045G/055P-2 | 225 | 270 | 215 | 55 | 179 | 45 | 67 | 2200 | 850 | |
| ES580-06-055G/075P-2 | 272 | 326 | 261 | 75 | 215 | 55 | 68 | 3300 | 1275 | F6 |

Note: Rated power is measured under rated voltage 220V

### 380V 3ph rated voltage ( adapt to the working voltage range 380~460V ±15% )

| Model Code | Rated Value | | General Load Application | | Heavy Load Application | | Noise Level | Heat Radiation | Air Volume | Dimension |
|---|---|---|---|---|---|---|---|---|---|---|
| | IN(A) | Imax(A) | ILd(A) | PLd(kW) | IHd(A) | PHd(kW) | dBA | W | m³/h | |
| ES580/580L-01-0K7G/1K5P-3B | 5.2 | 7 | 5 | 1.5 | 2.5 | 0.75 | 45 | 40 | 89 | F1 |
| ES580/580L-01-1K5G/2K2P-3B | 6.3 | 9 | 6 | 2.2 | 4.2 | 1.5 | 45 | 76 | 89 | |
| ES580/580L-01-2K2G/4K0P-3B | 10.5 | 15 | 9.8 | 4 | 5.6 | 2.2 | 45 | 97 | 89 | |
| ES580/580L-01-4K0G/5K5P-3B | 14 | 20 | 13.5 | 5.5 | 10.5 | 4 | 45 | 172 | 89 | |
| ES580/580L-01-5K5G/7K5P-3B | 18.2 | 25 | 17.5 | 7.5 | 14.5 | 5.5 | 45 | 210 | 130 | |
| ES580/580L-02-7K5G/011P-3B | 26 | 36 | 25 | 11 | 17.6 | 7.5 | 45 | 325 | 130 | F2 |
| ES580/580L-02-011G-3B | 28 | 35 | 26 | 15 | 25 | 11 | 45 | 420 | 130 | |
| ES580/580L-02A-011G/015P-3B | 37 | 50 | 35 | 15 | 25 | 11 | 52 | 470 | 175 | F2A |
| ES580/580L-02A-015G/018P-3B | 41 | 57 | 38.6 | 18.5 | 35 | 15 | 52 | 550 | 175 | |
| ES580/580L-03-015G/018P-3B | 41 | 57 | 38.6 | 18.5 | 35 | 15 | 57 | 550 | 306 | F3 |
| ES580/580L-03-018G/022P-3B | 48 | 67 | 46 | 22 | 41 | 18.5 | 57 | 660 | 306 | |
| ES580/580L-03-022G/030P-3B | 63.5 | 89 | 61 | 30 | 48 | 22 | 57 | 890 | 306 | |
| ES580/580L-04-030G/037P-3/B | 78 | 109 | 75 | 37 | 66 | 30 | 60 | 1114 | 610 | F4 |
| ES580/580L-04-037G/045P-3/B | 95 | 133 | 91 | 45 | 79 | 37 | 60 | 1140 | 610 | |
| ES580/580L-04-045G/055P-3/B | 120 | 168 | 115 | 55 | 94 | 45 | 60 | 1200 | 610 | |
| ES580/580L-05-055G/075P-3/B | 162 | 227 | 155 | 75 | 116 | 55 | 60 | 1440 | 610 | F5 |
| ES580/580L-05-075G/090P-3/B | 185 | 222 | 178 | 90 | 160 | 75 | 60 | 1940 | 610 | |
| ES580/580L-05-090G/110P-3/B | 225 | 270 | 215 | 110 | 179 | 90 | 67 | 2200 | 850 | |
| ES580/580L-06-110G/132P-3 | 272 | 326 | 261 | 132 | 215 | 110 | 68 | 3300 | 1275 | F6 |
| ES580/580L-06-132G/160P-3 | 320 | 384 | 310 | 160 | 259 | 132 | 68 | 3850 | 1275 | |
| ES580/580L-07-160G/200P-3 | 375 | 450 | 387 | 200 | 314 | 160 | 75 | 4100 | 1800 | F7 |
| ES580/580L-07-200G/220P-3 | 450 | 540 | 427 | 220 | 387 | 200 | 75 | 4600 | 1800 | |
| ES580/580L-07-220G/250P-3 | 487 | 584 | 450 | 250 | 427 | 220 | 75 | 5100 | 1800 | |
| ES580/580L-08-250G/280P-3 | 546 | 628 | 525 | 280 | 481 | 250 | 68 | 5782 | 2190 | F8 |
| ES580/580L-08-280G/315P-3 | 624 | 718 | 600 | 315 | 550 | 280 | 68 | 6252 | 2190 | |
| ES580/580L-08-315G/355P-3 | 686 | 789 | 660 | 355 | 616 | 315 | 68 | 7866 | 2190 | |
| ES580/580L-09-355G/400P-3 | 760 | 874 | 720 | 400 | 650 | 355 | 75 | 9100 | 2700 | F9 |
| ES580/580L-09-400G/450P-3 | 865 | 995 | 810 | 450 | 720 | 400 | 75 | 9900 | 2700 | |
| ES580/580L-09-450G/500P-3 | 950 | 1093 | 870 | 500 | 810 | 450 | 75 | 10500 | 2700 | |
| ES580/580L-09-500G/560P-3 | 1100 | 1265 | 980 | 560 | 870 | 500 | 75 | 11500 | 2700 | |
| ES580/580L-09-560G/630P-3 | 1200 | 1380 | 1060 | 630 | 980 | 560 | 75 | 12600 | 2700 | |
| ES580/580L-10-630G/710P-3 | 1350 | 1450 | 1320 | 710 | 1200 | 630 | 75 | 14500 | 3600 | C10 |
| ES580/580L-10-710G/800P-3 | 1500 | 1600 | 1450 | 800 | 1320 | 710 | 75 | 16800 | 3600 | |

Note: Rated power is measured under rated voltage 380V

## 500V 3ph rated voltage( adapt to the working voltage range 480~525V ±15%)

| Model Code | Rated Value | | General Load Application | | Heavy Load Application | | Noise Level | Heat Radiation | Air Volume | Dimension |
|---|---|---|---|---|---|---|---|---|---|---|
| | $I_N$(A) | $I_{max}$(A) | $I_{Ld}$(A) | $P_{Ld}$(kW) | $I_{Hd}$(A) | $P_{Hd}$(kW) | dBA | W | m³/h | |
| ES580-04-015G/018P-5 | 35 | 64 | 33 | 18.5 | 27 | 15 | 60 | 890 | 610 | F4 |
| ES580-04-018G/022P-5 | 44 | 70 | 41 | 22 | 35 | 18.5 | 60 | 1114 | 610 | |
| ES580-04-022G/030P-5 | 49 | 71 | 48 | 30 | 45 | 22 | 60 | 1140 | 610 | |
| ES580-04-030G/037P-5 | 61 | 104 | 58 | 37 | 52 | 30 | 60 | 1200 | 610 | |
| ES580-05-037G/045P-5 | 80 | 124 | 80 | 45 | 65 | 37 | 67 | 1440 | 610 | F5 |
| ES580-05-045G/055P-5 | 98 | 168 | 93 | 55 | 86 | 45 | 68 | 1940 | 610 | |
| ES580-05-055G/075P-5 | 119 | 198 | 113 | 75 | 100 | 55 | 68 | 2200 | 850 | |
| ES580-06-075G/090P-5 | 142 | 200 | 142 | 90 | 121 | 75 | 68 | 3300 | 1275 | F6 |
| ES580-06-090G/110P-5 | 175 | 220 | 165 | 110 | 150 | 90 | 68 | 3850 | 1275 | |
| ES580-07-110G/132P-5 | 220 | 240 | 215 | 132 | 175 | 110 | 75 | 4100 | 1800 | F7 |
| ES580-07-132G/160P-5 | 271 | 320 | 245 | 160 | 220 | 132 | 75 | 4600 | 1800 | |
| ES580-07-160G/200P-5 | 290 | 350 | 265 | 200 | 250 | 160 | 75 | 5100 | 1800 | |
| ES580-08-200G/220P-5 | 300 | 360 | 295 | 220 | 270 | 200 | 68 | 5782 | 2190 | F8 |
| ES580-08-220G/250P-5 | 330 | 360 | 325 | 250 | 300 | 220 | 68 | 6252 | 2190 | |
| ES580-08-250G/280P-5 | 370 | 480 | 360 | 280 | 330 | 250 | 68 | 7866 | 2190 | |
| ES580-09-280G/315P-5 | 430 | 520 | 420 | 315 | 385 | 280 | 75 | 9100 | 2700 | F9 |
| ES580-09-315G/355P-5 | 470 | 655 | 455 | 355 | 430 | 315 | 75 | 9900 | 2700 | |
| ES580-09-355G/400P-5 | 522 | 700 | 505 | 400 | 470 | 355 | 75 | 10500 | 2700 | |
| ES580-09-400G/450P-5 | 590 | 800 | 571 | 450 | 535 | 400 | 75 | 11500 | 2700 | |
| ES580-09-450G/500P-5 | 721 | 820 | 710 | 500 | 600 | 450 | 75 | 12600 | 2700 | |
| ES580-10-500G/560P-5 | 900 | 1000 | 790 | 560 | 680 | 500 | 75 | 13820 | 3600 | C10 |
| ES580-10-560G/630P-5 | 1080 | 1200 | 880 | 630 | 770 | 560 | 75 | 14850 | 3600 | |
| ES580-11-630G/710P-5 | 1160 | 1750 | 1100 | 710 | 900 | 630 | 75 | 20000 | 7200 | C11[4] |
| ES580-11-710G/800P-5 | 1450 | 2000 | 1200 | 800 | 1100 | 710 | 75 | 26000 | 7200 | |
| ES580-11-800G/900P-5 | 1650 | 2200 | 1350 | 900 | 1200 | 800 | 75 | 32000 | 7200 | |

Note: Rated power is measured under rated voltage 500V

## 690V 3ph rated voltage ( adapt to the working voltage range 660~690V ±15% )

| Model Code | Rated Value | | General Load Application | | Heavy Load Application | | Noise Level | Heat Radiation | Air Volume | Dimension |
|---|---|---|---|---|---|---|---|---|---|---|
| | $I_N$(A) | $I_{max}$(A) | $I_{Ld}$(A) | $P_{Ld}$(kW) | $I_{Hd}$(A) | $P_{Hd}$(kW) | dBA | W | m³/h | |
| ES580/580L-04-015G/018P-6 | 22 | 44 | 21 | 18.5 | 18 | 15 | 60 | 550 | 610 | F4 |
| ES580/580L-04-018G/022P-6 | 26 | 54 | 25 | 22 | 22 | 18.5 | 60 | 660 | 610 | |
| ES580/580L-04-022G/030P-6 | 35 | 64 | 33 | 30 | 27 | 22 | 60 | 890 | 610 | |
| ES580/580L-04-030G/037P-6 | 44 | 70 | 41 | 37 | 35 | 30 | 60 | 1114 | 610 | |
| ES580/580L-04-037G/045P-6 | 49 | 71 | 48 | 45 | 45 | 37 | 60 | 1140 | 610 | |
| ES580/580L-04-045G/055P-6 | 61 | 104 | 58 | 55 | 52 | 45 | 60 | 1200 | 610 | |
| ES580/580L-05-055G/075P-6 | 80 | 124 | 80 | 75 | 65 | 55 | 67 | 1440 | 610 | F5 |
| ES580/580L-05-075G/090P-6 | 98 | 168 | 93 | 90 | 86 | 75 | 68 | 1940 | 610 | |
| ES580/580L-05-090G/110P-6 | 119 | 198 | 113 | 110 | 100 | 90 | 68 | 2200 | 850 | |
| ES580/580L-06-110G/132P-6 | 142 | 200 | 142 | 132 | 121 | 110 | 68 | 3300 | 1275 | F6 |
| ES580/580L-06-132G/160P-6 | 175 | 220 | 165 | 160 | 150 | 132 | 68 | 3850 | 1275 | |
| ES580/580L-07-160G/200P-6 | 220 | 240 | 215 | 200 | 175 | 160 | 75 | 4100 | 1800 | F7 |
| ES580/580L-07-200G/220P-6 | 271 | 320 | 245 | 220 | 220 | 200 | 75 | 4600 | 1800 | |
| ES580/580L-07-220G/250P-6 | 290 | 350 | 265 | 250 | 250 | 220 | 75 | 5100 | 1800 | |
| ES580/580L-08-250G/280P-6 | 300 | 360 | 295 | 280 | 270 | 250 | 68 | 5782 | 2190 | F8 |
| ES580/580L-08-280G/315P-6 | 330 | 360 | 325 | 315 | 300 | 280 | 68 | 6252 | 2190 | |
| ES580/580L-08-315G/355P-6 | 370 | 480 | 360 | 355 | 330 | 315 | 68 | 7866 | 2190 | |
| ES580/580L-09-355G/400P-6 | 430 | 520 | 420 | 400 | 385 | 355 | 75 | 9100 | 2700 | F9 |
| ES580/580L-09-400G/450P-6 | 470 | 655 | 455 | 450 | 430 | 400 | 75 | 9900 | 2700 | |
| ES580/580L-09-450G/500P-6 | 522 | 700 | 505 | 500 | 470 | 450 | 75 | 10500 | 2700 | |
| ES580/580L-09-500G/560P-6 | 590 | 800 | 571 | 560 | 535 | 500 | 75 | 11500 | 2700 | |
| ES580/580L-09-560G/630P-6 | 721 | 820 | 710 | 630 | 600 | 560 | 75 | 12600 | 2700 | |
| ES580/580L-10-630G/710P-6 | 900 | 1000 | 790 | 710 | 680 | 630 | 75 | 13820 | 3600 | C10 |
| ES580/580L-10-710G/800P-6 | 1080 | 1200 | 880 | 800 | 770 | 710 | 75 | 14850 | 3600 | |
| ES580/580L-11-800G/1100P-6 | 1160 | 1750 | 1115 | 1100 | 900 | 800 | 75 | 20000 | 7200 | C11[4] |
| ES580/580L-11-1100G/1250P-6 | 1450 | 2000 | 1250 | 1250 | 1114 | 1100 | 75 | 26000 | 7200 | |
| ES580/580L-11-1250G/1400P-6 | 1650 | 2200 | 1400 | 1400 | 1250 | 1250 | 75 | 32000 | 7200 | |

Note: Rated power is measured under rated voltage 690V



# Selection of ES850/850L Products



1) Excellent performance for speed & torque closed loop control
2) Comprehensive and systematic protection functions
3) Intelligent LCD keyboard included in standard configuration
4) Built-in various industry application standard macros
5) Support multiple encoders for high performance and high precision control

## 220V 3ph rated voltage( adapt to the working voltage range 208~240V ±15% )

| Model Code | Rated Value | | General Load Application | | Heavy Load Application | | Noise Level | Heat Radiation | Air Volume | Dimension |
|---|---|---|---|---|---|---|---|---|---|---|
| | $I_N$(A) | $I_{max}$(A) | $I_{Ld}$(A) | $P_{Ld}$(kW) | $I_{Hd}$(A) | $P_{Hd}$(kW) | dBA | W | m³/h | |
| ES850-01-0K4G/0K7P-2B | 5.2 | 7 | 5 | 0.75 | 2.5 | 0.37 | 45 | 40 | 89 | F1 |
| ES850-01-0K7G/1K5P-2B | 6.3 | 9 | 6 | 1.5 | 4.2 | 0.75 | 45 | 76 | 89 | |
| ES850-01-1K5G/2K2P-2B | 10.5 | 15 | 9.8 | 2.2 | 5.6 | 1.5 | 45 | 97 | 89 | |
| ES850-01-2K2G/4K0P-2B | 18.2 | 25 | 17.5 | 4 | 14.5 | 2.2 | 45 | 172 | 130 | |
| ES850-02-4K0G/5K5P-2B | 26 | 36 | 25 | 5.5 | 17.6 | 4 | 45 | 325 | 130 | F2 |
| ES850-02-5K5G-2B | 28 | 35 | \ | \ | 25 | 5.5 | 45 | 420 | 130 | |
| ES850-02A-5K5G/7K5P-2B | 37 | 50 | 35 | 7.5 | 25 | 5.5 | 52 | 450 | 175 | F2A |
| ES850-02A-7K5G/011P-2B | 41 | 57 | 38.6 | 11 | 35 | 7.5 | 52 | 450 | 175 | |
| ES850-03-7K5G/011P-2B | 41 | 57 | 38.6 | 11 | 35 | 7.5 | 57 | 550 | 306 | F3 |
| ES850-03-011G/015P-2B | 63.5 | 89 | 61 | 15 | 48 | 11 | 57 | 890 | 306 | |
| ES850-04-015G/018P-2 | 78 | 109 | 75 | 18.5 | 66 | 15 | 60 | 1114 | 610 | F4 |
| ES850-04-018G/022P-2 | 95 | 133 | 91 | 22 | 79 | 18.5 | 60 | 1140 | 610 | |
| ES850-04-022G/030P-2 | 120 | 168 | 115 | 30 | 94 | 22 | 60 | 1200 | 610 | |
| ES850-05-030G/037P-2 | 162 | 227 | 155 | 37 | 116 | 30 | 60 | 1440 | 610 | F5 |
| ES850-05-037G/045P-2 | 185 | 222 | 178 | 45 | 160 | 37 | 60 | 1940 | 610 | |
| ES850-05-045G/055P-2 | 225 | 270 | 215 | 55 | 179 | 45 | 67 | 2200 | 850 | |
| ES850-06-055G/075P-2 | 272 | 326 | 261 | 75 | 215 | 55 | 68 | 3300 | 1275 | F6 |

Note: Rated power is measured under rated voltage 220V

## 380V 3ph rated voltage ( adapt to the working voltage range 380~460V ±15% )

| Model Code | Rated Value | | General Load Application | | Heavy Load Application | | Noise Level | Heat Radiation | Air Volume | Dimension |
|---|---|---|---|---|---|---|---|---|---|---|
| | $I_N$(A) | $I_{max}$(A) | $I_{Ld}$(A) | $P_{Ld}$(kW) | $I_{Hd}$(A) | $P_{Hd}$(kW) | dBA | W | m³/h | |
| ES850/850L-01-0K7G/1K5P-3B | 5.2 | 7 | 5 | 1.5 | 2.5 | 0.75 | 45 | 40 | 89 | F1 |
| ES850/850L-01-1K5G/2K2P-3B | 6.3 | 9 | 6 | 2.2 | 4.2 | 1.5 | 45 | 76 | 89 | |
| ES850/850L-01-2K2G/4K0P-3B | 10.5 | 15 | 9.8 | 4 | 5.6 | 2.2 | 45 | 97 | 89 | |
| ES850/850L-01-4K0G/5K5P-3B | 14 | 20 | 13.5 | 5.5 | 10.5 | 4 | 45 | 172 | 89 | |
| ES850/850L-01-5K5G/7K5P-3B | 18.2 | 25 | 17.5 | 7.5 | 14.5 | 5.5 | 45 | 210 | 130 | |
| ES850/850L-02-7K5G/011P-3B | 26 | 36 | 25 | 11 | 17.6 | 7.5 | 45 | 325 | 130 | F2 |
| ES850/850L-02-011G-3B | 28 | 35 | 26 | 15 | 25 | 11 | 45 | 420 | 130 | |
| ES850/850L-02A-011G/015P-3B | 37 | 50 | 35 | 15 | 25 | 11 | 52 | 470 | 175 | F2A |
| ES850/850L-02A-015G/018P-3B | 41 | 57 | 38.6 | 18.5 | 35 | 15 | 52 | 550 | 175 | |
| ES850/850L-03-015G/018P-3B | 41 | 57 | 38.6 | 18.5 | 35 | 15 | 57 | 550 | 306 | F3 |
| ES850/850L-03-018G/022P-3B | 48 | 67 | 46 | 22 | 41 | 18.5 | 57 | 660 | 306 | |
| ES850/850L-03-022G/030P-3B | 63.5 | 89 | 61 | 30 | 48 | 22 | 57 | 890 | 306 | |
| ES850/850L-04-030G/037P-3/B | 78 | 109 | 75 | 37 | 66 | 30 | 60 | 1114 | 610 | F4 |
| ES850/850L-04-037G/045P-3/B | 95 | 133 | 91 | 45 | 79 | 37 | 60 | 1140 | 610 | |
| ES850/850L-04-045G/055P-3/B | 120 | 168 | 115 | 55 | 94 | 45 | 60 | 1200 | 610 | |
| ES850/850L-05-055G/075P-3/B | 162 | 227 | 155 | 75 | 116 | 55 | 60 | 1440 | 610 | F5 |
| ES850/850L-05-075G/090P-3/B | 185 | 222 | 178 | 90 | 160 | 75 | 60 | 1940 | 610 | |
| ES850/850L-05-090G/110P-3/B | 225 | 270 | 215 | 110 | 179 | 90 | 67 | 2200 | 850 | |
| ES850/850L-06-110G/132P-3 | 272 | 326 | 261 | 132 | 215 | 110 | 68 | 3300 | 1275 | F6 |
| ES850/850L-06-132G/160P-3 | 320 | 384 | 310 | 160 | 259 | 132 | 68 | 3850 | 1275 | |
| ES850/850L-07-160G/200P-3 | 375 | 450 | 387 | 200 | 314 | 160 | 68 | 4100 | 1800 | F7 |
| ES850/850L-07-200G/220P-3 | 450 | 540 | 427 | 220 | 387 | 200 | 68 | 4600 | 1800 | |
| ES850/850L-07-220G/250P-3 | 487 | 584 | 450 | 250 | 427 | 220 | 68 | 5100 | 1800 | |
| ES850/850L-08-250G/280P-3 | 546 | 628 | 525 | 280 | 481 | 250 | 68 | 5782 | 2190 | F8 |
| ES850/850L-08-280G/315P-3 | 624 | 718 | 600 | 315 | 550 | 280 | 68 | 6252 | 2190 | |
| ES850/850L-08-315G/355P-3 | 686 | 789 | 660 | 355 | 616 | 315 | 68 | 7866 | 2190 | |
| ES850/850L-09-355G/400P-3 | 760 | 874 | 720 | 400 | 650 | 355 | 68 | 9100 | 2700 | F9 |
| ES850/850L-09-400G/450P-3 | 865 | 995 | 810 | 450 | 720 | 400 | 68 | 9900 | 2700 | |
| ES850/850L-09-450G/500P-3 | 950 | 1093 | 870 | 500 | 810 | 450 | 68 | 10500 | 2700 | |
| ES850/850L-09-500G/560P-3 | 1100 | 1265 | 980 | 560 | 870 | 500 | 68 | 11500 | 2700 | |
| ES850/850L-09-560G/630P-3 | 1200 | 1380 | 1060 | 630 | 980 | 560 | 68 | 12600 | 2700 | |
| ES850/850L-10-630G/710P-3 | 1350 | 1450 | 1320 | 710 | 1200 | 630 | 75 | 14500 | 3600 | C10 |
| ES850/850L-10-710G/800P-3 | 1500 | 1600 | 1450 | 800 | 1320 | 710 | 75 | 16800 | 3600 | |

Note: Rated power is measured under rated voltage 380V

## 500V 3ph rated voltage( adapt to the working voltage range 480~525V ±15% )

| Model Code | Rated Value | | General Load Application | | Heavy Load Application | | Noise Level | Heat Radiation | Air Volume | Dimension |
|---|---|---|---|---|---|---|---|---|---|---|
| | $I_N$(A) | $I_{max}$(A) | $I_{Ld}$(A) | $P_{Ld}$(kW) | $I_{Hd}$(A) | $P_{Hd}$(kW) | dBA | W | m³/h | |
| ES850-04-015G/018P-5 | 35 | 64 | 33 | 18.5 | 27 | 15 | 60 | 890 | 610 | F4 |
| ES850-04-018G/022P-5 | 44 | 70 | 41 | 22 | 35 | 18.5 | 60 | 1114 | 610 | |
| ES850-04-022G/030P-5 | 49 | 71 | 48 | 30 | 45 | 22 | 60 | 1140 | 610 | |
| ES850-04-030G/037P-5 | 61 | 104 | 58 | 37 | 52 | 30 | 60 | 1200 | 610 | |
| ES850-05-037G/045P-5 | 80 | 124 | 80 | 45 | 65 | 37 | 67 | 1440 | 610 | F5 |
| ES850-05-045G/055P-5 | 98 | 168 | 93 | 55 | 86 | 45 | 68 | 1940 | 610 | |
| ES850-05-055G/075P-5 | 119 | 198 | 113 | 75 | 100 | 55 | 68 | 2200 | 850 | |
| ES850-06-075G/090P-5 | 142 | 200 | 142 | 90 | 121 | 75 | 68 | 3300 | 1275 | F6 |
| ES850-06-090G/110P-5 | 175 | 220 | 165 | 110 | 150 | 90 | 68 | 3850 | 1275 | |
| ES850-07-110G/132P-5 | 220 | 240 | 215 | 132 | 175 | 110 | 75 | 4100 | 1800 | F7 |
| ES850-07-132G/160P-5 | 271 | 320 | 245 | 160 | 220 | 132 | 75 | 4600 | 1800 | |
| ES850-07-160G/200P-5 | 290 | 350 | 265 | 200 | 250 | 160 | 75 | 5100 | 1800 | |
| ES850-08-200G/220P-5 | 300 | 360 | 295 | 220 | 270 | 200 | 68 | 5782 | 2190 | F8 |
| ES850-08-220G/250P-5 | 330 | 360 | 325 | 250 | 300 | 220 | 68 | 6252 | 2190 | |
| ES850-08-250G/280P-5 | 370 | 480 | 360 | 280 | 330 | 250 | 68 | 7866 | 2190 | |
| ES850-09-280G/315P-5 | 430 | 520 | 420 | 315 | 385 | 280 | 75 | 9100 | 2700 | F9 |
| ES850-09-315G/355P-5 | 470 | 655 | 455 | 355 | 430 | 315 | 75 | 9900 | 2700 | |
| ES850-09-355G/400P-5 | 522 | 700 | 505 | 400 | 470 | 355 | 75 | 10500 | 2700 | |
| ES850-09-400G/450P-5 | 590 | 800 | 571 | 450 | 535 | 400 | 75 | 11500 | 2700 | |
| ES850-09-450G/500P-5 | 721 | 820 | 710 | 500 | 600 | 450 | 75 | 12600 | 2700 | |
| ES850-10-500G/560P-5 | 900 | 1000 | 790 | 560 | 680 | 500 | 75 | 13820 | 3600 | C10 |
| ES850-10-560G/630P-5 | 1080 | 1200 | 880 | 630 | 770 | 560 | 75 | 14850 | 3600 | |
| ES850-11-630G/710P-5 | 1160 | 1750 | 1100 | 710 | 900 | 630 | 75 | 20000 | 7200 | C11[4)] |
| ES850-11-710G/800P-5 | 1450 | 2000 | 1200 | 800 | 1100 | 710 | 75 | 26000 | 7200 | |
| ES850-11-800G/900P-5 | 1650 | 2200 | 1350 | 900 | 1200 | 800 | 75 | 32000 | 7200 | |

Note: Rated power is measured under rated voltage 500V

## 690V 3ph rated voltage ( adapt to the working voltage range 660~690V ±15% )

| Model Code | Rated Value | | General Load Application | | Heavy Load Application | | Noise Level | Heat Radiation | Air Volume | Dimension |
|---|---|---|---|---|---|---|---|---|---|---|
| | $I_N$(A) | $I_{max}$(A) | $I_{Ld}$(A) | $P_{Ld}$(kW) | $I_{Hd}$(A) | $P_{Hd}$(kW) | dBA | W | m³/h | |
| ES850/850L-04-015G/018P-6 | 22 | 44 | 21 | 18.5 | 18 | 15 | 60 | 550 | 610 | F4 |
| ES850/850L-04-018G/022P-6 | 26 | 54 | 25 | 22 | 22 | 18.5 | 60 | 660 | 610 | |
| ES850/850L-04-022G/030P-6 | 35 | 64 | 33 | 30 | 27 | 22 | 60 | 890 | 610 | |
| ES850/850L-04-030G/037P-6 | 44 | 70 | 41 | 37 | 35 | 30 | 60 | 1114 | 610 | |
| ES850/850L-04-037G/045P-6 | 49 | 71 | 48 | 45 | 45 | 37 | 60 | 1140 | 610 | |
| ES850/850L-04-045G/055P-6 | 61 | 104 | 58 | 55 | 52 | 45 | 60 | 1200 | 610 | |
| ES850/850L-05-055G/075P-6 | 80 | 124 | 80 | 75 | 65 | 55 | 67 | 1440 | 610 | F5 |
| ES850/850L-05-075G/090P-6 | 98 | 168 | 93 | 90 | 86 | 75 | 68 | 1940 | 610 | |
| ES850/850L-05-090G/110P-6 | 119 | 198 | 113 | 110 | 100 | 90 | 68 | 2200 | 850 | |
| ES850/850L-06-110G/132P-6 | 142 | 200 | 142 | 132 | 121 | 110 | 68 | 3300 | 1275 | F6 |
| ES850/850L-06-132G/160P-6 | 175 | 220 | 165 | 160 | 150 | 132 | 68 | 3850 | 1275 | |
| ES850/850L-07-160G/200P-6 | 220 | 240 | 215 | 200 | 175 | 160 | 75 | 4100 | 1800 | F7 |
| ES850/850L-07-200G/220P-6 | 271 | 320 | 245 | 220 | 220 | 200 | 75 | 4600 | 1800 | |
| ES850/850L-07-220G/250P-6 | 290 | 350 | 265 | 250 | 250 | 220 | 75 | 5100 | 1800 | |
| ES850/850L-08-250G/280P-6 | 300 | 360 | 295 | 280 | 270 | 250 | 68 | 5782 | 2190 | F8 |
| ES850/850L-08-280G/315P-6 | 330 | 360 | 325 | 315 | 300 | 280 | 68 | 6252 | 2190 | |
| ES850/850L-08-315G/355P-6 | 370 | 480 | 360 | 355 | 330 | 315 | 68 | 7866 | 2190 | |
| ES850/850L-09-355G/400P-6 | 430 | 520 | 420 | 400 | 385 | 355 | 75 | 9100 | 2700 | F9 |
| ES850/850L-09-400G/450P-6 | 470 | 655 | 455 | 450 | 430 | 400 | 75 | 9900 | 2700 | |
| ES850/850L-09-450G/500P-6 | 522 | 700 | 505 | 500 | 470 | 450 | 75 | 10500 | 2700 | |
| ES850/850L-09-500G/560P-6 | 590 | 800 | 571 | 560 | 535 | 500 | 75 | 11500 | 2700 | |
| ES850/850L-09-560G/630P-6 | 721 | 820 | 710 | 630 | 600 | 560 | 75 | 12600 | 2700 | |
| ES850/850L-10-630G/710P-6 | 900 | 1000 | 790 | 710 | 680 | 630 | 75 | 13820 | 3600 | C10 |
| ES850/850L-10-710G/800P-6 | 1080 | 1200 | 880 | 800 | 770 | 710 | 75 | 14850 | 3600 | |
| ES850/850L-11-800G/1100P-6 | 1160 | 1750 | 1115 | 1100 | 900 | 800 | 75 | 20000 | 7200 | C11[4)] |
| ES850/850L-11-1100G/1250P-6 | 1450 | 2000 | 1250 | 1250 | 1114 | 1100 | 75 | 26000 | 7200 | |
| ES850/850L-11-1250G/1400P-6 | 1650 | 2200 | 1400 | 1400 | 1250 | 1250 | 75 | 32000 | 7200 | |

Note: Rated power is measured under rated voltage 690V





## Selection of ES850S Products

1) Support driving asynchronous motor and permanent magnet synchronous motor
2) The highest output frequency can reach 0-599Hz;
3) Support multiple encoders and fieldbus;
4) With high precise speed and position control;
5) with the function of fixed length and fixed angle
6) Support pulse input and pulse output





## Selection of ES850S Products

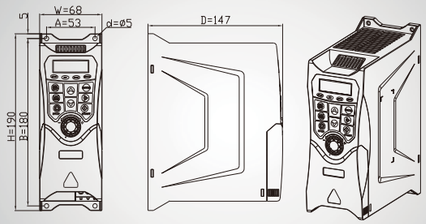
### 380V 3ph rated voltage( adapt to the working voltage range 380~460V ±15%)

| Model Code | Rated Value | | General Load Application | | Heavy Load Application | | Noise Level | Heat Radiation | Air Volume | Dimension |
|---|---|---|---|---|---|---|---|---|---|---|
| | $I_N$(A) | $I_{max}$(A) | $I_{Ld}$(A) | $P_{Ld}$(kW) | $I_{Hd}$(A) | $P_{Hd}$(kW) | dBA | W | m³/h | |
| ES850S-01-0K7G/1K5P-3B | 5.2 | 7 | 5 | 1.5 | 2.5 | 0.75 | 45 | 40 | 89 | F1 |
| ES850S-01-1K5G/2K2P-3B | 6.3 | 9 | 6 | 2.2 | 4.2 | 1.5 | 45 | 76 | 89 | |
| ES850S-01-2K2G/4K0P-3B | 10.5 | 15 | 9.8 | 4 | 5.6 | 2.2 | 45 | 97 | 89 | |
| ES850S-01-4K0G/5K5P-3B | 14 | 20 | 13.5 | 5.5 | 10.5 | 4 | 45 | 172 | 89 | |
| ES850S-01-5K5G/7K5P-3B | 18.2 | 25 | 17.5 | 7.5 | 14.5 | 5.5 | 45 | 210 | 130 | |
| ES850S-02-7K5G/011P-3B | 26 | 36 | 25 | 11 | 17.6 | 7.5 | 45 | 325 | 130 | F2 |
| ES850S-02-011G-3B | 28 | 35 | 26 | 15 | 25 | 11 | 45 | 420 | 130 | |
| ES850S-02A-011G/015P-3B | 37 | 50 | 35 | 15 | 25 | 11 | 52 | 470 | 175 | F2A |
| ES850S-02A-015G/018P-3B | 41 | 57 | 38.6 | 18.5 | 35 | 55 | 52 | 550 | 175 | |
| ES850S-03-015G/018P-3B | 41 | 57 | 38.6 | 18.5 | 35 | 15 | 57 | 550 | 306 | F3 |
| ES850S-03-018G/022P-3B | 48 | 67 | 46 | 22 | 41 | 18.5 | 57 | 660 | 306 | |
| ES850S-03-022G/030P-3B | 63.5 | 89 | 61 | 30 | 48 | 22 | 57 | 890 | 306 | |
| ES850S-04-030G/037P-3/B | 78 | 109 | 75 | 37 | 66 | 30 | 60 | 1114 | 610 | F4 |
| ES850S-04-037G/045P-3/B | 95 | 133 | 91 | 45 | 79 | 37 | 60 | 1140 | 610 | |
| ES850S-04-045G/055P-3/B | 120 | 168 | 115 | 55 | 94 | 45 | 60 | 1200 | 610 | |
| ES850S-05-055G/075P-3/B | 162 | 227 | 155 | 75 | 116 | 55 | 60 | 1440 | 610 | F5 |
| ES850S-05-075G/090P-3/B | 185 | 222 | 178 | 90 | 160 | 75 | 60 | 1940 | 610 | |
| ES850S-05-090G/110P-3/B | 225 | 270 | 215 | 110 | 179 | 90 | 67 | 2200 | 850 | |
| ES850S-06-110G/132P-3 | 272 | 326 | 261 | 132 | 215 | 110 | 68 | 3300 | 1275 | F6 |
| ES850S-06-132G/160P-3 | 320 | 384 | 310 | 160 | 259 | 132 | 68 | 3850 | 1275 | |
| ES850S-07-160G/200P-3 | 375 | 450 | 387 | 200 | 314 | 160 | 75 | 4100 | 1800 | F7 |
| ES850S-07-200G/220P-3 | 450 | 540 | 427 | 220 | 387 | 200 | 75 | 4600 | 1800 | |
| ES850S-07-220G/250P-3 | 487 | 584 | 450 | 250 | 427 | 220 | 75 | 5100 | 1800 | |
| ES850S-08-250G/280P-3 | 546 | 628 | 525 | 280 | 481 | 250 | 68 | 5782 | 2190 | F8 |
| ES850S-08-280G/315P-3 | 624 | 718 | 600 | 315 | 550 | 280 | 68 | 6252 | 2190 | |
| ES850S-08-315G/355P-3 | 686 | 789 | 660 | 355 | 616 | 315 | 68 | 7866 | 2190 | |
| ES850S-09-355G/400P-3 | 760 | 874 | 720 | 400 | 650 | 355 | 75 | 9100 | 2700 | F9 |
| ES850S-09-400G/450P-3 | 865 | 995 | 810 | 450 | 720 | 400 | 75 | 9900 | 2700 | |
| ES850S-09-450G/500P-3 | 950 | 1093 | 870 | 500 | 810 | 450 | 75 | 10500 | 2700 | |
| ES850S-09-500G/560P-3 | 1100 | 1265 | 980 | 560 | 870 | 500 | 75 | 11500 | 2700 | |
| ES850S-09-560G/630P-3 | 1200 | 1380 | 1060 | 630 | 980 | 560 | 75 | 12600 | 2700 | |
| ES850S-10-630G/710P-3 | 1350 | 1450 | 1320 | 710 | 1200 | 630 | 75 | 14500 | 3600 | C10 |
| ES850S-10-710G/800P-3 | 1500 | 1600 | 1450 | 800 | 1320 | 710 | 75 | 16800 | 3600 | |

Note: Rated power is measured under rated voltage 380V

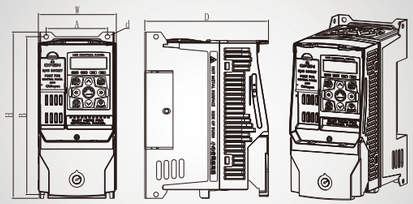
# Installation Dimension

### Dimensions and installation schematic diagram of ES355 series plastics/sheet metal structure



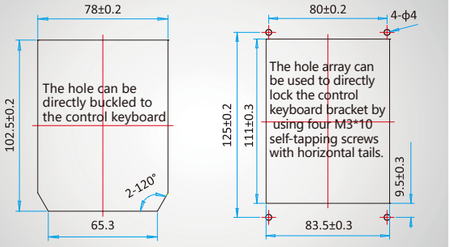

B0

### Dimensions and installation schematic diagram of ES350 series plastics/sheet metal structure

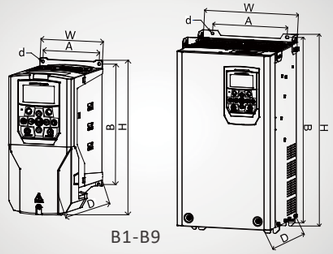


F0

### Shape and dimensions of the opening for directly mounting the control keyboard/bracket to the door

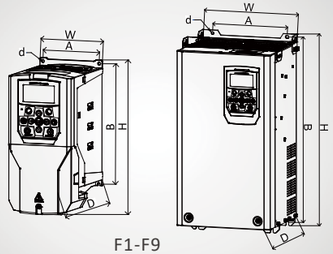



### Dimensions and installation schematic diagram of ES 560 series plastics/sheet metal structure



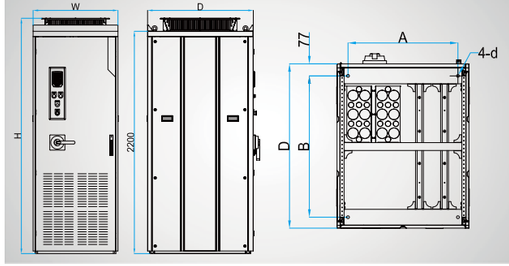
B1-B9

### Dimensions and installation schematic diagram of ES580/850 series plastics/sheet metal structure



F1-F9

### Structural dimensions and installation diagram for C10 cabinet




| Dimension | Installation Hole Width Spacing A (mm) | Installation Hole Height Spacing B (mm) | Installation Hole Sized (mm) | Appearance Width W (mm) | Appearance Height H (mm) | Appearance Thickness D (mm) | Weight (Kg) |
|---|---|---|---|---|---|---|---|
| B0 | 53 | 180 | 5.0 | 68 | 190 | 147 | 1.5 |
| B1 | 110 | 222 | 5.5 | 122 | 276 | 172 | 3.7 |
| B2 | 140 | 238 | 6.0 | 155 | 292 | 172 | 4.8 |
| B2A | 160 | 296 | 6.0 | 175 | 336 | 192 | 5.1 |
| B3 | 150 | 368 | 7 0 | 180 | 420 | 216 | 12.6 |
| B4 | 200 | 479 | 6.5 | 225 | 495 | 221 | 22 |
| B5 | 250 | 260 | 12.0 | 355 | 670 | 260 | 65 |
| B6 | 357/75* | 761 | 11.0 | 390 | 790 | 278 | 95 |
| B7 | 357/115* | 973/977 | 11.0 | 390 | 1001 | 295 | 140 |
| B8 | 490/200* | 1280 | 13.0 | 537 | 1035 | 340 | 200 |
| B9 | 490/240* | 1420 | 13.0 | 537 | 1455 | 380 | 240 |
| F0 | 65 | 168 | 5.0 | 82 | 176 | 131 | 1.8 |
| F1 | 110 | 222 | 5.5 | 122 | 276 | 172 | 3.7 |
| F2 | 140 | 238 | 6.0 | 155 | 292 | 172 | 4.8 |
| F2A | 160 | 296 | 6.0 | 175 | 336 | 192 | 5.1 |
| F3 | 150 | 368 | 7.0 | 180 | 420 | 216 | 12.6 |
| F4 | 200 | 479 | 6.5 | 255 | 495 | 221 | 22 |
| F5 | 250 | 650 | 12.0 | 355 | 670 | 260 | 65 |
| F6 | 357/75 [1)] | 761 | 11.0 | 390 | 790 | 278 | 95 |
| F7 | 357/115 [1)] | 973 | 11.0 | 390 | 1001 | 295 | 140 |
| F8 | 490/200 [1)] | 1280 | 13.0 | 537 | 1305 | 340 | 200 |
| F9 | 490/240 [1)] | 1420 | 13.0 | 537 | 1455 | 380 | 240 |
| C10 | 700 | 900 | 18.0 | 840 | 2330 | 1050 | 500 |

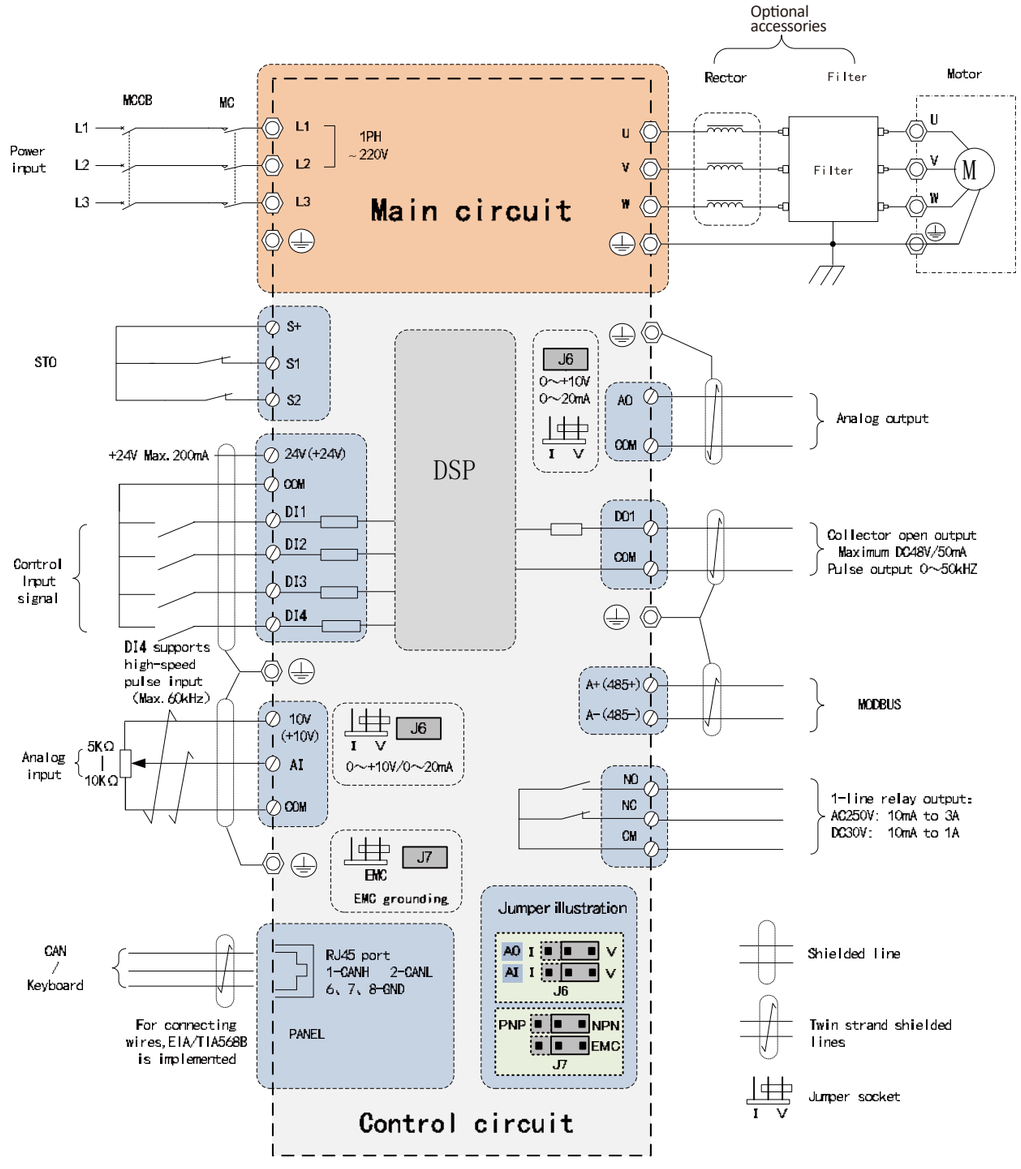
Note: 1) indicates hole spacing for forwarding installation /hole spacing for blade-type lateral installation hole (preferred design scheme);



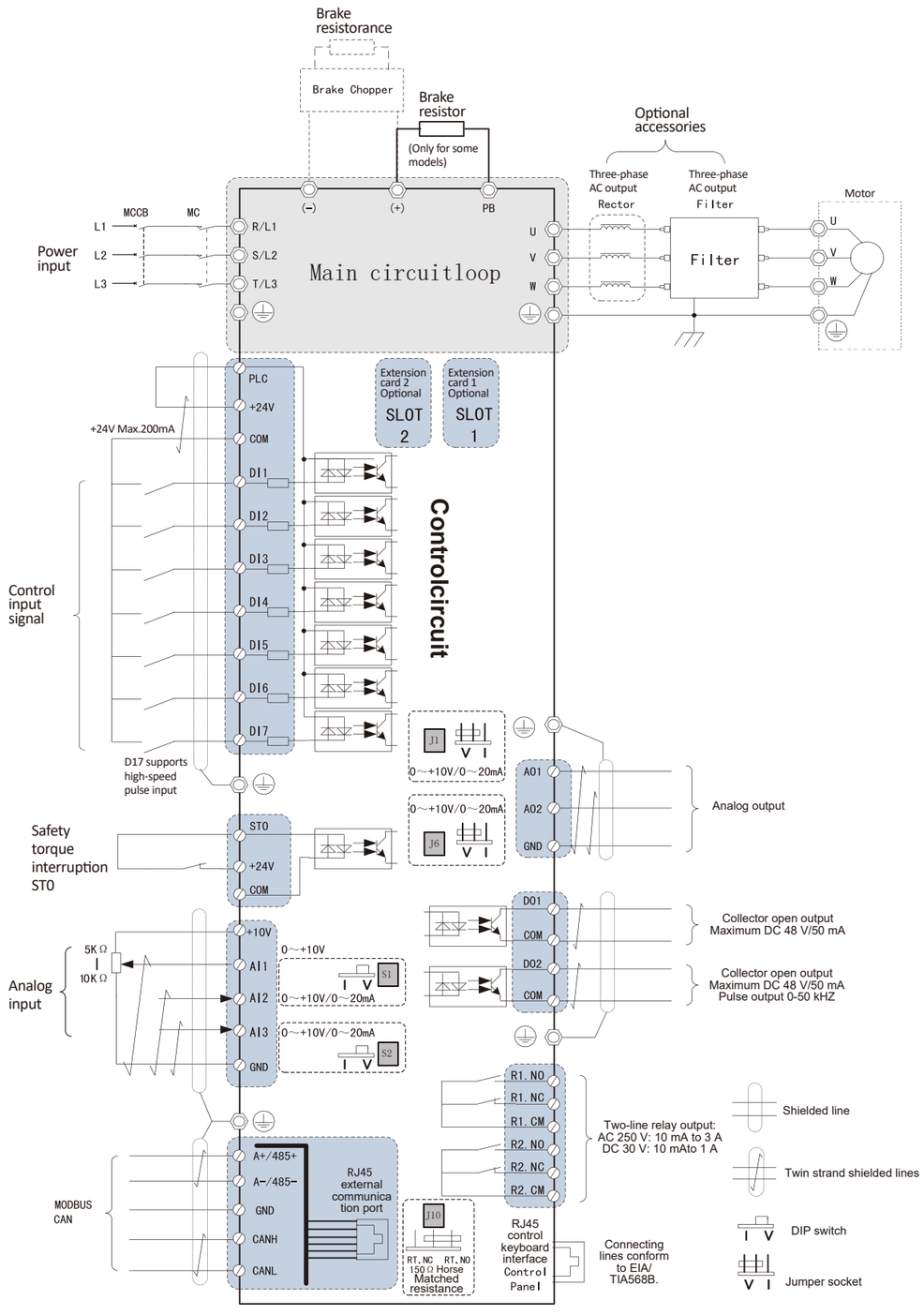
# Optional Accessories

| Legend | Model | Accessory and Main Function |
|---|---|---|
| Built in brake unit Break Chopper | ESX-04-X/X-3B | The built-in braking unit function is optional forF4 series products and is represented with [B] at the end of model. |
| | ESX-05-X/X-3B | The built-in braking unit function is optional forF5 series products and is represented with [B] at the end of model. |
|  | ES-CM-PD | Profibus-DP card, adapt to DB-9 pin serial port. |
|  | ES–CM–PN | Profinet communication card |
|  | ES–CM–ET | EtherCAT communication card |
|  | ES–CM–CAN | Canopen. |
|  | ES-PG-OC | Collector open encoder interface card, adapting to 12V power, with position control pulse input/output. |
| | ES-PG-DF | Diffdifferential encoder interface card, adapting to 5V power, with position control pulse input/output. |
| | ES-PG-DF1 | Differential encoder interface card (support 5V/12V |
| | ES-PG-RT | Rotary transformer encoder interface card, with position control pulse input/output. |
| | ES-PG-SN | Sin-Cos encoder interface card, adapting to 5V power, with position control pulse input/output. |
| | ES-RU-DTC | The voltage capture card of the power grid is connected to the power grid and is used to detect real-time phase voltage and phase of the power grid, so as to achieve VF and WF switching or energy feedback. |
| | ES-RU-PL | Power off synchronization function card. |
|  | ES-PG-SN1 | Sin-cos encoder interface card (subdivision and frequency division) |
|  | ES-PG-ABS | HEIDENHAIN Absolute Encoder Interface Card |
|  | ES850-PG-DC | Power off synchronization function card. |
|  | ES-CP-MU | 24V-POW (external 24V power supply card) |
|  | ES-CP-MUE | LED keyboard is optional. |
|  | ES-CP-SU | Extended bracket of the control keyboard, which is applicable to installation of the LCD keyboard cabinet door. |
|  | ES-SU-F6 | Applicable to the floor-mounted installation base for F6 and F7 models. |
| | ES-SU-F8 | Applicable to the floor-mounted installation base for F8 and F9 models. |
|  | ES-RP-01 | Universal high-performance rotary single-turn 5K potentiometer with the rotary knob (universal model: RV24YN 20SB502). |
|  | ES-CB-F0 | Incoming box, which is applicable to F0 models, in order to raise the closed protective capability to IP40. |
|  | ES850-STO | Safe torque stop function. |
|  | ES850-TER2 | Constant pressure water supply interface board. |
|  | ES850-TER3 | Special interface board for travelling crane, support three-way relay control. |
|  | ES850-TER4 | Inverter automatic cleaning kit, including interface board and fan. |
|  | PC Debug software | After installing this software, visual parameter debugging, fault display, waveform detection, etc. can be easily realized through the PC terminal. |

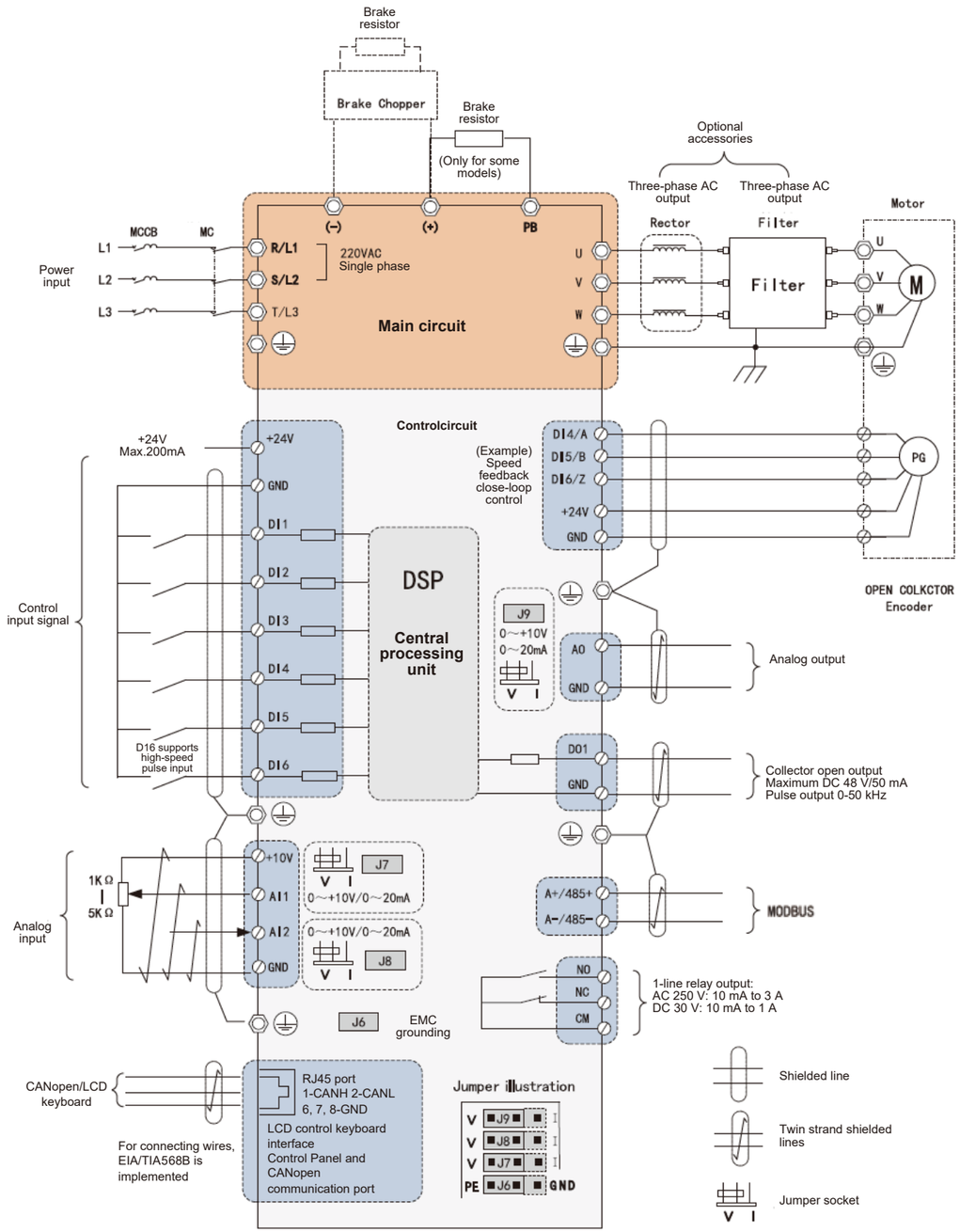
## Standard Wiring Diagram 1 (Applicable to ES355/355L Series and B0)



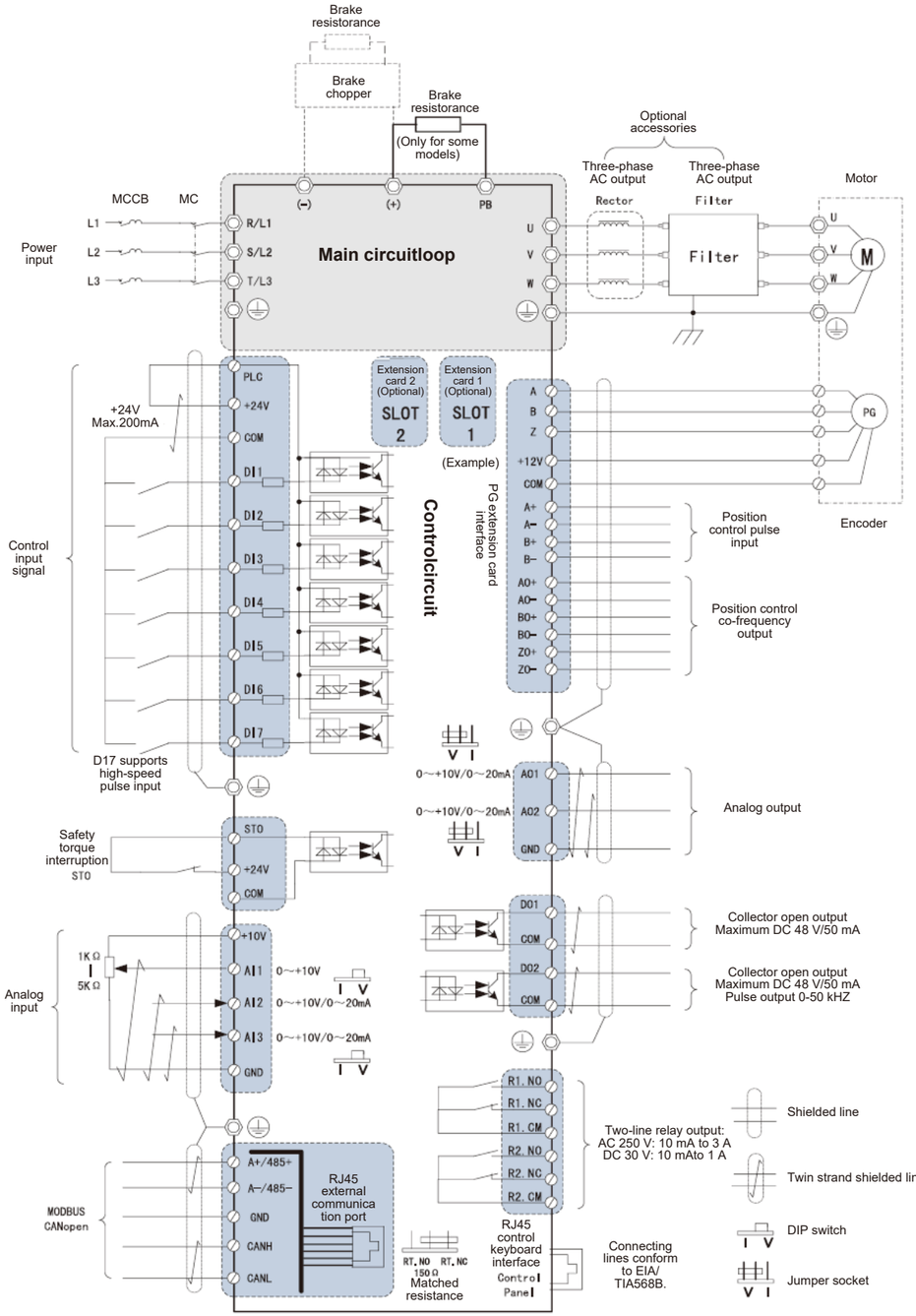

## Standard Wiring Diagram 2 ( Applicable to ES560/560L Series and B1-B9)



## Standard Wiring Diagram 3 (Applicable to ES350/350L Series and F0)




## Standard Wiring Diagram 4
## ( Applicable to ES580/580L/850/850L/850S Series and F1-F9)




★ ES580 /ES580L not suitable for PG feedback

# Advantageous Industry Applications

## Lifting Machinery

- Fast response speed and large startup torque properly alleviate vibrations at startup.
- Zero-speed clasp brake and zero-speed open brake completely eliminate hook sliding and back flush.
- Low torque pulse ensures more reliable operation of the device; especially in construction elevators, the device makes taking the elevators more conformable.
- All-round protection functions (frequency converter, motor, brake unit) and overload torque detection function prevent operations beyond the specification or on a mechanical failure.
- Compact structure design is adopted and the built-in brake unit (for below 90kW) is optional.
- The Smart drive function facilitates operations (easy for commissioning and maintenance), and helps save labor costs and time.
- Intelligent LCD keyboard, real-time monitoring of key information, convenient man-machine interactions are provided.
- The voltage operation range is wide (-15% to +15%).

### Typical Applications



Bridge crane



Tower crane



Hoist

## Metal and Stone Processing

- Low frequency and strong torque, steady speed and high precision.
- The device can decelerate quickly to stop during a power failure to prevent long-time mechanical inertia rotation, which is safer.
- High overload capacity (1 S seconds at 200% rated load), good overvoltage suppression (especially in punching).
- High protection grade (IP40), closed circuit structure design, thickening process of multiple conformal coatings, good physical environmental adaptability
- Smartdrive function, which can be used in most servo applications.
- Smart drive function, which facilitates operations (easy for commissioning and maintenance), and save labor costs and time.
- Intelligent LCD keyboard, real-time monitoring of key information, convenient man-machine interactions
- The fluctuation of speed is small when the converter is loaded suddenly.
- Capable of receiving various signal sources

### Typical Applications



Machine tools



Rotary cutter for the wood processing equipment



Punch of the metal processing equipment

## Cables, Winding

- Low frequency and strong torque, supporting low-speed startup with empty reel or full reels
- Fast response speed, steady and fast during startup/stop and acceleration and deceleration
- High stead-speed precision, constant tension control, steadier pendulum during the whole process
- High protection grade (IP40), closed circuit structure design, and thickening process of multiple conformal coatings, effectively preventing metal dusts
- F3 models and above, which can effectively reduce power higher harmonic and conduction radiation.Other optional accessories are not required to save space and reduce wiring
- Smartdrive function, avoiding complex commissioning, facilitating maintenance; saving labor costs and time
- Intelligent LCD keyboard, real-time monitoring of key information, convenient man-machine interactions

### Typical Applications



Coating machine



Straight wiredrawing machine

## Fluid Machinery

- Intelligent commissioning: Intelligent setting of industry application parameters, intelligent V/F curve setting. Complex commissioning by professionals is not required to save labor and time.
- Compatible with synchronous motors

  energy greatly Used with synchronous motor, down sizing and light weight, saving

  Used with synchronous motor, down sizing and light weight, saving equipment room
- equipment room Built-in reactor for F3 and above models

  Other optional accessories are not required to save space and reduce wiring; The power higher harmonic and conduction and radiation can be effectively reduced.
- Good human-machine interface

  Real-time monitoring of key parameters; real-time and multi-line LCD display
- Speed search function: Rotations in the free running mode can be searched after power failure and startup, implementing easy start up.
- Greater energy saving effects, minimum unit power consumption in the case of equivalent torques

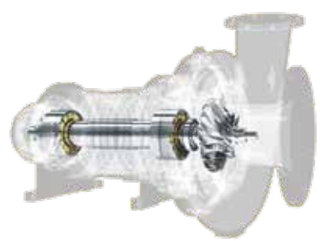
### Typical Applications



Air compressor



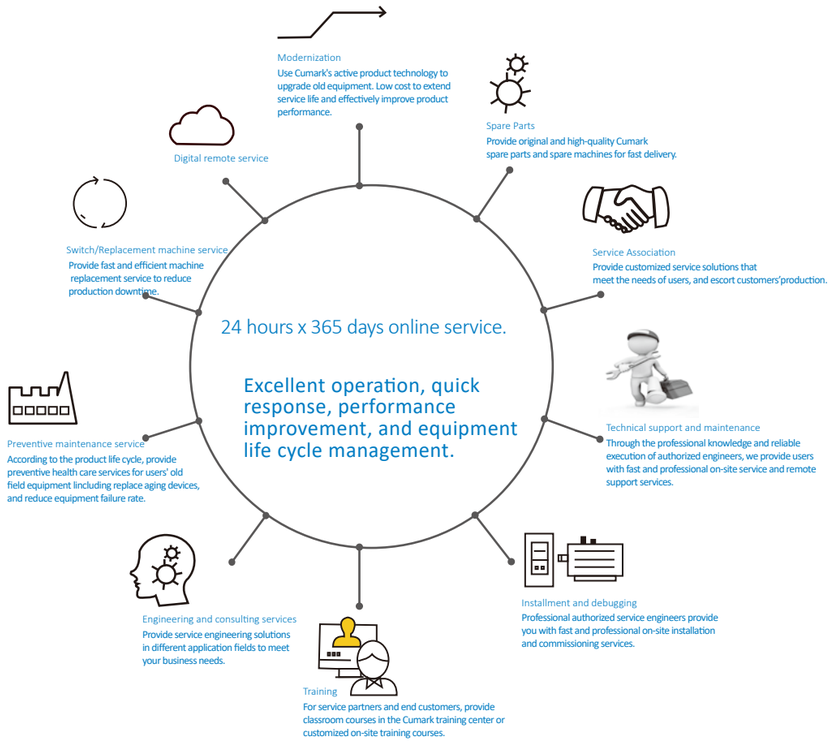
Fans & pumps



High Speed Maglev Blower

## Summary of various services

The Cumark technical service teams across China, together with Cumak authorized service partners, provide you with a full range of pre-sales and after-sales technical services. Your success is our goal. Cumark will tailor a full lifecycle management solution for you to escort your business growth.




## Cumark product life cycle management mode

| Active period | Classic period | Restricted period | Elimination period |
|---|---|---|---|
| Products with all services in the full life cycle | Comes with all services throughout the life cycle | Only relevant raw materials are needed,we can still provide spare parts, preventive maintenance and repair upgrade services. | Restricted by technology and cost factors, Cumark cannot guarantee the provision of services during the life cycle, but it can provide preferential replacement services. |

Complete life cycle service — Limited life cycle service

In order to ensure the effectiveness of the full life cycle service, the product must be in the active or classic period. Through upgrading and transformation, the previous transmission products can be kept in the active or classic period.

Note! Products in the restricted or obsolete period have only limited repair options, which may lead to an uncertain repair time.To avoid this possibility, the product should always be kept in the active or classic period.



## Note