# Shihlin Electric

SE2 Series

High Quality

Innovation

High Tech

# High Performance Vector control
# SE2 Series Inverter

ISO 14001 BSMI REGISTERED

ISO 9001 BSMI REGISTERED

CE

# Feature

♦ **High-performance senseless vector control technique**
- With 32-bit RISC CPU high speed computation.
- Maximum of 150% high torque can be generated at low speed of 1Hz.
- It has the innovative, high precision non-rotary auto-tuning.
- Speed precision is within 1% (with 0%-100% load change).
- Speed control range is elevated to 1:100
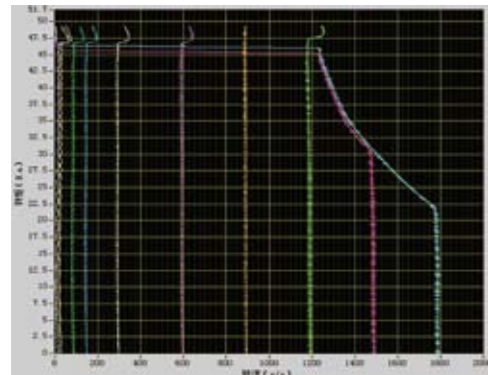


Torque-Speed Curve

♦ **The short time over-load capacity is increased to 200% 1S.**
- This design is suitable and safe for impact loading (punch / crane / trolley / screw machinery / machine tools, etc.)
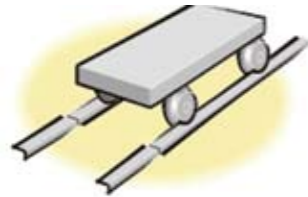


♦ **Hardware ground fault over current / Output short circuit protection design**
- The hardware design significantly improves the protection efficiency
- This design can protect the output module and reduce the failure rate related to motor insulator damages or wiring errors.
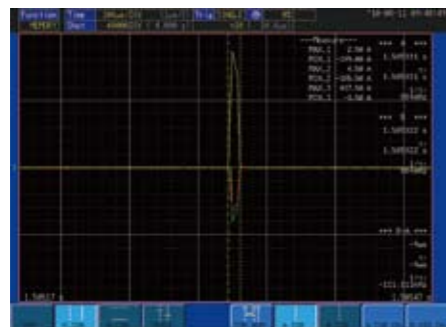


The figure above is the starting waveform for the output short circuit and the SCP protection alarm.

♦ **The entire series have a build-in brake transistor.**
- The entire series have a build-in brake transistor (0.4–11K).
- The brake resistor connection enhances the brake torque capacity.

♦ **Built-in RS485 Communication**
- SE2 has two more communication terminals and chips on the control board.
- This design makes concurrent connections to devices such as the touch panel, the PLC, etc. easy.
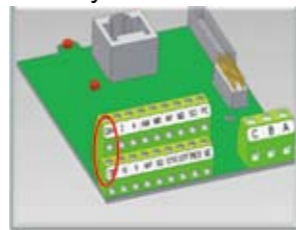


♦ **Speed tracing function**
- Speed tracing function: The speed and rotary direction of the motor can be detected at idling state, providing a steady activation without tripping.
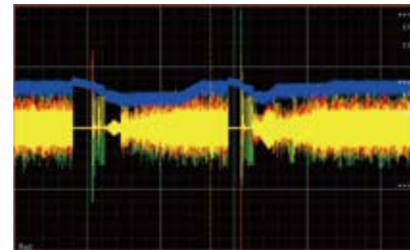


♦ **Five-point V/F Curve**
- It is very suitable for various complex loading environments, such as a special occasion with multiple work frequency points.
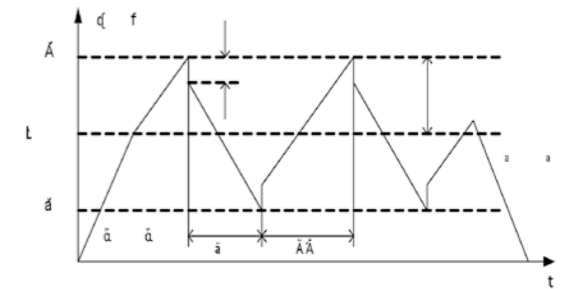
P.14=4
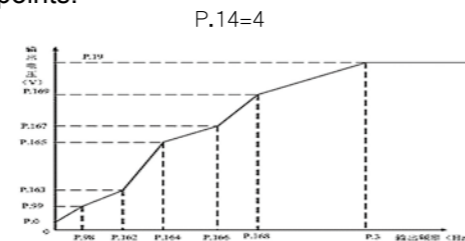


♦ **Soft-PWM Function**
- The inverter automatically changes the carrier frequency at random time to prevent the electronic machine emitting mono-frequency metal noises. It removes the sharp noises produced by the inverter due to monotonic carrier frequency modulation.
- This design provides a low noise operation and reduces causing radiofrequency interruption to the outside, and thereby enabling a more reliable operation of the nearby PLC and rotary encoder.

♦ **The range of the output frequency is expanded to 0 – 1,000 Hz**
- It is good choice for high-speed motor applications, such as engraving machines, grinders, centrifuges, etc.

| Parameter No. | Parameter Name | Setting Range |
|---|---|---|
| P.4-P.6 | Multiple frequencies | 0-1000Hz |
| P.24-P.27 | | |
| P.142-P.149 | | |
| P.3/P.47 | Base frequency | 0-1000Hz |
| P.18 | High-speed upper limit frequency | 120-1000Hz |
| P.38-P.39 | The highest frequency of the module | 1-1000Hz |

♦ **Operating time accumulation and parameter PIN protection**
- Operating time accumulating function: Display the accumulated operating time of the inverter.
- Parameter PIN protection function: A four-digit setup for restricting parameter reading and writing, as well as preventing the occurrence of operation mistakes.

♦ **A variety of built-in substrates is available.**
- SE2-PD01: Profibus communication module
- SE2-DN01: Device-NET communication module
- SE-1B01: A 4-20 mA current output expansion board.
- SE-CB01: A terminal-type communication expansion board
- SE-EB01: I/O expansion board (Relay output)



♦ **The triangle wave function (traverse)**
- It is suitable for textile- and fiber-related occasions that require traversing and winding functions.



♦ **PC-end communication software**
- Newly included PC-end communication software: It helps the user to control multiple inverters, to set up / copy parameters, or to monitor the operation condition. It is also easy for the clients to use.



♦ **A build-in input filter is available.**
- There is a build-in EMI input filter design. It qualifies the EN61800-3 specifications and it can effective reduce electromagnetic interruption.

# Electric Specifications

## ♦ 220V Single-phase Series

| Model SE2-021-□□□K | | 0.4K | 0.75K | 1.5K | 2.2K |
|---|---|---|---|---|---|
| Applicable Motor Capacity | HP | 0.5 | 1 | 2 | 3 |
| | kW | 0.4 | 0.75 | 1.5 | 2.2 |
| Output — Rated Output Capacity kVA | | 1.2 | 1.9 | 3.0 | 4.2 |
| Output — Rated Output Current A | | 3.0 | 5.0 | 8.0 | 11.0 |
| Output — Over-current Capability | | 150% 60 seconds; 200% 1 second (reverse time characteristics) | | | |
| Output — Maximum Output Voltage | | Three-phase 200~240V | | | |
| Power — Rated Power Voltage | | Single-phase 200~240V | | | |
| Power — Permitted Power and Voltage Range | | Single-phase 200~240V | | | |
| Power — Adjustable Power and Frequency Range | | ±5% | | | |
| Power — Power supply capacity kVA | | 1.8 | 3 | 4.5 | 6.4 |
| Cooling Method | | Nature cooling | Forced Air cooling | | |
| Inverter Weight (Kg) | | 1.2 | 1.2 | 1.9 | 1.9 |

## ♦ 220V Three-phase Series

| Model SE2-023-□□□K | | 0.4K | 0.75K | 1.5K | 2.2K | 3.7K | 5.5K | 7.5K |
|---|---|---|---|---|---|---|---|---|
| Applicable Motor Capacity | HP | 0.5 | 1 | 2 | 3 | 5 | 7 | 10 |
| | kW | 0.4 | 0.75 | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 |
| Output — Rated Output Capacity kVA | | 1.2 | 1.9 | 3.0 | 4.2 | 6.7 | 9.2 | 12.6 |
| Output — Rated Output Current A | | 3.0 | 5.0 | 8.0 | 11.0 | 17.5 | 24 | 33 |
| Output — Over-current Capability | | 150% 60 seconds; 200% 1 second (reverse time characteristics) | | | | | | |
| Output — Maximum Output Voltage | | Three-phase 200~240V | | | | | | |
| Power — Rated Power Voltage | | Three-phase 50Hz / 60Hz | | | | | | |
| Power — Permitted Power and Voltage Range | | Three-phase 50Hz / 60Hz | | | | | | |
| Power — Adjustable Power and Frequency Range | | ±5% | | | | | | |
| Power — Power supply capacity kVA | | 1.8 | 3 | 4.5 | 6.4 | 10 | 13.8 | 19 |
| Cooling Method | | Nature cooling | Forced Air cooling | | | | | |
| Inverter Weight (Kg) | | 1.2 | 1.2 | 1.2 | 1.9 | 1.9 | 3.8 | 3.8 |

## ♦ 440V Three-phase Series

| Model SE2-043-□□□K | | 0.4K | 0.75K | 1.5K | 2.2K | 3.7K | 5.5K | 7.5K | 11K |
|---|---|---|---|---|---|---|---|---|---|
| Applicable Motor Capacity | HP | 0.5 | 1 | 2 | 3 | 5 | 7 | 10 | 15 |
| | kW | 0.4 | 0.75 | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 |
| Output — Rated Output Capacity kVA | | 1.2 | 2.0 | 3.2 | 4.6 | 6.9 | 9.2 | 13 | 18 |
| Output — Rated Output Current A | | 1.5 | 2.6 | 4.2 | 6.0 | 9.0 | 12 | 17 | 23 |
| Output — Over-current Capability | | 150% 60 Seconds; 200% 1 Second (reverse time characteristics) | | | | | | | |
| Output — Maximum Output Voltage | | Three-phase 380~480V | | | | | | | |
| Power — Rated Power Voltage | | Three-phase 380~480V  50Hz / 60Hz | | | | | | | |
| Power — Permitted Power and Voltage Range | | 323~506V  50Hz / 60Hz | | | | | | | |
| Power — Adjustable Power and Frequency Range | | ±5% | | | | | | | |
| Power — Power supply capacity kVA | | 1.8 | 3 | 4.8 | 6.9 | 10.4 | 13.8 | 19.5 | 27 |
| Cooling Method | | Nature cooling | Forced Air cooling | | | | | | |
| Inverter Weight (Kg) | | 1.2 | 1.2 | 1.2 | 1.9 | 1.9 | 3.8 | 3.8 | 3.8 |

# Common Specifications

| Control Method | | SVPWM control, V/F control, simple vector control, senseless vector control |
|---|---|---|
| Output Frequency Range | | 0.2~1000Hz（The activation frequency is set between 0Hz to 60Hz.） |
| Frequency Setup Resolution | Numeric Setup | A 0.01Hz resolution for frequency within 100Hz. A 0.1Hz resolution for frequency above 100Hz. |
| | Module Setup | A 1/500 resolution for DC 0～5V signals. A 1/1000 resolution for DC 0～10V or 4～20mA signals. |
| Output Frequency Accuracy | | 0.01Hz |
| Voltage / Output Frequency Features | | Base voltage (P.19), Base Frequency (P.3) can be setup freely. Can select specific torque model and appropriate loading model (P.14). |
| Starting Torque | | 150% (1Hz) & 200% (3Hz): Under the control of starting common vector |
| Torque Compensation | | Torque compensation is set between 0～30% (P.O); automatic compensation; slip compensation |
| Acceleration and Deceleration Curve Features | | Acceleration and deceleration time (P.7 and P.8); resolution 0.1/0.01s; switched by P.21.Select from a range between 0～3600s / 0～360s.Can select from various acceleration and deceleration curve models (P.29). |
| Braking Function | | DC braking action frequency 0～120Hz (P.10); DC braking action time 0～10s (P.11) DC dynamic voltage 0～30% (P.12)Linear braking and idling braking function options (P.71) |
| Stall Current Prevention | | Can set the stall current preventing level between 0 and 200% (P.22). |
| Target Frequency Setup | | Operator setup: DC 0～5V signal, DC 0～10V signal, DC 4～20mA signal; Can select 2 sets of voltage input or one voltage set and one current input set; multiple stall speed setup, communication setup |
| PID Control | | See Chapter 4 Parameter for Descriptions (P.170～P.182). |
| Multifunction Control Terminal | | Machine starting (STF, STR), Second function (RT), 160-dial speed control (RH, Rm, RL, REX), external thermal relay trip (OH), reset (RES), etc. (To be set up by the clients, P.80～P. 84, P. 86). |
| Multiple Output Terminals — Multiple Output Terminals (SO, SE) | P.40 | At inverter operation (RUN), output frequency test (FU), reached the output frequency (SU), over-load alarm (OL), zero current detected (OMD), alarm detected (ALARM), signal detected section (PO1), signal detected cycle (PO2), suspending signal detection (PO3), exporting frequency conversion (BP), exporting frequency (GP) |
| Multiple Output Terminals — Multifunction Output Relay (Note) | P.85 | |
| Multiple Output Terminals — Multifunction Module Output | | Multifunction DC (0～10V) (AM) output; Output frequency, current (P.54) |
| Operator — Operation monitoring | | Output frequency monitoring, output current monitoring, output voltage monitoring |
| Operator — HELP Mode | | Alarm record review, Alarm record clear up, Change all the parameters back to the factory default, read the version number. |
| Operator — LED Indicator x Six | | Operating indicator, frequency monitoring indicator, voltage monitoring indicator, current monitoring indicator, mode switching indicator, PU / external terminal control indicator |
| Communication Function | Built-in RS485 Communication | RS485 / 422 communication; RJ-45 communication expansion board, and terminal communication expansion board are available for purchase; the clients can purchase Shihlin / Modbus communication agreement. |
| | Communication | communication, respectively, are available for purchase. |
| Protection Mechanisms / Alarm Functions | | Output short circuit protection, over-current protection, P-N over-voltage protection, over-low voltage protection, overheating protection (P.9), IGBT module overheating protection, abnormal communication protection, etc. |
| Communication Function — Operation Temperature | | -10 ~ +50℃  Above the freezing point |
| Communication Function — Operation Temperature | | Under 90%Rh (Above the dew point) |
| Communication Function — Storage Temperature | | -20 ~ +60℃ |
| Communication Function — Operation Environment | | Indoor, no erosive gas, no flammable gas, non flammable powder |
| Communication Function — Altitude & Vibration | | Altitude under 1000m; Vibration under 5.9m / s2 (0.6G) |
| Certifications | | Qualify the CE standards. |

## Parameter List

| Parameter number | Name | Setting range | Minimum setting unit | Default value | User setting value |
|---|---|---|---|---|---|
| P.0 | Torque boost | 0~30% | 0.1% | (Note 1) | |
| P.1 | Maximum frequency | 0~120Hz | 0.01Hz | 120Hz | |
| P.2 | Minimum frequency | 0~120Hz | 0.01Hz | 0Hz | |
| P.3 | Base frequency | 0~400Hz | 0.01Hz | 50Hz/60Hz (Note 2) | |
| P.4 | Speed 1 (high speed) | 0~400Hz | 0.01Hz | 60Hz | |
| P.5 | Speed 2 (middle speed) | 0~400Hz | 0.01Hz | 30Hz | |
| P.6 | Speed 3 (low speed) | 0~400Hz | 0.01Hz | 10Hz | |
| P.7 | Acceleration time | 0~360.00s/ 0~3600.0s | 0.01s/0.1s | 5s | |
| P.8 | Deceleration time | 0~360.00s/ 0~3600.0s | 0.1s/0.01s | 5s | |
| P.9 | Electronic thermal relay capacity | 0~500A | 0.01A | Motors rated current (Note 1) | |
| P.10 | DC injection brake operation frequency | 0~120Hz | 0.01Hz | 3Hz | |
| P.11 | DC injection brake operation time | 0~60s | 0.1s | 0.5s | |
| P.12 | DC injection brake voltage | 0~30% | 0.1% | 4% | |
| P.13 | Starting frequency | 0~60Hz | 0.01Hz | 0.5Hz | |
| P.14 | Load pattern selection | 0~13 | 1 | 0 | |
| P.15 | JOG frequency | 0~400Hz | 0.01Hz | 5Hz | |
| P.16 | JOG acceleration / deceleration time | 0~360.00s/ 0~3600.0s | 0.1s/0.01s | 0.5s | |
| P.17 | Input signal across terminal 4-5 selection | 0,1 | 1 | 0 | |
| P.18 | High-speed maximum frequency | 120~400Hz | 0.01Hz | 120Hz | |
| P.19 | Base frequency voltage | 0~1000V, 9999 | 0.1V | 9999 | |
| P.20 | Acceleration/deceleration reference frequency | 1~400Hz | 0.01Hz | 50Hz/60Hz (Note 2) | |
| P.21 | Acceleration/deceleration time increments | 0,1 | 1 | 0 | |
| P.22 | Stall prevention operation level | 0~400% | 0.1% | 200% | |
| P.23 | Offset coefficient for Stall prevention operation level at double speed | 0~200%, 9999 | 0.1% | 9999 | |
| P.24 | Speed 4 | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.25 | Speed 5 | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.26 | Speed 6 | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.27 | Speed 7 | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.28 | Output frequency filtering constant | 0~31 | 1 | 0 | |
| P.29 | Acceleration/deceleration pattern selection | 0, 1, 2 | 1 | 0 | |
| P.30 | Regenerative function selection | 0, 1 | 1 | 0 | |
| P.31 | Soft-PWM selection | 0, 1 | 1 | 0 | |
| P.32 | Serial communication Baud rate selection | 0, 1, 2 | 1 | 1 | |
| P.33 | Communication protocol selection | 0, 1 | 1 | 0 | |
| P.34 | Reserved | | | | |
| P.35 | Reserved | | | | |
| P.36 | Inverter station number | 0~254 | 1 | 0 | |
| P.37 | Speed display | 0~5000r/min | 0.1r/min | 0 | |
| P.38 | The maximum output frequency(the target frequency is set by the input signal across terminal 2-5/panel knob) | 1~400Hz | 0.01Hz | 50Hz/60Hz (Note 2) | |
| P.39 | The maximum output frequency(the target frequency is set by the input signal across terminal 4-5) | 1~400Hz | 0.01Hz | 50Hz/60Hz (Note 2) | |
| P.40 | Multi-function output terminal pattern | 0~10 | 1 | 0 | |
| P.41 | Up-to-frequency sensitivity | 0~100% | 0.1% | 10% | |
| P.42 | Output frequency detection for forward rotation | 0~400Hz | 0.01Hz | 6Hz | |
| P.43 | Output frequency detection for reverse rotation | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.44 | Second acceleration time | 0~360.00s/ 0~3600.0s,9999 | 0.01s/0.1s | 9999 | |
| P.42 | Output frequency detection for forward rotation | 0~400Hz | 0.01Hz | 6Hz | |

## Parameter List

| Parameter number | Name | Setting range | Minimum setting unit | Default value | User setting value |
|---|---|---|---|---|---|
| P.43 | Output frequency detection for reverse rotation | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.44 | Second acceleration time | 0~360.00s/ 0~3600.0s,9999 | 0.01s/0.1s | 9999 | |
| P.42 | Output frequency detection for forward rotation | 0~400Hz | 0.01Hz | 6Hz | |
| P.43 | Output frequency detection for reverse rotation | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.44 | Second acceleration time | 0~360.00s/ 0~3600.0s,9999 | 0.01s/0.1s | 9999 | |
| P.42 | Output frequency detection for forward rotation | 0~400Hz | 0.01Hz | 6Hz | |
| P.43 | Output frequency detection for reverse rotation | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.44 | Second acceleration time | 0~360.00s/ 0~3600.0s,9999 | 0.01s/0.1s | 9999 | |
| P.42 | Output frequency detection for forward rotation | 0~400Hz | 0.01Hz | 6Hz | |
| P.43 | Output frequency detection for reverse rotation | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.44 | Second acceleration time | 0~360.00s/ 0~3600.0s,9999 | 0.01s/0.1s | 9999 | |
| P.42 | Output frequency detection for forward rotation | 0~400Hz | 0.01Hz | 6Hz | |
| P.43 | Output frequency detection for reverse rotation | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.44 | Second acceleration time | 0~360.00s/ 0~3600.0s,9999 | 0.01s/0.1s | 9999 | |
| P.45 | Second deceleration time | 0~360.00s/ 0~3600.0s,9999 | 0.01s/0.1s | 9999 | |
| P.46 | Second torque boost | 0~30%, 9999 | 0.1% | 9999 | |
| P.47 | Second base frequency | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.48 | Data length | 0, 1 | 1 | 0 | |
| P.49 | Stop bit length | 0, 1 | 1 | 0 | |
| P.50 | Parity check selection | 0, 1, 2 | 1 | 0 | |
| P.51 | CR and LF selection | 1, 2 | 1 | 1 | |
| P.52 | Number of communication reties | 0~10 | 1 | 1 | |
| P.53 | Communication check time interval | 0~999.8s, 9999 | 0.1s | 9999 | |
| P.54 | AM terminal function selection | 0, 1 | 1 | 0 | |
| P.55 | Frequency monitoring reference | 0~400Hz | 0.01Hz | 50Hz/60Hz (Note 2) | |
| P.56 | Current monitoring reference | 0~500A | 0.01A | Related output current | |
| P.57 | Retry coasting time | 0~30s, 9999 | 0.1s | 9999 | |
| P.58 | Retry voltage rising time | 0~60s | 0.1s | 10s | |
| P.59 | Selection of frequency sources | 0, 1 | 1 | 1 | |
| P.60 | Input signal filtering constant | 0~31 | 1 | 31 | |
| P.61 | Remote setting function selection | 0~3 | 1 | 0 | |
| P.62 | Zero current detection level | 0~200%, 9999 | 0.1% | 5% | |
| P.63 | Zero current detection time | 0.05~1s, 9999 | 0.01s | 0.5s | |
| P.64 | Reserved | | | | |
| P.65 | Retry selection | 0~4 | 1 | 0 | |
| P.66 | Stall prevention operation reduction level starting frequency | 0~400Hz | 0.01Hz | 50Hz/60Hz (Note 2) | |
| P.67 | Number of retries at alarm occurrence | 0~10 | 1 | 0 | |
| P.68 | Retry waiting time | 0~360s | 0.1s | 6s | |
| P.69 | Retry accumulation times | 0 | 0 | 0 | |
| P.70 | Special regenerative brake duty | 0~30% | 0.1% | 0 | |
| P.71 | Idling braking and linear braking selection | 0, 1 | 1 | 1 | |
| P.72 | Carrier frequency | 0.7~14.5kHz | 0.1kHz | 5.0 kHz | |
| P.73 | Voltage signal selection | 0, 1 | 1 | 0 | |
| P.74 | Reversed | | | | |
| P.75 | Stop or Reset function selection | 0~1 | 1 | 1 | |

## Parameter List

| Parameter number | Name | Setting range | Minimum setting unit | Default value | User setting value |
|---|---|---|---|---|---|
| P.76 | Panel knob signal input frequency bias | 0~400Hz | 0.01Hz | 0Hz | |
| P.77 | Parameters write protection | 0, 1, 2 | 1 | 0 | |
| P.78 | Selection of forward/ reverse rotation prevention | 0, 1, 2 | 1 | 0 | |
| P.79 | Operation mode selection | 0~8 | 1 | 0 | |
| P.80 | Multi-function terminal M0 function selection | 0~39 | 1 | 2 | |
| P.81 | Multi-function terminal M1 function selection | 0~39 | 1 | 3 | |
| P.82 | Multi-function terminal M2 function selection | 0~39 | 1 | 4 | |
| P.83 | Multi-function terminal STF function selection | 0~39 | 1 | 0 | |
| P.84 | Multi-function terminal STR function selection | 0~39 | 1 | 1 | |
| P.85 | Function selection for multi-function relay | 0~10 | 1 | 5 | |
| P.86 | Multi-function terminal RES function selection | 0~39 | 1 | 30 | |
| P.87 | Reversed | | | | |
| P.88 | Reversed | | | | |
| P.89 | Slip compensation coefficient | 0~10 | 1 | 0 | |
| P.90 | Reserved | | | | |
| P.91 | Frequency jump 1A | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.92 | Frequency jump 1B | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.93 | Frequency jump 2A | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.94 | Frequency jump 2B | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.95 | Frequency jump 3A | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.96 | Frequency jump 3B | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.97 | Reserved | | | | |
| P.98 | Middle frequency 1 | 0~400Hz | 0.01Hz | 3Hz | |
| P.99 | Voltage output 1 at middle frequency | 0~100% | 0.1 | 10 | |
| P.100 | Minute/second selection | 0, 1 | 1 | 1 | |
| P.101 | Runtime of section 1 in programmed operation mode | 0~6000s | 0.1s | 0s | |
| P.102 | Runtime of section 2 in programmed operation mode | 0~6000s | 0.1s | 0s | |
| P.103 | Runtime of section 3 in programmed operation mode | 0~6000s | 0.1s | 0s | |
| P.104 | Runtime of section 4 in programmed operation mode | 0~6000s | 0.1s | 0s | |
| P.105 | Runtime of section 5 in programmed operation mode | 0~6000s | 0.1s | 0s | |
| P.106 | Runtime of section 6 in programmed operation mode | 0~6000s | 0.1s | 0s | |
| P.107 | Runtime of section 7 in programmed operation mode | 0~6000s | 0.1s | 0s | |
| P.108 | Runtime of section 8 in programmed operation mode | 0~6000s | 0.1s | 0s | |
| P.110 | Operation panel frequency monitoring selection | 0, 1, 2 | 1 | 0 | |
| P.111 | Acceleration/deceleration time of section 1 | 0~600s/0~6000s | 0.01s/0.1s | 0s | |
| P.112 | Acceleration/deceleration time of section 2 | 0~600s/0~6000s | 0.01s/0.1s | 0s | |
| P.113 | Acceleration/deceleration time of section 3 | 0~600s/0~6000s | 0.01s/0.1s | 0s | |
| P.114 | Acceleration/deceleration time of section 4 | 0~600s/0~6000s | 0.01s/0.1s | 0s | |
| P.115 | Acceleration/deceleration time of section 5 | 0~600s/0~6000s | 0.01s/0.1s | 0s | |
| P.116 | Acceleration/deceleration time of section 6 | 0~600s/0~6000s | 0.01s/0.1s | 0s | |
| P.117 | Acceleration/deceleration time of section 7 | 0~600s/0~6000s | 0.01s/0.1s | 0s | |
| P.118 | Acceleration/deceleration time of section 8 | 0~600s/0~6000s | 0.01s/0.1s | 0s | |
| P.119 | Reserved | | | | |
| P.120 | The output signal delay time | 0~3600s | 0.1s | 0s | |
| P.121 | Run direction in each section | 0~255 | 1 | 0 | |
| P.122 | Cycle selection | 0~8 | 1 | 0 | |
| P.123 | Acceleration/deceleration time setting selection | 0, 1 | 1 | 0 | |
| P.125 | Expansion board type | --- | --- | 0 | |

## Parameter List

| Parameter number | Name | Setting range | Minimum setting unit | Default value | User setting value |
|---|---|---|---|---|---|
| P.126 | I/O expansion board input terminal M3 function selection | 0~39, 9999 | 1 | 9999 | |
| P.127 | I/O expansion board input terminal M4 function selection | 0~39, 9999 | 1 | 9999 | |
| P.128 | I/O expansion board input terminal M5 function selection | 0~39, 9999 | 1 | 9999 | |
| P.129 | I/O expansion board output relay1 function selection | 0~10, 9999 | 1 | 9999 | |
| P.130 | I/O expansion board output relay2 function selection | 0~10, 9999 | 1 | 9999 | |
| P.131 | Frequency of section 1 | 0~400Hz | 0.01Hz | 0Hz | |
| P.132 | Frequency of section 2 | 0~400Hz | 0.01Hz | 0Hz | |
| P.133 | Frequency of section 3 | 0~400Hz | 0.01Hz | 0Hz | |
| P.134 | Frequency of section 4 | 0~400Hz | 0.01Hz | 0Hz | |
| P.135 | Frequency of section 5 | 0~400Hz | 0.01Hz | 0Hz | |
| P.136 | Frequency of section 6 | 0~400Hz | 0.01Hz | 0Hz | |
| P.137 | Frequency of section 7 | 0~400Hz | 0.01Hz | 0Hz | |
| P.138 | Frequency of section 8 | 0~400Hz | 0.01Hz | 0Hz | |
| P.139 | Voltage signal bias | 0%~100% | 0.1% | 0% | |
| P.140 | Voltage signal gain | 0.1%~200% | 0.1% | 100% | |
| P.141 | Bias polarity of voltage signal and reverse motion of negative bias | 0~11 | 1 | 0 | |
| P.142 | Speed 8 | 0~400Hz | 0.01Hz | 0Hz | |
| P.143 | Speed 9 | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.144 | Speed 10 | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.145 | Speed 11 | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.146 | Speed 12 | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.147 | Speed 13 | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.148 | Speed 14 | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.149 | Speed 15 | 0~400Hz, 9999 | 0.01Hz | 9999 | |
| P.150 | Restart mode selection | 0~221 | 1 | 0 | |
| P.151 | Zero-speed control function selection | 0, 1 | 1 | 0 | |
| P.152 | Voltage instruction when zero-speed control | 0~30% | 0.1% | 5% | |
| P.153 | Communication error handling | 0, 1 | 1 | 0 | |
| P.154 | Modbus protocol selection | 0~5 | 1 | 4 | |
| P.155 | Over torque detection lelve | 0~200% | 0.1% | 0% | |
| P.156 | Over torque detection time | 0~60s | 0.1s | 1 | |
| P.157 | External terminals filter function selection | 0~200ms | 1ms | 4ms | |
| P.158 | External terminal power enable | 0~1 | 1 | 0 | |
| P.159 | energy-saving control function | 0, 1 | 1 | 0 | |
| P.160 | stall prevention operation level when restart | 0~200% | 0.1% | 120% | |
| P.161 | Multi-function display selection | 0~5 | 1 | 0 | |
| P.162 | Middle frequency 2 | 0~400Hz, 99999 | 0.01Hz | 99999 | |
| P.163 | Voltage output 2 at middle frequency | 0~100% | 0.1% | 0 | |
| P.164 | Middle frequency 3 | 0~400Hz, 99999 | 0.01Hz | 99999 | |
| P.165 | Voltage output 3 at middle frequency | 0~100% | 0.1% | 0 | |
| P.166 | Middle frequency 4 | 0~400Hz, 99999 | 0.01Hz | 99999 | |
| P.167 | Voltage output 4 at middle frequency | 0~100% | 0.1% | 0 | |
| P.168 | Middle frequency 5 | 0~400Hz, 99999 | 0.01Hz | 99999 | |
| P.169 | Voltage output 5 at middle frequency | 0~100% | 0.1% | 0 | |
| P.170 | PID selection | 0, 1, 2 | 1 | 0 | |
| P.171 | PID feedback control method selection | 0~1000% | 1% | 100% | |
| P.172 | PID proportion Gain | 1~100 | 1 | 20 | |
| P.173 | PID integration Gain | 0~100s | 0.1s | 1s | |
| P.174 | PID differential Gain | 0~1000ms | 1ms | 0 | |
| P.175 | Abnormal deviation level | 0~100% | 0.1% | 70% | |
| P.176 | Exception duration time | 0~600s | 0.1s | 0s | |
| P.177 | Exception handling mode | 0, 1 | 1 | 0 | |

## Parameter List

| Parameter number | Name | Setting range | Minimum setting unit | Default value | User setting value |
|---|---|---|---|---|---|
| P.178 | Sleep detect deviation | 0~100% | 0.1% | 0 | |
| P.179 | Sleep detect duration time | 0~255s | 0.1s | 10s | |
| P.180 | Revival level | 0~100% | 0.1% | 90% | |
| P.181 | Outage level | 0~120Hz | 0.01Hz | 40Hz | |
| P.182 | Upper integral | 0~120Hz | 0.01Hz | 60Hz | |
| P.183 | Deceleration step length of pressure stability | 0~10Hz | 0.01Hz | 0.5Hz | |
| P.184 | Disconnection processing function of terminal 4-5 | 0~3 | 0 | 0 | |
| P.187 | Ultra-high-speed operation function selection | 0~1 | 1 | 0 | |
| P.188 | Software edition | --- | --- | --- | |
| P.189 | Default function | 0, 1 | 1 | 1 | |
| P.190 | AM output bias | 0~1024 | 1 | 80 | |
| P.191 | AM output gain | 0~1024 | 1 | 900 | |
| P.192 | Minimum input voltage across terminal 2-5 | 0~10 | 0.01 | 0 | |
| P.193 | Maximum input voltage across terminal 2-5 | 0~10 | 0.01 | 0 | |
| P.194 | Frequency corresponds to the minimum input voltage across terminal 2-5 | 0~60Hz | 0.01Hz | 0Hz | |
| P.195 | Frequency corresponds to the maximum input voltage across terminal 2-5 | 0~400Hz | 0.01Hz | 50Hz/60Hz (Note 2) | |
| P.196 | Frequency corresponds to the minimum input current/voltage across terminal 4-5 | 0~60Hz | 0.01Hz | 0Hz | |
| P.197 | Frequency corresponds to the maximum input currentvoltage across terminal 4-5 | 0~400Hz | 0.01Hz | 50Hz/60Hz (Note 2) | |
| P.198 | Minimum input current/voltage across terminal 4-5 | 0~20 | 0.01 | 0 | |
| P.199 | Maximum input current/voltage across terminal 4-5 | 0~20 | 0.01 | 0 | |
| P.229 | Backlash compensation function selection | 0~1 | 1 | 0 | |
| P.230 | The backlash compensation acceleration interrupt frequency | 0~400Hz | 0.01Hz | 1Hz | |
| P.231 | The backlash compensation acceleration interrupt time | 0~360s | 0.1s | 0.5s | |
| P.232 | The backlash compensation deceleration interrupt frequency | 0~400Hz | 0.01Hz | 1Hz | |
| P.233 | The backlash compensation deceleration interrupt time | 0~360 s | 0.1s | 0.5s | |
| P.234 | Triangular wave function selection | 0~2 | 1 | 0 | |
| P.235 | Maximum amplitude | 0~25% | 0.1% | 10% | |
| P.236 | Amplitude compensation for deceleration | 0~50% | 0.1% | 10% | |
| P.237 | Amplitude compensation for acceleration | 0~50% | 0.1% | 10% | |
| P.238 | Amplitude acceleration time | 0~360s /0~3600 s | 0.01 s/0.1s | 10 s | |
| P.239 | Amplitude deceleration time | 0~360s /0~3600 s | 0.01 s/0.1s | 10s | |
| P.240 | Auxiliary frequency function selection | 0~4 | 1 | 0 | |
| P.242 | DC injection brake function before starting selection | 0~1 | 1 | 0 | |
| P.243 | DC injection brake time before starting | 0~60s | 0.1s | 0.5s | |
| P.244 | DC injection brake voltage before starting | 0~30% | 0.1% | 4% | |
| P.247 | MC switch interlock time | 0.1~100s | 0.1s | 1s | |
| P.248 | Start waiting time | 0.1~100s | 0.1s | 0.5s | |
| P.243 | DC injection brake time before starting | 0~60s | 0.1s | 0.5s | |
| P.244 | DC injection brake voltage before starting | 0~30% | 0.1% | 4% | |
| P.247 | MC switch interlock time | 0.1~100s | 0.1s | 1s | |
| P.248 | Start waiting time | 0.1~100s | 0.1s | 0.5s | |
| P.249 | Automatic switchover frequency from inverter to bypass operation | 0~60Hz,9999 | 0.01Hz | 9999 | |
| P.250 | Automatic switchover frequency range from bypass to inverter operation | 0~10Hz,9999 | 0.01Hz | 9999 | |
| P.288 | Alarm history number | 0~12 | 1 | 0 | |
| P.289 | Alarm code | --- | --- | 0 | |

## Parameter List

| Parameter number | Name | Setting range | Minimum setting unit | Default value | User setting value |
|---|---|---|---|---|---|
| P.290 | The latest alarm status selection | 0~5 | 1 | 0 | |
| P.291 | The latest alarm status | --- | --- | 0 | |
| P.292 | Accumulative motor operation time (min) | 0~1439min | 1min | 0min | |
| P.293 | Accumulative motor operation time (day) | 0~9999day | 1day | 0day | |
| P.294 | Password input | 0~65535 | 1 | 0 | |
| P.295 | Password set | 0~65535 | 1 | 0 | |
| P.300 | Motor control mode selection | 0~3 | 1 | 0 | |
| P.301 | Motor parameter auto measurement function selection | 0~3 | 1 | 0 | |
| P.302 | Motor rated power | 0~160 | 0.01 | 0 | |
| P.303 | Motor poles | 0~8 | 1 | 4 | |
| P.304 | Motor rated voltage | 0~440V | 1 V | 220/440V | |
| P.305 | Motoe rated frequency | 0~400Hz | 0.01Hz | 50Hz/60Hz (Note 2) | |
| P.306 | Motoe rated current | 0~500A | 0.01 A | Determined by horsepower | |
| P.307 | Motoe rated speed | 0~65535 r/min | 1 r/min | 1410/1710 r/min (Note 2) | |
| P.308 | No load excitation current | 0~500A | 0.01 A | Determined by horsepower | |
| P.309 | Stator resistance | 0~65535 | 0.01 | Determined by horsepower | |
| P.310 | Rotor resistance | 0~65535 | 0.01 | Determined by horsepower | |
| P.311 | Leakage inductance | 0~65535 | 0.1 | Determined by horsepower | |
| P.312 | Mutual inductance resistance | 0~65535 | 0.1 | Determined by horsepower | |
| P.320 | Speed control scale coefficient | 0~2000% | 1% | 100% | |
| P.321 | Speed control integral coefficient | 0~20s | 0.01s | 0.30s | |
| P.994 | Parameter copy readout | Refer to Chapter 4 | --- | --- | --- |
| P.995 | Parameter copy write-in | Refer to Chapter 4 | --- | --- | --- |
| P.996 | Alarm log erasure | Refer to Chapter 4 | --- | --- | --- |
| P.997 | INV Reset | Refer to Chapter 4 | --- | --- | --- |
| P.998 | Parameter total- initialization | Refer to Chapter 4 | --- | --- | --- |
| P.999 | Parameter partial-initialization | Refer to Chapter 4 | --- | --- | --- |

**Remark1: Torque compensation and rated current value for each type**

| Inverter Type | P.0 | P.9(A) | Inverter Type | P.0 | P.9(A) |
|---|---|---|---|---|---|
| SE2-021-0.4 kW | 6 | 3.0 | SE2-023-7.5 kW | 3 | 33.0 |
| SE2-021-0.75 kW | 6 | 5.0 | SE2-043-0.4 kW | 6 | 1.5 |
| SE2-021-1.5 kW | 4 | 8.0 | SE2-043-0.75 kW | 6 | 2.6 |
| SE2-021-2.2 kW | 4 | 11.0 | SE2-043-1.5 kW | 4 | 4.2 |
| SE2-023-0.4 kW | 6 | 3.0 | SE2-043-2.2 kW | 4 | 6.0 |
| SE2-023-0.75 kW | 6 | 5.0 | SE2-043-3.7 kW | 4 | 9.0 |
| SE2-023-1.5 kW | 4 | 8.0 | SE2-043-5.5 kW | 3 | 12.0 |
| SE2-023-2.2 kW | 4 | 11.0 | SE2-043-7.5 kW | 3 | 17.0 |
| SE2-023-3.7 kW | 4 | 17.5 | SE2-043-11 kW | 2 | 23.0 |
| SE2-023-5.5 kW | 3 | 24.0 | SE2-021-0.2 kW | 6 | 1.6 |

## Wiring Diagram
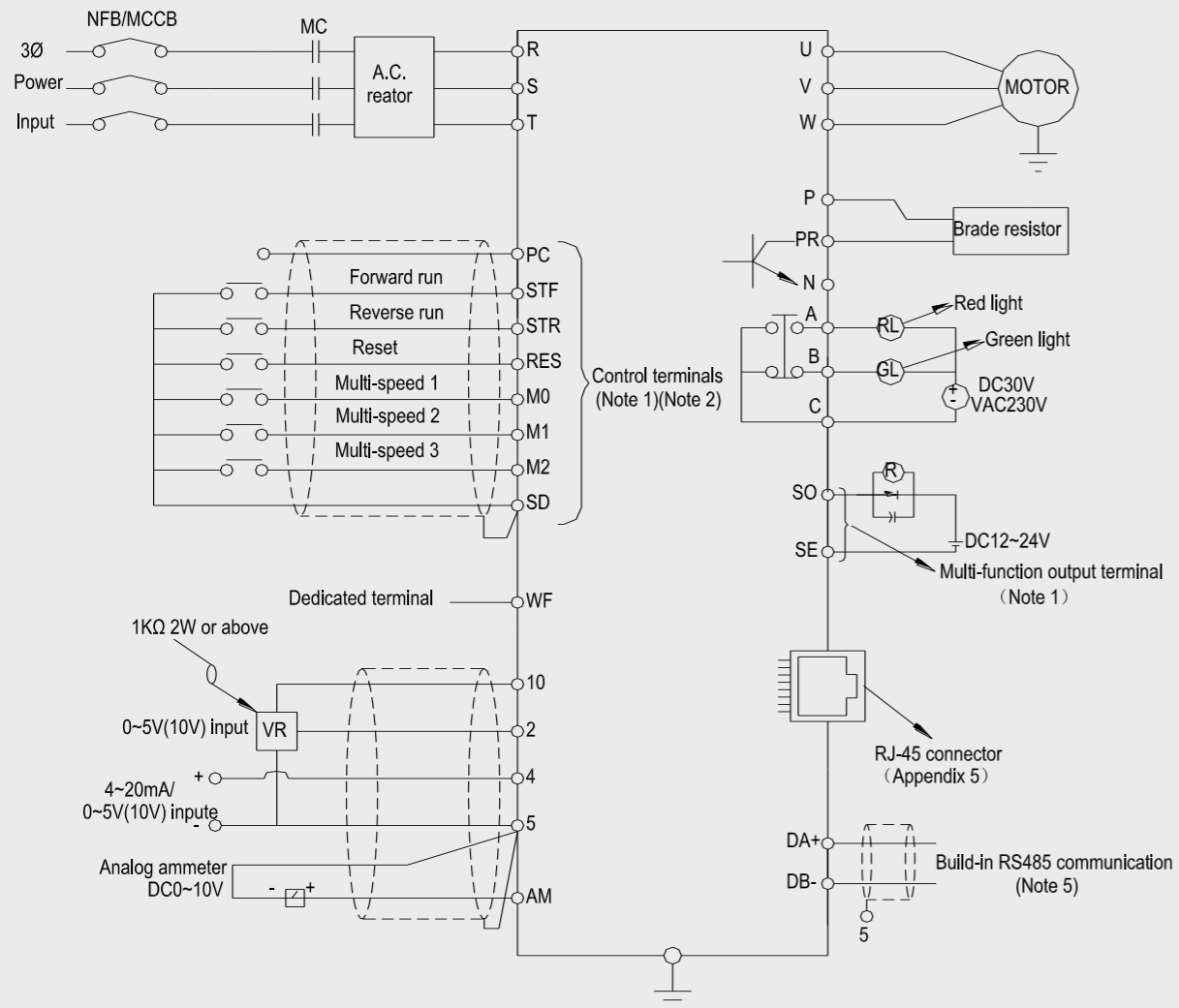


Note:
- 1. In the above figure, Main circuit and control circuit wiring or ground wiring should be noted thatthe thickness of wire.
- 2. For the usage of external thermal relay, please refer to P.80~P.84, P.86 in Chapter 4.
- 3. Make sure do not to short PC and SD.
- 4. In the above figure, Dotted line metal, please refer 2.5.7
- 5. The SE2-TYPE inverter have internal RS485 communication, and also can uses pluggablecommunications expansion boards CB01, CB02, CB03, PD01, DN01; For detailed instructions,please refer to appendix 5.

## Dimensions
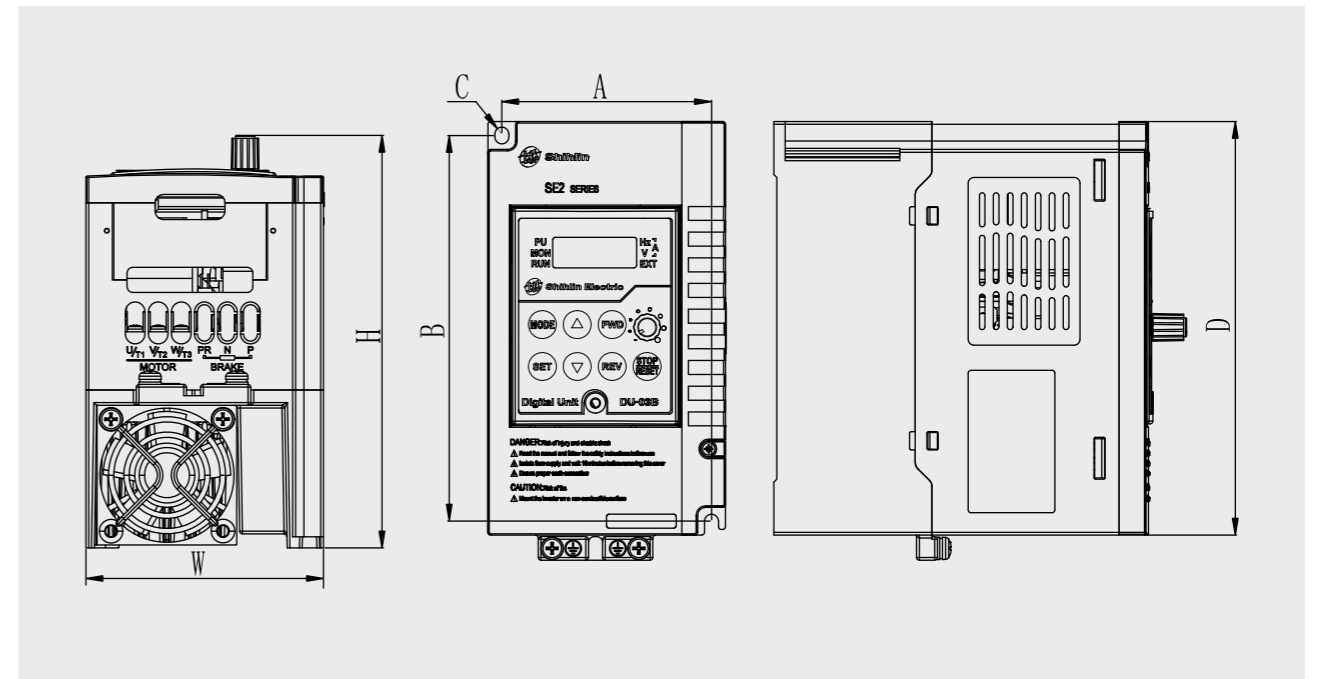


| Serial Number | D(mm) | W(mm) | H(mm) | A(mm) | B(mm) | C(mm) |
|---|---|---|---|---|---|---|
| SE2-021-0.4K | 148 | 85 | 148 | 75 | 138 | Φ 5 |
| SE2-021-0.75K | 148 | 85 | 148 | 75 | 138 | Φ 5 |
| SE2-021-1.5K | 186 | 100 | 157 | 90 | 176 | Φ 5 |
| SE2-021-2.2K | 186 | 100 | 157 | 90 | 176 | Φ 5 |
| SE2-023-0.4K | 148 | 85 | 148 | 75 | 138 | Φ 5 |
| SE2-023-0.75K | 148 | 85 | 148 | 75 | 138 | Φ 5 |
| SE2-023-1.5K | 148 | 85 | 148 | 75 | 138 | Φ 5 |
| SE2-023-2.2K | 186 | 100 | 157 | 90 | 176 | Φ 5 |
| SE2-023-3.7K | 186 | 100 | 157 | 90 | 176 | Φ 5 |
| SE2-023-5.5K | 266 | 141 | 201.5 | 126 | 244 | Φ 6 |
| SE2-023-7.5K | 266 | 141 | 201.5 | 126 | 244 | Φ 6 |
| SE2-043-0.4K | 148 | 85 | 148 | 75 | 138 | Φ 5 |
| SE2-043-0.75K | 148 | 85 | 148 | 75 | 138 | Φ 5 |
| SE2-043-1.5K | 148 | 85 | 148 | 75 | 138 | Φ 5 |
| SE2-043-2.2K | 186 | 100 | 157 | 90 | 176 | Φ 5 |
| SE2-043-3.7K | 186 | 100 | 157 | 90 | 176 | Φ 5 |
| SE2-043-5.5K | 266 | 141 | 201.5 | 126 | 244 | Φ 6 |
| SE2-043-7.5K | 266 | 141 | 201.5 | 126 | 244 | Φ 6 |
| SE2-043-11K | 266 | 141 | 201.5 | 126 | 244 | Φ 6 |

## Optional Accessories
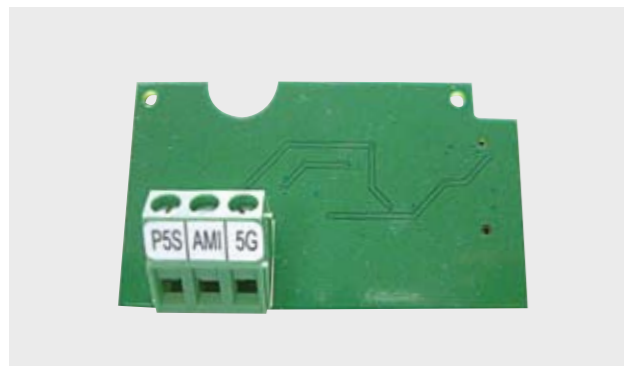
♦ **SE2-PD01**
Profibus communication board



♦ **SE2-DN01**
Device-Net communication board
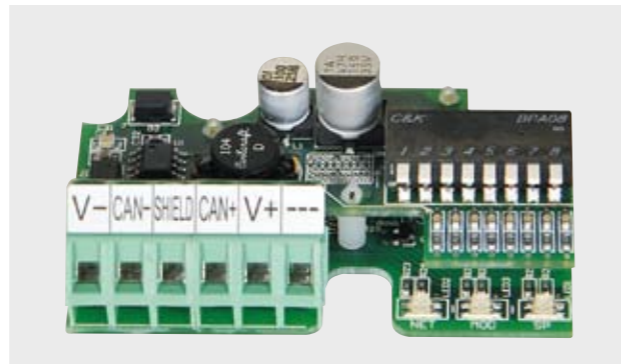


♦ **SE-IB01**
4-20mA current expansion board



♦ **SE-CB01**
Terminal-block communication expansion board



♦ **SE-EB01**
I/O expansion board



♦ **DU03B**
external operation panel



♦ **SS-CBL01/03/05T**
Transmission cable

♦ **Brake Resistor**

♦ **AC/DC Reactor**



## Model Name Indication for Shinlin Inverter

### SE2-021-0.75K-DL

Model

applicable motor capacity
021-0.4～2.2K
023-0.4～7.5K
043-0.4～11K

Rated power voltage
021→220V 1-PHASE
023→220V 3-PHASE
043→440V 3-PHASE

Remark 2

### SS-021-0.4K-D

Model

applicable motor capacity
021-0.4～2.2K
023-0.4～3.7K
043-0.4～3.7K

ated power voltage
021→220V 1-PHASE
023→220V 3-PHASE
043→440V 3-PHASE

Remark 2



### SH-020-0.75K-BC

Model

applicable motor capacity
020-0.75～22K
040-0.75～22K

Rated power voltage
020→220V 3-PHASE
040→440V 3-PHASE

Remark 2

### SF-020-5.5K

Model

applicable motor capacity
020-5.5～55K
040-5.5～160K

Rated power voltage
020→220V 3-PHASE
040→440V 3-PHASE



**Remark 2: We will set "F" to overseas market**

# Shihlin Electric
# Factory Automation Products

**Human Machine Interface**

**Temperature Controller**

**Servo motor and drive**

**Inverter**

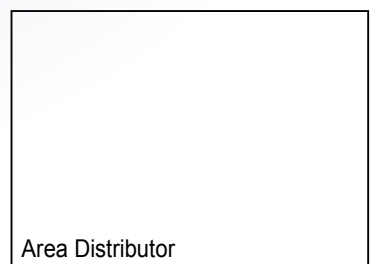## Shihlin Electric & Engineering Corporation

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