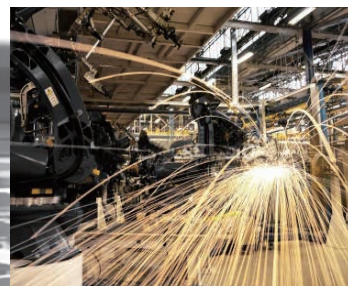


SE3 series

High Speed Closed Loop/
Communication Inverter



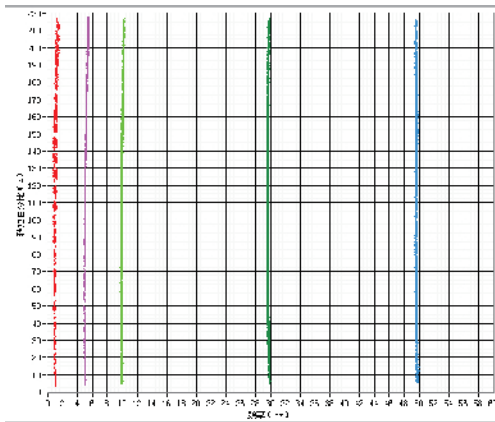
Power Range

| Model | | kW (HP) | 0.4 (0.5) | 0.75 (1) | 1.5 (2) | 2.2 (3) | 3.7 (5) | 5.5 (7.5) | 7.5 (10) | 11 (15) | 15 (20) | 18.5 (25) | 22 (30) |
|-------|-----|--------------|-----------|----------|---------|---------|---------|-----------|----------|---------|---------|-----------|---------|
| SE3 | 021 | 1 phase 220V | ■ | | | | | | | | | | |
| | 023 | 3 phase 220V | ■ | | | | | | | | | | |
| | 043 | 3 phase 440V | ■ | | | | | | | | | | |

Product Features

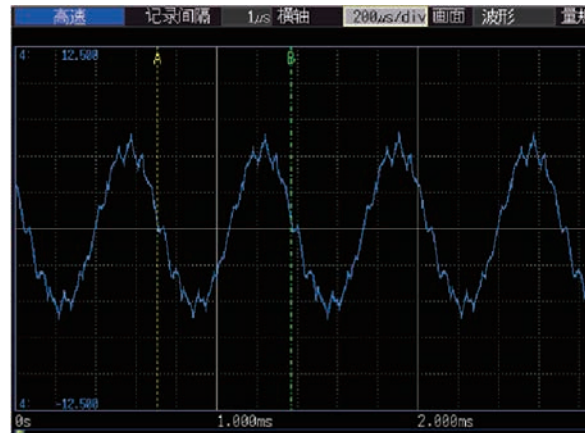
High Performance Vector Control Technology

- High starting torque: Sensorless vector control (SVC) 200% 0.5Hz, and closed-loop vector control (FOC + PG) 180% 0Hz.



Up to 1500Hz High-Speed Frequency Output

- Support high speed spindle function, which can be applied to complicated and precise machining process. The application includes high-speed drilling machine, engraving machine, centrifuge equipment.



High Performance Synchronous Motor Control Technology

- Support induction motor (IM) and synchronous motor (IPM and SPM) control.



Support Multiple High-speed Bus Connections

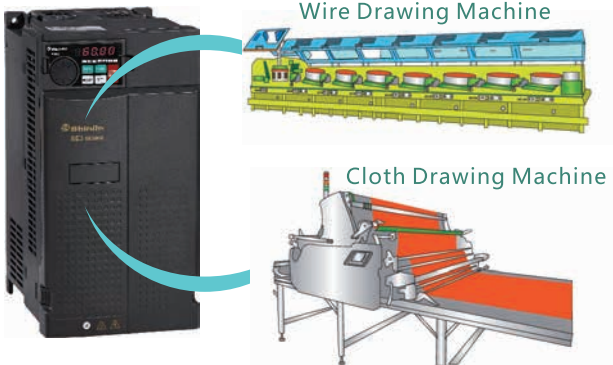
- Equipped with high-speed communications: CANopen, Profibus, DeviceNet, EtherCAT, MODBUS TCP.



Product Features

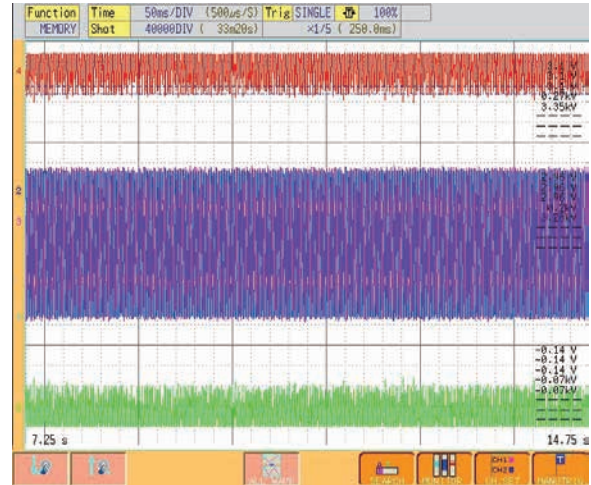
Multiple Control Modes for Various Applications

- Position / Speed / Torque / Tension control mode.
- Combination mode (e.g. speed+torque) can be achieved via I/O switch.
- Advanced position control functions: Homing commands, zero speed, Pr/Pt mode(with optional PG cards).



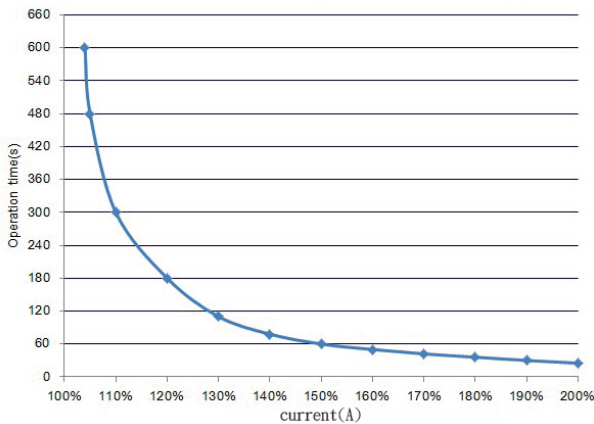
Low-noise Carrier Wave Control (Soft-PWM)

- Motor noise is controlled so that the metallic sound is transformed into a more pleasing buzz.
- Low noise operations to reduce the interference exerted upon external radio frequencies.



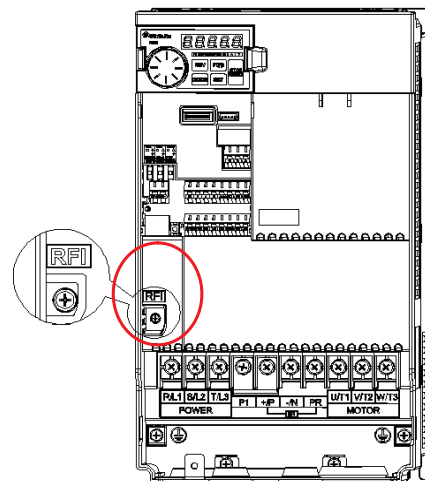
Excellent Overload Endurance

- With a current overload capability of 150% for 60 seconds and 200% for 3 seconds, the setting is suitable for handling large sudden load changes applications such as tooling machinery.



Built-in RFI filter

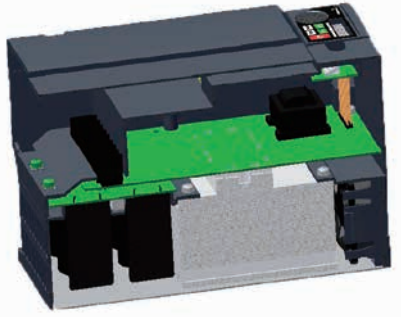
- Reduce electromagnetic interference.



Product Features

Isolated Air Channel

- Fan wind channels are sealed and isolated from the heat dissipation system and electrical parts. Dust will not be able to infiltrate the interior of the machine through the fans.



Complete Protection Functions

- Phase failure protection, overvoltage protection, overcurrent protection, undervoltage protection, output short-circuit protection, ground fault protection, motor overheat protection, IGBT module overheat protection, communication abnormality protection.

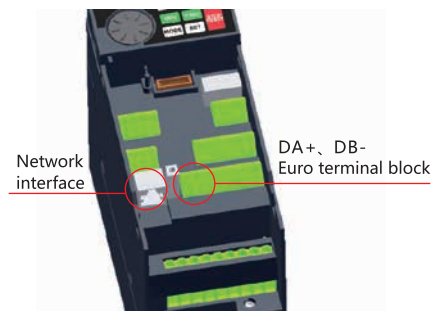
LED Digital Keypad

- 5-digit 7-segment display
- Optimized operation JOG Dial



Quick Connect to External Keypad and Easy Wiring

- Standard RJ45 network and DA+ DB- terminals are equipped for multi-machine communication.



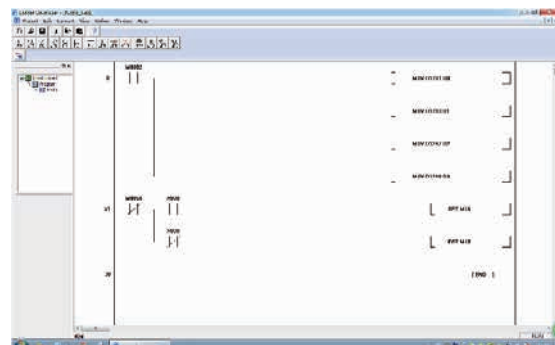
12 Sets of Alarm Records

- Complete alarm system for recording the output frequency, output current, output voltage, accumulated count of temperature increase, PN voltage, total operation time, operational status, alarm output time. A total of 12 alarm code, 12 groups of alarm code.

| | | | | | |
|-------|-------|--------------------|------|------|-----|
| P.288 | 06-40 | Alarm code query | 0~12 | 0 | 176 |
| P.289 | 06-41 | Alarm code display | Read | Read | 176 |
| P.290 | 06-42 | Alarm code query | 0~10 | 0 | 176 |
| P.291 | 06-43 | Alarm code display | Read | Read | 176 |

Built-in PLC Functions

- Provide PLC programming software, easy for editing.
- Applicable for programming small number of points, and support multiple functions.



Product Features

Grouping Parameters - Easy Setup

| Group | Parameter Number | Name | Setting Range | Default |
|-------|------------------|---|--|---------|
| 02-10 | P.60 | Terminal 2-5 filter time | 0 ~ 2000ms | 30ms |
| 02-11 | P.139 | Terminal 2-5 voltage signal bias rate | -100.0%~100.0% | 0.0% |
| 02-12 | P.192 | Terminal 2-5 minimum input positive voltage | 0 ~ 10.00V | 0.00V |
| 02-13 | P.193 | Terminal 2-5 maximum input positive voltage | 0 ~ 10.00V | 10.00V |
| 02-14 | P.194 | Percentage corresponds to terminal 2-5 minimum positive voltage | -100.0% ~ 100.0% -400.0% ~ 400.0%(02-00(P.500)=2/14/15/16/17) | 0.0% |

SE3 series: Similar functions are grouped into same sectors instead of sequence numbers.

Easy Maintenance

- Minimize dustfall by changing the location of exhaust fan.
- Removable cooling fan for service and regular maintenance.



Model Identification

| SE3 | 043 | 0.75K | XY |
|------------|---|----------|--|
| Series | Voltage level | Capacity | Version |
| SE3 series | 043 : three phase 440V 023 : three phase 220V 021 : single phase 220V | 0.75kW | None : General model -xy : Customized or specialized or region difference |



Electrical Specifications

220V series one-phase/three-phase

| Frame | | A | | B | | |
|-------------------------|---|--|---|--------------------|------|------|
| Model SE3-021- □ -xy | | 0.4K | 0.75K | 1.5K | 2.2K | |
| Output | HD | Rated output capacity (kVA) | 1 | 1.5 | 3.2 | 4.2 |
| | | Rated output current (A) | 2.7 | 4.5 | 8 | 11 |
| | | Applicable motor capacity (HP) | 0.5 | 1 | 2 | 3 |
| | | Applicable motor capacity(kW) | 0.4 | 0.75 | 1.5 | 2.2 |
| | | Overload current rating | 150% 60 seconds 200% 3 seconds (inverse time characteristics) | | | |
| | Carrier frequency (kHz) | 1~15kHz | | | | |
| | ND | Rated output capacity (kVA) | 1.2 | 2 | 3.4 | 4.8 |
| | | Rated output current (A) | 3 | 5 | 8.5 | 12.5 |
| | | Applicable motor capacity (HP) | 0.5 | 1 | 2 | 3 |
| | | Applicable motor capacity (kW) | 0.4 | 0.75 | 1.5 | 2.2 |
| Overload current rating | | 120% 60 seconds (inverse time characteristics) | | | | |
| Carrier frequency (kHz) | 1~15kHz | | | | | |
| Maximum output voltage | | Three-phase 200-240V | | | | |
| Power supply | Rated power voltage | One-phase 200-240V 50Hz / 60Hz | | | | |
| | Power voltage permissible fluctuation | One -phase 170-264V 50Hz / 60Hz | | | | |
| | Power frequency permissible fluctuation | ±5% | | | | |
| | Power source capacity (kVA) | 1.5 | 2.5 | 4.5 | 6.9 | |
| Cooling method | | Self cooling | | Forced air cooling | | |
| Weight(kg) | | 1.0 | 1.0 | 1.5 | 1.5 | |

| Frame | | A | | | B | | C | | D | | |
|-------------------------|---|---|--|------|------|------|------|------|------|------|------|
| Model SE3-023- □ -xy | | 0.4K | 0.75K | 1.5K | 2.2K | 3.7K | 5.5K | 7.5K | 11K | 15K | |
| Output | HD | Rated output capacity (kVA) | 1.2 | 2 | 3.2 | 4.2 | 6.7 | 9.5 | 12.5 | 18.3 | 24.7 |
| | | Rated output current (A) | 3 | 5 | 8 | 11 | 17.5 | 25 | 33 | 49 | 65 |
| | | Applicable motor capacity (HP) | 0.5 | 1 | 2 | 3 | 5 | 7.5 | 10 | 15 | 20 |
| | | Applicable motor capacity(kW) | 0.4 | 0.75 | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 | 15 |
| | | Overload current rating | 150% 60 seconds 200% 3seconds (inverse time characteristics) | | | | | | | | |
| | Carrier frequency (kHz) | 1~15kHz | | | | | | | | | |
| | ND | Rated output capacity (kVA) | 1.3 | 2.1 | 3.4 | 4.8 | 7.4 | 10.3 | 13.7 | 19.4 | 26.3 |
| | | Rated output current (A) | 3.2 | 5.5 | 8.5 | 12.5 | 19.5 | 27 | 36 | 51 | 69 |
| | | Applicable motor capacity (HP) | 0.5 | 1 | 2 | 3 | 5 | 7.5 | 10 | 15 | 20 |
| | | Applicable motor capacity (kW) | 0.4 | 0.75 | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 | 15 |
| Overload current rating | | 120% 60 seconds 150% 3 seconds (inverse time characteristics) | | | | | | | | | |
| Carrier frequency (kHz) | 1~15kHz | | | | | | | | | | |
| Maximum output voltage | | Three-phase 200-240V | | | | | | | | | |
| Power supply | Rated power voltage | Three-phase 200-240V 50Hz /60Hz | | | | | | | | | |
| | Power voltage permissible fluctuation | Three-phase 170-264V 50Hz/ 60Hz | | | | | | | | | |
| | Power frequency permissible fluctuation | ±5% | | | | | | | | | |
| | Power source capacity (kVA) | 1.5 | 2.5 | 4.5 | 6.4 | 10 | 12 | 17 | 20 | 28 | |
| Cooling method | | Forced air cooling | | | | | | | | | |
| Weight(kg) | | 1.0 | 1.0 | 1.0 | 1.5 | 1.5 | 4.0 | 4.1 | 5.7 | 5.8 | |

Note:

The test conditions of rated output current, rated output capacity and inverter power consumption are:the carrier frequency (P.72) is at the set value; the inverter output voltage is at 220V; the output frequency is at 60Hz, and the ambient temperature is 40°C .

Electrical Specifications

440V series three-phase

| Frame | | A | | | B | | C | | | D | | | |
|-------------------------|---|--|---|------|------|------|------|------|------|------|-------|------|------|
| Model SE3-043- □ -xy | | 0.4K | 0.75K | 1.5K | 2.2K | 3.7K | 5.5K | 7.5K | 11K | 15K | 18.5K | 22K | |
| Output | HD | Rated output capacity (kVA) | 1 | 2 | 3 | 4.6 | 6.9 | 10 | 14 | 18 | 25 | 29 | 34 |
| | | Rated output current (A) | 1.5 | 2.7 | 4.2 | 6 | 9 | 12 | 17 | 24 | 32 | 38 | 45 |
| | | Applicable motor capacity (HP) | 0.5 | 1 | 2 | 3 | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 |
| | | Applicable motor capacity(kW) | 0.4 | 0.75 | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 |
| | | Overload current rating | 150% 60 seconds 200% 3 seconds (inverse time characteristics) | | | | | | | | | | |
| | Carrier frequency (kHz) | 1~15kHz | | | | | | | | | | | |
| | ND | Rated output capacity (kVA) | 1.4 | 2.3 | 3.5 | 5 | 8 | 12 | 15.6 | 21.3 | 27.4 | 31.6 | 37.3 |
| | | Rated output current (A) | 1.8 | 3 | 4.6 | 6.5 | 10.5 | 15.7 | 20.5 | 28 | 36 | 41.5 | 49 |
| | | Applicable motor capacity (HP) | 0.5 | 1 | 2 | 3 | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 |
| | | Applicable motor capacity (kW) | 0.4 | 0.75 | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 |
| Overload current rating | | 120% 60 seconds (inverse time characteristics) | | | | | | | | | | | |
| Carrier frequency (kHz) | 1~15kHz | | | | | | | | | | | | |
| Maximum output voltage | | Three-phase 380-480V | | | | | | | | | | | |
| Power supply | Rated power voltage | | Three-phase 380-480V 50Hz / 60Hz | | | | | | | | | | |
| | Power voltage permissible fluctuation | | Three-phase 323-528V 50Hz / 60Hz | | | | | | | | | | |
| | Power frequency permissible fluctuation | | ±5% | | | | | | | | | | |
| | Power source capacity (kVA) | | 1.5 | 2.5 | 4.5 | 6.9 | 10.4 | 11.5 | 16 | 20 | 27 | 32 | 41 |
| Cooling method | | Self cooling | Forced air cooling | | | | | | | | | | |
| Weight(kg) | | 1.0 | 1.0 | 1.0 | 1.5 | 1.5 | 3.9 | 4.0 | 4.0 | 5.7 | 5.8 | 5.8 | |

Note:

The test conditions of rated output current, rated output capacity and inverter power consumption are: the carrier frequency (P.72) is at the set value; the inverter output voltage is at 440V; the output frequency is at 60Hz, and the ambient temperature is 40°C .

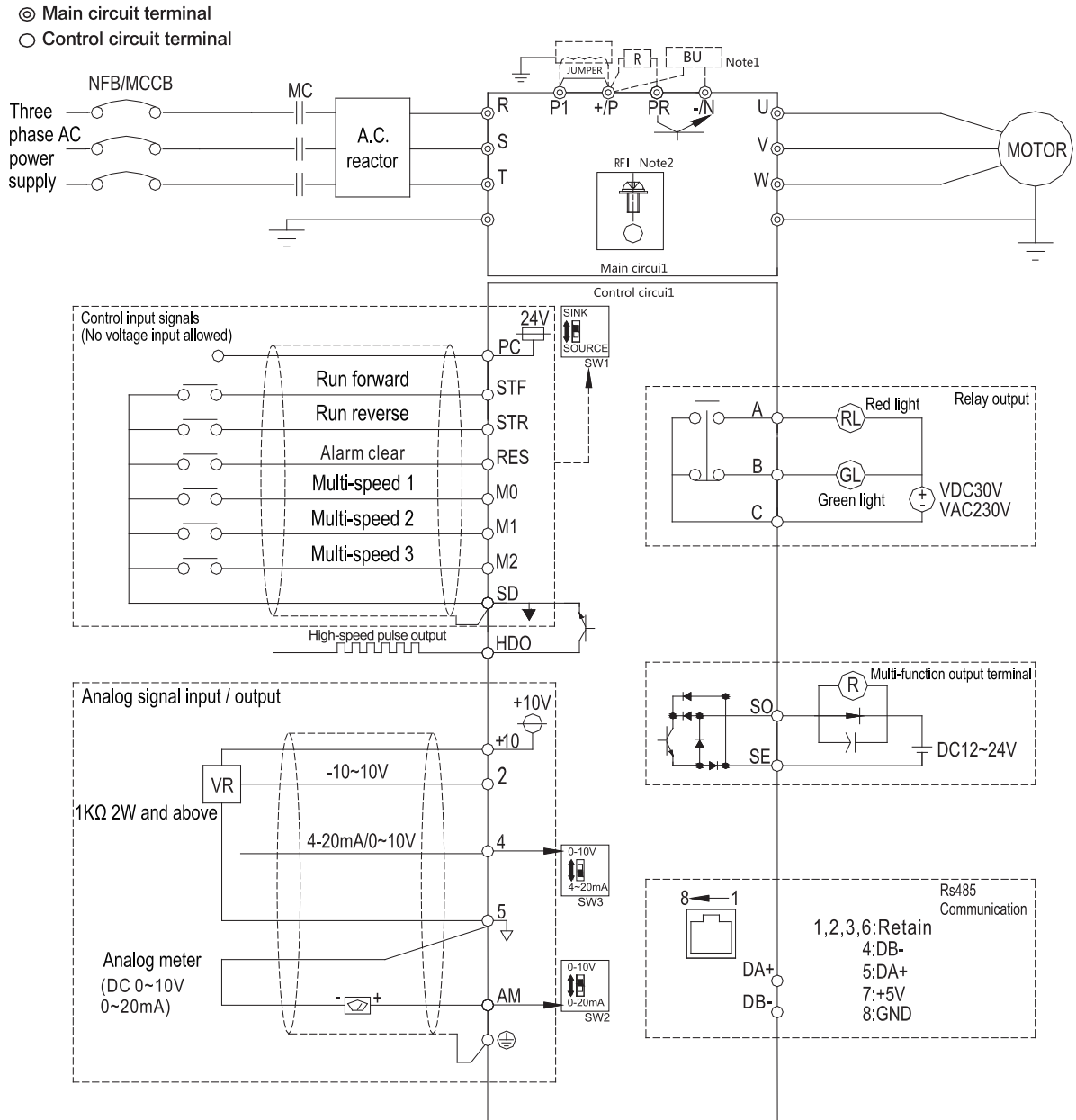


SE3

Common Specifications

| | | |
|---|---------------------------------------|--|
| Control method | | SVPWM control, V/F control, close-loop V/F control (VF+PG), general flux vector control, sensorless vector control (SVC), close-loop vector control (FOC+PG), torque control (TQC+PG). |
| Output frequency range | | 0~1500Hz |
| Frequency setting resolution | Digital setting | The resolution is 0.01Hz. |
| | Analog setting | 0.01Hz/60Hz(terminal 2: -10 ~ +10V / 13bit) 0.15Hz/60Hz(terminal 2: 0 ~ ±10V / 12bit) 0.03Hz/60Hz(terminal 2: 0 ~ 5V / 11bit) 0.06Hz/60Hz(terminal 4: 0~10V, 4-20mA / 12bit) 0.12Hz/60Hz(terminal 4: 0 ~ 5V / 11bit) |
| Output frequency accuracy | Digital setting | Maximum target frequency±0.01%. |
| | Analog setting | Maximum target frequency±0.1%. |
| Speed control range | | IM: When SVC, 1:200; when FOC+PG, 1:1000. PM: When SVC, 1:20; when FOC+PG, 1:1000. |
| Start torque | | 200% 0.5 Hz |
| V/F characteristics | | Constant torque curve, variable torque curve, five-point curve, VF separation |
| Acceleration / deceleration curve characteristics | | Linear acceleration / deceleration curve, S shape acceleration /deceleration curve |
| Drive motor | | Induction motor(IM), permanent magnet motor(SPM, IPM) |
| Stalling protection | | The stalling protection level can be set to 0~250% |
| Target frequency setting | | Keypad setting, DC 0~5V / 10V signal, DC -10~+10V signal, DC 4~20 mA signal, multiple speed stage level setting, communication setting, HDI setting. |
| PID control | | Please refer to parameter description |
| Built-in simple PLC | | Supports 21 basic instructions and 14 application instructions, including PC editing software; |
| Parameter unit | Operation monitoring | Output frequency, output current, output voltage, PN voltage, output torque, electronic thermal accumulation rate, temperature rising accumulation rate, output power, Analog value input signal, digital input and output terminal status... ; alarm signal and alarm history 12 groups at most |
| | LED indicator (7) | Forward rotation indicator, reverse rotation indicator, frequency monitoring indicator, mode switch indicator ,PU control indicator, PLC indicator and run indicator |
| Communication function | | Built-in Shihlin / Modbus communication protocol, can select MODBUS TCP, CANopen, Profibus, DeviceNet, EtherCAT card |
| Protection mechanism / alarm function | | Output short circuit protection, Over-current protection, over-voltage protection, under-voltage protection, motor over-heat protection, IGBT module over-heat protection, communication abnormality protection, |
| Environment | Ambient temperature | Heavy load :-10 ~ +50°C (non-freezing) · Light load:-10 ~ +40°C (non-freezing), please refer to 3.4.2 Class of protection and operation temperature for details. |
| | Ambient humidity | Below 90%Rh (non-condensing). |
| | Storage temperature | -20 ~ +65°C. |
| | Surrounding environment | Indoor, no corrosive gas, no flammable gas, no flammable powder. |
| | Altitude | Altitude below 2000 m, when altitude is above 1000 m, derate the rated current 2% per 100 m |
| | Vibration | Vibration below 5.9m/s ² (0.6G). |
| | Grade of protection | IP20 |
| | The degree of environmental pollution | 2 |
| Class of protection | | Class I |
| International certification | | CE |

Wiring Diagram



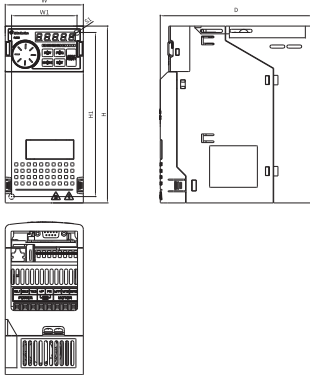
NOTE

1. Make sure 10, SD, SE, 5 and PC are not shorted to each other.
2. The DC reactor between +/P and P1 is optional, please short +/P and P1 when DC reactor is not used.

Dimensions

Unit: mm

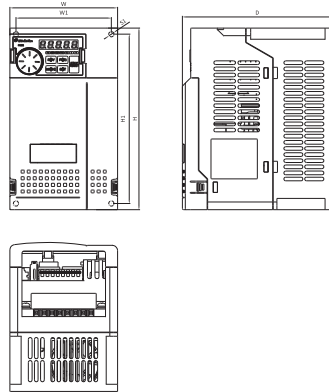
Frame A



Frame A

| Model type | W (mm) | W1 (mm) | H (mm) | H1 (mm) | D (mm) | S1 (mm) |
|-------------------|--------|---------|--------|---------|--------|---------|
| SE3-043-0.4~1.5K | 74.0 | 62.0 | 167.0 | 155.0 | 144.0 | 5.2 |
| SE3-023-0.4~1.5K | | | | | | |
| SE3-021-0.4~0.75K | | | | | | |

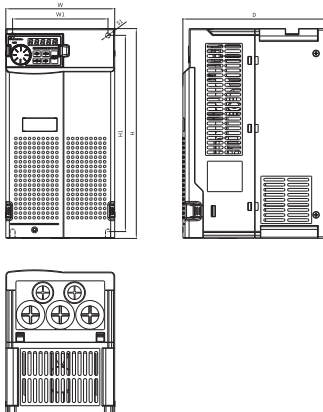
Frame B



Frame B

| Model type | W (mm) | W1 (mm) | H (mm) | H1 (mm) | D (mm) | S1 (mm) |
|------------------|--------|---------|--------|---------|--------|---------|
| SE3-043-2.2~3.7K | 105.0 | 93.0 | 178.0 | 166.0 | 146.0 | 5.2 |
| SE3-023-2.2~3.7K | | | | | | |
| SE3-021-1.5~2.2K | | | | | | |

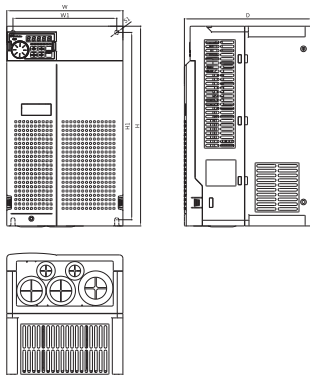
Frame C



Frame C

| Model type | W (mm) | W1 (mm) | H (mm) | H1 (mm) | D (mm) | S1 (mm) |
|------------------|--------|---------|--------|---------|--------|---------|
| SE3-043-5.5~11K | 141.0 | 123.6 | 270.0 | 252.6 | 185.0 | 6.5 |
| SE3-023-5.5~7.5K | | | | | | |

Frame D



Frame D

| Model type | W (mm) | W1 (mm) | H (mm) | H1 (mm) | D (mm) | S1 (mm) |
|----------------|--------|---------|--------|---------|--------|---------|
| SE3-043-15~22K | 175.0 | 156.4 | 300.0 | 281.4 | 191.8 | 6.2 |
| SE3-023-11~15K | | | | | | |