# Ne9000 Series
# High Performance Vector Converter




The Ne9000 series products are the main products of NEO Electric's high-performance vector frequency converters. Adhering to the consistent pursuit of high quality and reliability of products by NEO Electric, we have organ-ically combined the general needs of customers with their personalized and industry-specific needs.

## Product characteristics

- Standard 485 communication port, supporting PG card expansion;
- Support backend software uploading and downloading, as well as monito-ring driver parameters;
- With various protections and rich fault handling methods, protection mea-sures can be selected based on the fault level;
- Equipped with the function of stacking primary and secondary frequency sources;
- Built in PID, 16 speed, swing frequency and other functions.

# Technical specification

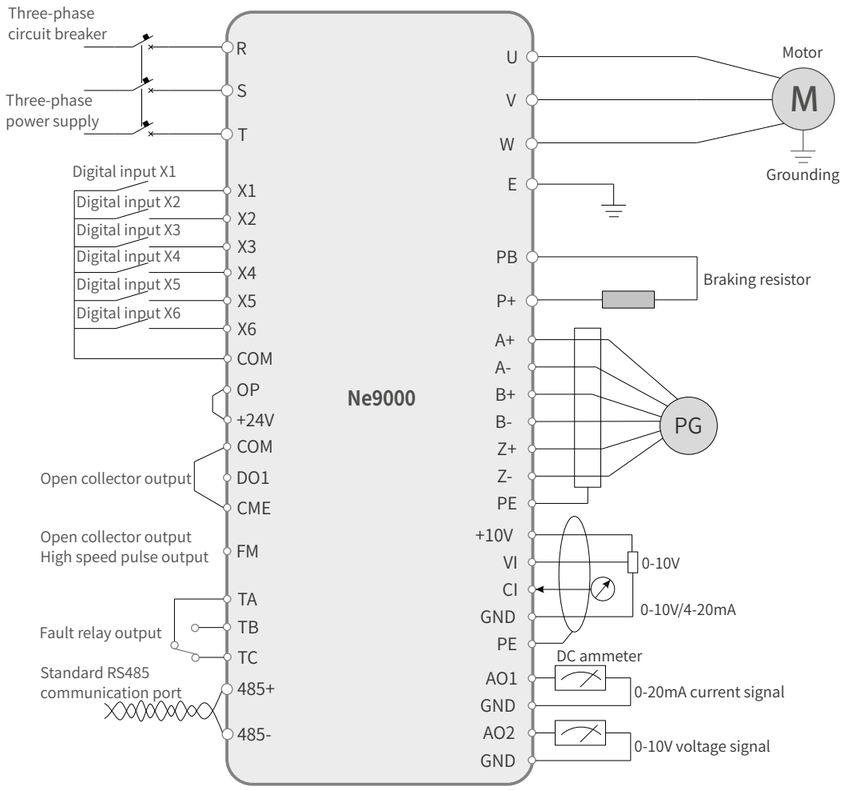
| Project | | Standard specification |
|---|---|---|
| Input | Rated voltage/frequency | Single-phase 200V, 220V, three-phase 200V, 220V, 380V, 415V, 440V; 50Hz/60Hz |
| | Allowable value of variable capacity | Voltage: -20% ~ +20%　　Voltage unbalance rate: <3%　　Frequency: ±5% |
| Output | Rated voltage | **0~200V/220V/380V/415V/440V** |
| | Frequency range | **0Hz~3000Hz** |
| | Frequency Resolution | **0.01Hz** |
| | Overload capacity | 150% rated current for 1 minute, 180% rated current for 3 seconds |
| Main control functions | Torque control accuracy | ±5%（FVC） |
| | Control mode | V/F, Speed sensorless vector control (SVC), Speed Sensorless Vector control (FVC) |
| | Frequency accuracy | Digital setting: highest frequency × ± 0.01%;　　Analog setting: highest frequency × ± 0.2% |
| | Frequency resolution | Digital setting: 0.01Hz;　　Analog setting: highest frequency × 0.1% |
| | Starting frequency | **0.40Hz~20.00Hz** |
| | Torque boost | Automatic torque increase, manual torque increase by 0.1%~30.0% |
| | V/F curve | Five methods: constant torque V/F curve, one user-defined multi segment V/F curve method, and three torque reduction characteristic curve methods (2.0 power, 1.7 power, and 1.2 power) |
| | Acceleration and deceleration curve | Two methods: linear acceleration and deceleration, S-curve acceleration and deceleration; Seven types of acceleration and deceleration times, with optional time units (minutes/second), up to 6000 minutes |
| | Dc braking | DC braking frequency: 000Hz~maximum frequency；<br>Braking time: 0.0s~36.0s；　　Braking action current value: 0.0%~100.0% |
| | Energy consumption braking | Built in energy consumption braking unit (≤ 22KW), can be externally connected with braking resistor |
| | Inching | Jog frequency range: 0.00Hz~50.00Hz；　　Jog acceleration and deceleration time: 0.0s~6500.0s |
| | Built-in dual PID | Can easily form a closed-loop control system |
| | Instant stop | During an instantaneous power outage, the reduction in voltage is compensated through load feedback energy to maintain the operation of the variable frequency drive for a short period of time |
| | Multi-speed operation | Up to 16 segments of speed operation can be achieved through built-in PLC or control terminals |
| | Textile swing | Can achieve preset frequency and adjustable center frequency swing function |
| | Automatic Voltage Regulation (AVR) | When the grid voltage changes, maintain a constant output voltage |
| | Automatic energy-saving operation | Automatically optimize the V/F curve based on load conditions to achieve energy-saving operation |
| | Automatic current limiting | Automatically limit the current during operation to prevent frequent overcurrent faults from tripping |
| | Multi-pump constant pressure water supply control function | Connected to the water supply control board, it can achieve multi pump constant pressure water supply control function |
| | Communication function | Supports four types of fieldbuses: Modbus, Profibus, CANlink, and CANopen |
| Operation function | Run command channel | The operation panel is given; Control terminal setting; Serial port given; There are three ways to switch |
| | Frequency setting channel | Keyboard simulation potentiometer setting; Keyboard ▲ and ▼ keys are given; Function code number given; Serial port given; Terminal UP/DOWN given; Analog voltage setting; Simulated current setting; Pulse setting; Combination given; Multiple given methods can be switched at any time |
| | Switch input channel | Forward and reverse instructions; 8-channel programmable switch input, capable of setting 52 functions separately |
| | Analog input channel | 2 analog signal inputs, selectable from 4-20mA and 0-10V |
| | Analog output channel | Analog signal output, selectable from 4-20mA or 0-10V, capable of outputting physical quantities such as set frequency and output frequency |
| | Switch, pulse output channel | 2 programmable open collector outputs; Two relay output signals; 1 channel of 0-20KHz pulse output signal, achieving various physical quantity outputs |
| Operation panel | LED digital display | Can display parameters such as set frequency, output voltage, output current, etc |
| | External instrument display | Display of physical quantities such as output frequency, output current, and output voltage |
| | Key lock | Implement full lock of buttons |
| Protection function | | Overcurrent protection; Overvoltage protection; Under voltage protection; Overheat protection; Overload protection; Phase loss protection (when>2.2KW), etc |
| Option | | Brake components; Remote operation panel; Remote cable; Keyboard mounting base, etc |
| Environment | Place of use | Indoor, free from direct sunlight, dust, corrosive gases, oil mist, water vapor, etc |
| | Altitude | Below 1000 meters (derated for use above 1000 meters) |
| | Ambient temperature | **－10℃～＋40℃** |
| | Humidity | Less than 95% RH, no condensation |
| | Vibrate | Less than 5.9m/s$^2$ (0.6M) |
| | Storage temperature | －20℃～＋60℃ |
| structure | Protection grade | IP20 (when selecting a status display unit or keyboard) |
| | Cooling method | Forced air cooling |
| Installation method | | Wall mounted, cabinet mounted |



# Basic parameters

| Model | | Rated capacity (KVA) | Rated output current (A) | Adaptive motor power (KW) |
|---|---|---|---|---|
| General | Fan and water pump type | | | |
| Single phase power supply: 220V, 50/60Hz | | | | |
| NE9000-2S0004G | ----- | 1.0 | 3 | 0.4 |
| NE9000-2S0007G | ----- | 1.5 | 4 | 0.75 |
| NE9000-2S0015G | ----- | 2.8 | 7 | 1.5 |
| NE9000-2S0022G | ----- | 3.8 | 9.6 | 2.2 |
| Three phase power supply: 220V, 50/60Hz | | | | |
| NE9000-2T0015G | ----- | 3.0 | 5.1 | 1.5 |
| NE9000-2T0022G | ----- | 4.0 | 9 | 2.2 |
| Three phase power supply: 380V, 50/60Hz | | | | |
| NE9000-4T0007G | NE9000-4T0015P | 1.5 | 2.1 | 0.75 |
| NE9000-4T0015G | NE9000-4T0022P | 2.2 | 3.8 | 1.5 |
| NE9000-4T0022G | NE9000-4T0037P | 3.0 | 5.1 | 2.2 |
| NE9000-4T0037G | NE9000-4T0055P | 5.9 | 9 | 3.7 |
| NE9000-4T0055G | NE9000-4T0075P | 8.5 | 13 | 5.5 |
| NE9000-4T0075G | NE9000-4T0110P | 11 | 17 | 7.5 |
| NE9000-4T0110G | NE9000-4T0150P | 17 | 25 | 11 |
| NE9000-4T0150G | NE9000-4T0185P | 21.7 | 32 | 15 |
| NE9000-4T0185G | NE9000-4T0220P | 25.7 | 37 | 18.5 |
| NE9000-4T0220G | NE9000-4T0300P | 29.6 | 45 | 22 |
| NE9000-4T0300G | NE9000-4T0370P | 39.5 | 60 | 30 |
| NE9000-4T0370G | NE9000-4T0450P | 49.4 | 75 | 37 |
| NE9000-4T0450G | NE9000-4T0550P | 60 | 90 | 45 |
| NE9000-4T0550G | NE9000-4T0750P | 73.7 | 110 | 55 |
| NE9000-4T0750G | NE9000-4T0900P | 99 | 152 | 75 |
| NE9000-4T0900G | NE9000-4T1100P | 116 | 176 | 90 |
| NE9000-4T1100G | NE9000-4T1320P | 138 | 210 | 110 |
| NE9000-4T1320G | NE9000-4T1600P | 167 | 253 | 132 |
| NE9000-4T1600G | NE9000-4T1850P | 200 | 304 | 160 |
| NE9000-4T1850G | NE9000-4T2000P | 234 | 355 | 185 |
| NE9000-4T2000G | NE9000-4T2200P | 248 | 380 | 200 |
| NE9000-4T2200G | NE9000-4T2500P | 280 | 426 | 220 |
| NE9000-4T2500G | NE9000-4T2800P | 318 | 465 | 250 |
| NE9000-4T2800G | NE9000-4T3150P | 342 | 520 | 280 |
| NE9000-4T3150G | NE9000-4T3500P | 390 | 585 | 315 |
| NE9000-4T3500G | NE9000-4T4000P | 435 | 650 | 350 |
| NE9000-4T4000G | NE9000-4T4500P | 493 | 725 | 400 |
| NE9000-4T4500G | NE9000-4T5000P | 560 | 820 | 450 |
| NE9000-4T5000G | NE9000-4T5600P | 625 | 860 | 500 |
| NE9000-4T5600G | NE9000-4T6300P | 691 | 990 | 560 |
| NE9000-4T6300G | NE9000-4T7100P | 770 | 1100 | 630 |
| NE9000-4T7100G | NE9000-4T8000P | 880 | 1280 | 710 |
| NE9000-4T8000G | NE9000-4T9000P | 1030 | 1400 | 800 |
| NE9000-4T9000G | NE9000-4T10000P | 1120 | 1575 | 900 |
| NE9000-4T10000G | NE9000-4T11000P | 1250 | 1750 | 1000 |

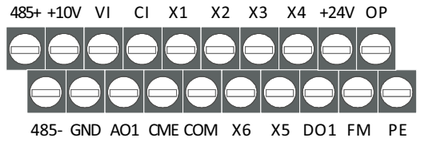
# Basic wiring diagram

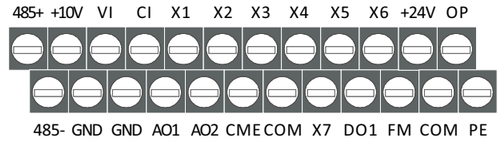



# Control board terminals

**1.5G~7.5G-M series**

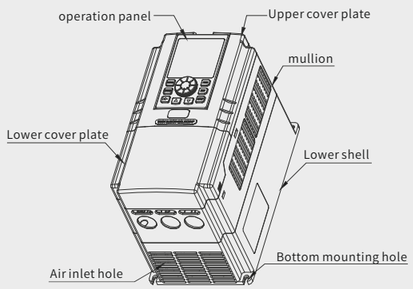


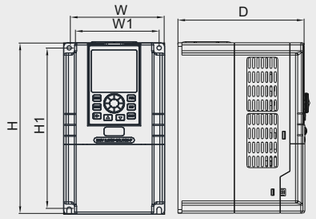

**5.5G~1000G series**



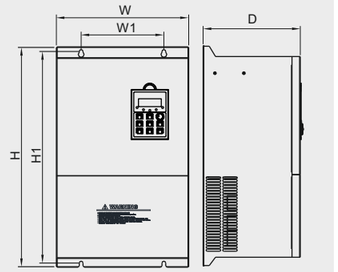

| Category | Terminal identification | Name | Terminal Function Description | Specifications |
|---|---|---|---|---|
| Communicate | 485+ | Rs485 communication interface | Rs485 differential signal positive terminal | Standard RS485 communication interface, please use twisted pair or shielded wire |
| | 485- | | Rs485 differential signal negative terminal | |
| Digital Output | DO1-CME | Open collector output terminal 1 | Optical isolation, bipolar open collector output;<br>Note: The digital output ground CME is internally isolated from the digital input ground COM, but it is shorted to the COM through the JP1 jumper CME on the control board at the factory (at this time, DO1 defaults to+24V drive). When DO1 wants to be driven by an external power source, the JP1 jumper must be unplugged. | Optocoupler isolation output<br>Output voltage range: 0V~24V<br>Output current range: 0mA~50mA<br>Please refer to P4.02 parameter description for usage methods |
| Pulse output terminal | FM-COM | Collector open circuit pulse output terminal | Programmable defined as a pulse output terminal with multiple functions, constrained by function code P4.06 (FM terminal input mode selection), when used as a collector open circuit switch output, it has the same specifications as DO1. (Common end: COM) | Output frequency range: determined by function code P4.09, maximum 100KHz |
| Analog input | VI | Analog input VI | Accept analog voltage input<br>(Reference: GND) | Input voltage range: 0-10V (input impedance: 10K Ω); Resolution: 1/1000 |
| | CI | Analog input CI | Accepts analog voltage/current input, with voltage and current selected by jumper CI and factory default voltage<br>(Reference: GND) | Input voltage range: 0-10V (input impedance: 10K Ω)<br>Input current range: 0-20mA (input impedance: 500 Ω)<br>Resolution: 1/1000 |
| Analog output | AO1 | Analog output AO1 | Provide analog voltage/current output, which can represent 7 quantities. The output voltage/current is selected by jumper AO1, and the factory default output voltage is provided.<br>(Reference: GND) | Current output range: 4-20mA<br>Voltage output range: 0-10V |
| | AO2 | Analog output AO2 | Provide analog voltage/current output, which can represent 7 quantities. The output voltage/current is selected by jumper AO2, and the factory default output voltage is provided.<br>(Reference: GND) | Voltage output range: 0-10V |
| Multifunctional input terminals | X1 | Multifunctional input terminal 1 | Programmable input terminals are defined as multifunctional switch inputs, as detailed in Section 6.5 of Chapter 6, Introduction to Terminal Function Parameters (P3 Group) Input Terminal Functions. (Common end: COM) | Optocoupler isolation<br>Compatible with bipolar inputs<br>Input impedance: R=2K Ω<br>Maximum input frequency: 200Hz<br>Input voltage range 9-30V |
| | X2 | Multifunctional input terminal 2 | | |
| | X3 | Multifunctional input terminal 3 | | |
| | X4 | Multifunctional input terminal 4 | In addition to the feature of X input terminal function, X5 can also serve as a high-speed pulse input channel. | Optocoupler isolation<br>Compatible with bipolar inputs<br>Input impedance: R=2K Ω<br>Maximum input frequency: 200Hz<br>Input voltage range 9-30V |
| | X5 | Multifunctional input terminal 5 | | |
| | X6 | Multifunctional input terminal 6 | | |
| Power supply | P24 | +24V power supply | Provide+24V power supply externally. (Negative extreme: COM) | |
| | OP | External power input | Factory default and+24V external connection<br>When using external signals to drive X1 to X6, the OP needs to be connected to an external power source and the short connector between OP and+24V needs to be unplugged | |
| | 10V | +10V power supply | Provide external+10V power supply<br>(Negative extreme: GND) | Maximum output current: 50mA |
| | GND | +10V power supply common terminal | Analog signal and reference ground for+10V power supply | Internal isolation between COM and GND |
| | COM | +24V power supply common terminal | Digital signal input, output common terminal | |

# Structural outline drawing

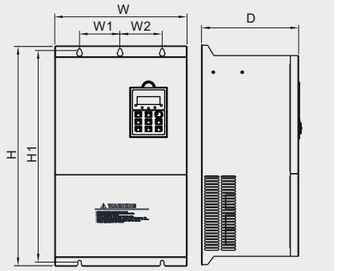


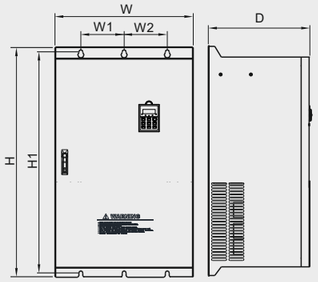

Appearance structure A



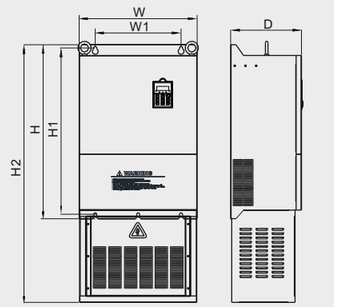

Iron shell without base




Iron shell without base

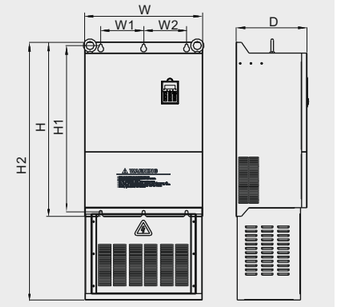



Iron shell without base



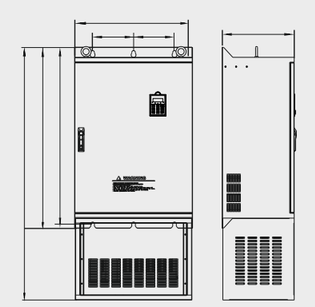

Iron shell with base

Appearance structure B



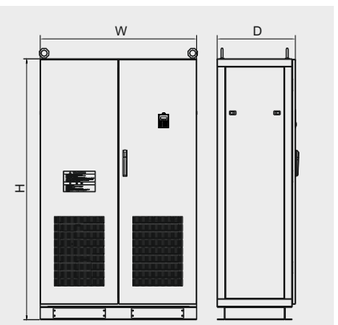

Iron shell with base

Appearance structure C



Iron shell with base

Appearance structure D




Appearance structure E



# Structural dimension

| Model | | Overall dimensions (mm) | | | | Installation size (mm) | | | Installation aperture | Outline structure |
|---|---|---|---|---|---|---|---|---|---|---|
| General | Fan and water pump type | H | W | D | H2 | H1 | W1 | W2 | | |
| Single phase power supply: 220V, 50/60Hz | | | | | | | | | | |
| NE9000-2S0004G | — | 142 | 85 | 110 | — | 149.5 | 72.5 | — | Φ5 | A |
| NE9000-2S0007G | — | | | | | | | | | |
| NE9000-2S0015G | — | | | | | | | | | |
| Three phase power supply: 380V, 50/60Hz | | | | | | | | | | |
| NE9000-4T0007G | NE9000-4T0015P | 190 | 104 | 150 | — | 176 | 90 | — | Φ5 | A |
| NE9000-4T0015G | NE9000-4T0022P | | | | | | | | | |
| NE9000-4T0022G-M | — | | | | | | | | | |
| NE9000-4T0022G | NE9000-4T0037P | 236 | 130 | 176 | — | 222 | 116 | — | Φ6 | A |
| NE9000-4T0037G | NE9000-4T0055P | | | | | | | | | |
| NE9000-4T0055G-M | — | | | | | | | | | |
| NE9000-4T0055G | NE9000-4T0075P | 272 | 172 | 182 | — | 256 | 155 | — | Φ7 | A |
| NE9000-4T0075G | NE9000-4T0110P | | | | | | | | | |
| NE9000-4T0110G-M | — | | | | | | | | | |
| NE9000-4T0150G-M | — | | | | | | | | | |
| NE9000-4T0110G | NE9000-4T0150P | 330 | 200 | 200 | — | 316 | 188 | — | Φ7 | A |
| NE9000-4T0150G | NE9000-4T0185P | | | | | | | | | |
| NE9000-4T0185G | NE9000-4T0220P | | | | | | | | | |
| NE9000-4T0220G | NE9000-4T0300P | | | | | | | | | |
| NE9000-4T0110G | NE9000-4T0150P | 360 | 248 | 210 | — | 346 | 170 | — | Φ7 | B |
| NE9000-4T0150G | NE9000-4T0185P | | | | | | | | | |
| NE9000-4T0185G-M | — | | | | | | | | | |
| NE9000-4T0220G-M | — | | | | | | | | | |
| NE9000-4T0185G | NE9000-4T0220P | 445 | 260 | 230 | — | 426 | 200 | — | Φ9 | B |
| NE9000-4T0220G | NE9000-4T0300P | | | | | | | | | |
| NE9000-4T0300G-M | — | | | | | | | | | |
| NE9000-4T0370G-M | — | | | | | | | | | |
| NE9000-4T0300G | NE9000-4T0370P | 530 | 320 | 235 | — | 511 | 200 | — | Φ9 | B |
| NE9000-4T0370G | NE9000-4T0450P | | | | | | | | | |
| NE9000-4T0450G | NE9000-4T0550P | 555 | 310 | 260 | — | 530 | 250 | — | Φ12 | B |
| NE9000-4T0550G | NE9000-4T0750P | | | | | | | | | |
| NE9000-4T0750G | NE9000-4T0900P | 650 | 400 | 300 | 988 | 619.5 | 280 | — | Φ14 | B |
| NE9000-4T0900G | NE9000-4T1100P | | | | | | | | | |
| NE9000-4T1100G | NE9000-4T1320P | | | | | | | | | |
| NE9000-4T1320G-M | — | 760 | 390 | 320 | 1100 | 730 | 280 | — | Φ14 | B |
| NE9000-4T1320G | NE9000-4T1600P | 790 | 450 | 300 | 1130 | 755 | 280 | — | Φ14 | B |
| NE9000-4T1600G | NE9000-4T1850P | | | | | | | | | |
| NE9000-4T1850G | NE9000-4T2000P | 810 | 550 | 330 | 1200 | 775 | 200 | 200 | Φ14 | C |
| NE9000-4T2000G | NE9000-4T2200P | | | | | | | | | |
| NE9000-4T2200G | NE9000-4T2500P | 810 | 640 | 350 | 1270 | 775 | 240 | 240 | Φ14 | C |
| NE9000-4T2500G | NE9000-4T2800P | | | | | | | | | |
| NE9000-4T2800G | NE9000-4T3150P | 1102 | 720 | 440 | 1542 | 1047 | 250 | 250 | Φ22 | D |
| NE9000-4T3150G | NE9000-4T3500P | | | | | | | | | |
| NE9000-4T3500G | NE9000-4T4000P | 1270 | 820 | 400 | 1760 | 1220 | 300 | 300 | Φ25 | D |
| NE9000-4T4000G | NE9000-4T4500P | | | | | | | | | |
| NE9000-4T4500G | NE9000-4T5000P | | | | | | | | | |
| NE9000-4T4500G | NE9000-4T5000P | 1900 | 950 | 475 | — | — | — | — | Φ25 | E |
| NE9000-4T5000G | NE9000-4T5600P | | | | | | | | | |
| NE9000-4T5600G | NE9000-4T6300P | 2000 | 1200 | 600 | — | — | — | — | Φ25 | E |
| NE9000-4T6300G | NE9000-4T7100P | | | | | | | | | |
| NE9000-4T7100G | NE9000-4T8000P | | | | | | | | | |
| NE9000-4T8000G | NE9000-4T9000P | 2000 | 1500 | 600 | — | — | — | — | Φ25 | E |
| NE9000-4T9000G | NE9000-4T10000P | | | | | | | | | |
| NE9000-4T10000G | NE9000-4T11000P | | | | | | | | | |


# Keyboard

## Keyboard size

| Keyboard size (mm) | | Installation size (mm) | | Outline structure |
|---|---|---|---|---|
| H | W | H1 | W1 | |
| NE2000 series keyboard 0.2KW~1.5KW | | | | |
| 83.6 | 59 | 81.4 | 57.5 | A |
| NE3000-M series keyboard 0.4KW~1.5KW | | | | |
| 83.6 | 59 | 81.4 | 57.5 | A |

| Keyboard size (mm) | | Installation size (mm) | | Outline structure |
|---|---|---|---|---|
| H | W | H1 | W1 | |
| NE3000 series keyboard 0.75KW~3.7KW | | | | |
| 89 | 66 | 86.2 | 63.5 | B |
| NE9000 series keyboard 0.75KW~3.7KW | | | | |
| 89 | 66 | 86.2 | 63.5 | B |

| Keyboard size (mm) | | Installation size (mm) | | Outline structure |
|---|---|---|---|---|
| H | W | H1 | W1 | |
| YX3000 series keyboard 5.5KW~1000KW | | | | |
| 110 | 66 | 131.2 | 72 | C |
| YX9000 series keyboard 5.5KW~1000KW | | | | |
| 110 | 66 | 131.2 | 72 | C |

| Keyboard size (mm) | | Installation size | | Outline structure |
|---|---|---|---|---|
| H | W | H1 | W1 | |
| Ne90 series keyboard 0.75KW~22KW | | | | |
| 85.5 | 62.5 | 131.2 | 72.2 | D |

| Keyboard size (mm) | | Installation size (mm) | | Outline structure |
|---|---|---|---|---|
| H | W | H1 | W1 | |
| Ne90 series keyboard 30KW~1000KW | | | | |
| 110 | 66 | 131.2 | 72 | E |