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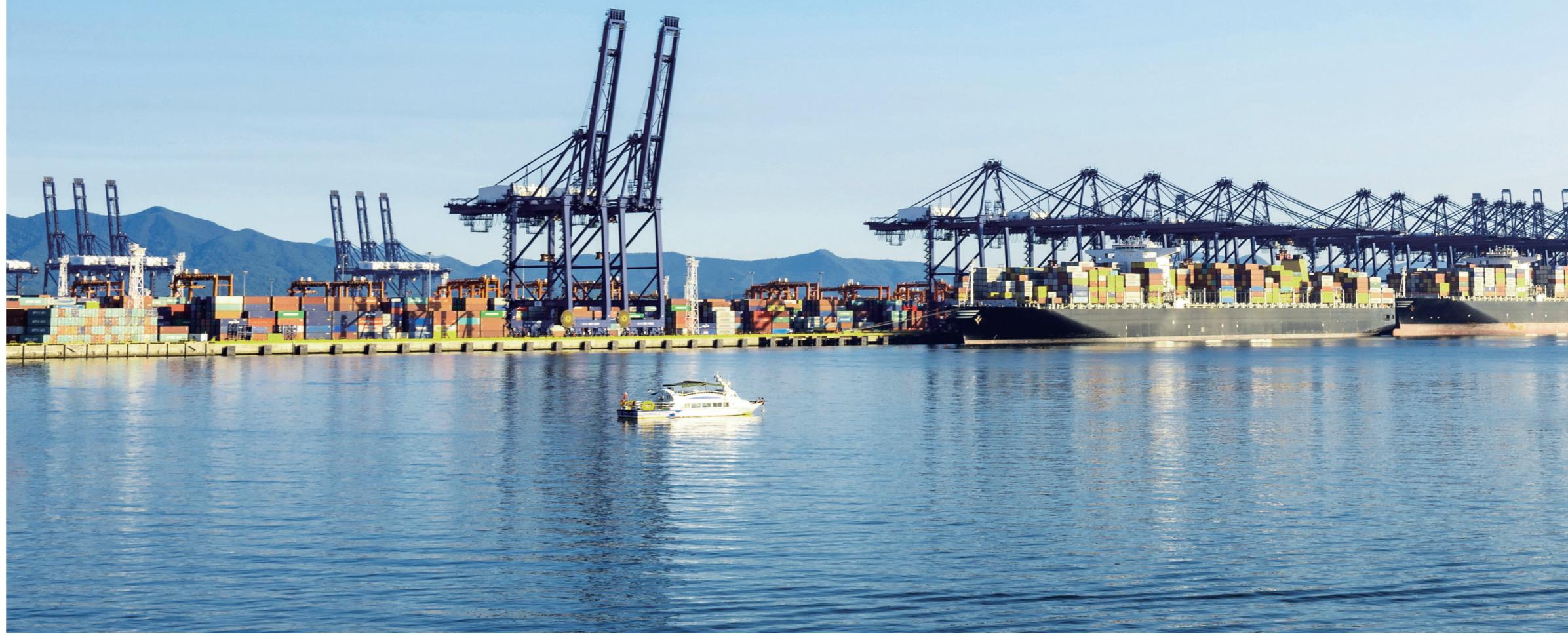
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HIGH PERFORMANCE VECTOR FREQUENCY CONVERTER

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Over **18** years
Industry Experience



294
Effective IP Rights



80+
Worldwide Business Footprints



6
Key Marketing Zones

With 18 years of dedication and professionalism, SAJ has established itself as a pioneer in the renewable energy industry. We are committed to providing reliable products and services in Residential & Commercial Smart Energy Storage, Smart Power Generation, and Industrial Automation sectors. Our R&D team has mastered over 20 core technologies and

obtained over 260 patents in the energy field. With four R&D centers and over 500 square meters of highly equipped laboratories, we are constantly innovating and breaking through technological barriers. Our three intelligent manufacturing bases, with an area of about 18.2 hectares, ensure stable and fast delivery capacity. SAJ's products are welcomed in over 80 countries and regions. We have also established local professional marketing, technical, and service teams to respond quickly to customer needs.

Together with SAJ, build a greener and brighter future.



VM1000B

High Performance Vector Frequency Converter



Single-phase 220V : 0.75~2.2kW
 Three-phase 220V : 0.75~15kW
 Three-phase 380V : 0.75~400kW

Wide power range
 Dual voltage optional

Multi-dimensional protection
 Safe and reliable

Cabinet installation
 Strong heat dissipation capacity

Compatible with synchronous
 motor & asynchronous motor

Random carrier function
 Quiet and efficient

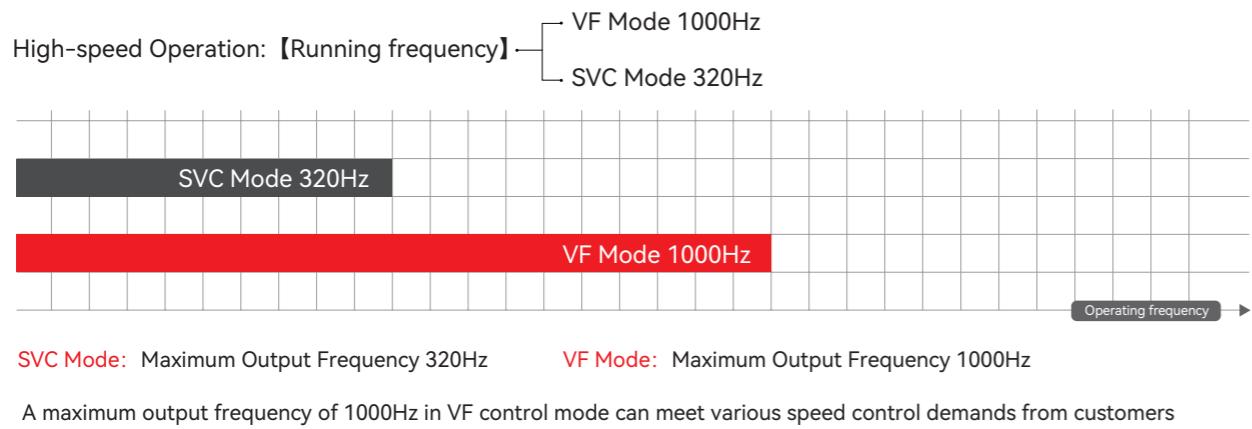
Multi-type I/O function
 Flexible control

Specification Parameter

| Item | | Description | |
|-----------------------------|--|---|-------------|
| Control Characteristics | Control Mode | Sensorless vector control (SVC) | V/F Control |
| | Starting Torque | 0.5Hz/150% | 0.5Hz/100% |
| | Speed Adjustment Range | 1: 100 | 1: 50 |
| | Speed Holding Precision | ±0.5% | ±1% |
| | Carrier Frequency | 0.5kHz ~ 16kHz; The carrier frequency can be automatically adjusted according to the load characteristics | |
| | Overload Capacity | G type: 150% rated current for 60s; 180% rated current for 1s P type: 120% rated current for 60s; 150% rated current for 1s | |
| | Torque Compensation | Automatic: 0.0%; Manual : 0.1%-30.0% | |
| Operation Control | Input Voltage Range | 220V/380V; fluctuation range: ±15% | |
| | Input Frequency Range | 50/60Hz; fluctuation range: ±5% | |
| | Output Voltage Range | 0- input voltage, Error limit 5% | |
| | Output Frequency Range | SVC: 0-320Hz; V/F: 0-1000Hz | |
| | Command Running Channel | Three kinds of channels: 1. Operation keyboard 2. Control terminal 3. Serial communication port, switchable by many ways | |
| | Frequency Source | Digital setting, Potentiometer of operation board, Analog Voltage Signal, Analog Current Signal, Communication port setting, switchable by many ways | |
| | Auxiliary Frequency Source | Multiple auxiliary frequency source, capable of frequency synthesis and frequency trimming | |
| Basic Functions | Input Terminals | ◆ 6 Digital Input Terminals ◆ 2 Analog Input Terminals | |
| | Output Terminals | ◆ 1 Open Collector Output Terminals; ◆ 2 Relay Output Terminals ◆ 2 Analog Output Terminals (Model with a power of less than 7.5kW only have one) | |
| | DC Braking | Braking time: 0.0s ~ 100.0s, Braking current value: 0.0% ~ 100.0% | |
| | V/F Curve | Three types: linear, multipoint, square V/F curve | |
| | Acceleration and Deceleration Curve | Linear mode and S curve acceleration and deceleration mode; 4 groups of acceleration and deceleration time; the range of acceleration and deceleration time 0.0~6500.0S | |
| | Simple PLC, Multi-speed Control | Up to 16 steps speed can be realized by integrated simple PLC and control terminals function | |
| | Integrated PID | Closed-loop control system | |
| Display and Panel Operation | AVR Function | When grid voltage changes, it keeps output voltage constant automatically | |
| | Control of Overvoltage, Overcurrent, Speed Stall | The current and voltage are limited automatically during the running process so as to avoid frequent tripping due to overvoltage/overcurrent | |
| | Rapid Current Limit | Decrease overcurrent at max, protect VFD to operate regularly | |
| | Torque Limit and Control | Limit the torque automatically and prevent frequent over current tripping during the running process | |
| | Power peripheral and Safety Self-checking | To realize self checking of peripheral equipment at power on, such as grounding fault, short circuit fault, etc | |
| | Timing Control | Timing control range: 0h~65535h | |
| | Protection Functions | Motor short-circuit detection at power-on, input/output phase loss protection, overcurrent protection, overvoltage protection, undervoltage protection, overheat protection and overload protection etc | |
| Application Environment | LED Display | 5 bits LED Display | |
| | Parameter Lock | Define whether the parameter is locked in running or stopped state in case of misoperation | |
| | M.F.K Key | Programmable: Command channel switching / forward rotation and reverse rotation / JOG function selection / menu mode switching | |
| | Operation Place | Indoor, free from direct sunlight, no dust, no corrosive gas, no combustible gas, no oil smoke, no vapor, no drip or salt. | |
| | Altitude | Lower than 1000m. Service in derated capacity when above 1000m. Derate 1% capacity every 100m increase in height. | |
| | Ambient Temperature | -10°C~+40°C, A33 Service in derated capacity when temperature higher than 40°C. Derate 1% capacity every 1°C increase in temperature. And the maximum environmental temperature is 50 °C. | |
| | Humidity | ≤ 95%RH, no water condensation | |
| | Vibration | < 5.9m/s ² (0.6G) | |
| | Storage Temperature | -25°C ~ +60°C | |

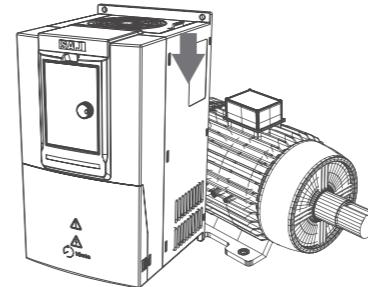
/// Product Advantage

Maximum Output Frequency Improved

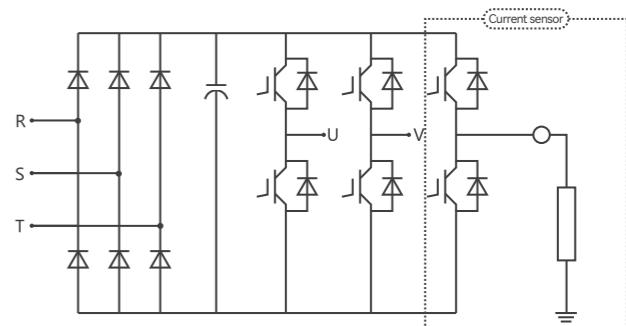


Motor GND Short-Circuit Detection

The motor GND short-circuit detection function makes sure that the equipment is operating under normal and safe conditions thus improving the safety coefficient.



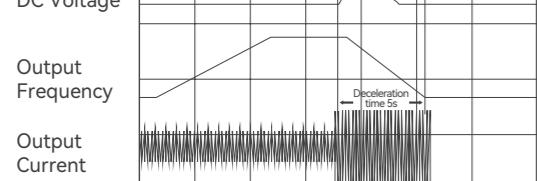
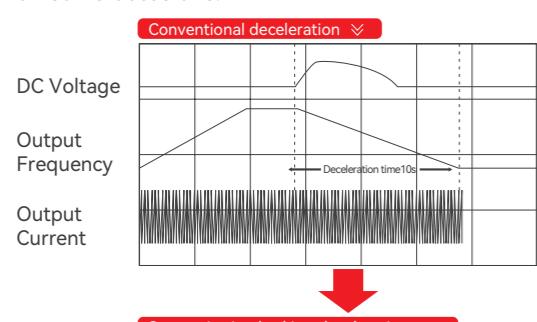
Flow Chart of GND Short-circuit Detection



Excellent Braking Function

【Over-excitation Braking Function】

The over-excitation braking function can help with a prompt braking action even without the braking unit on some occasions.



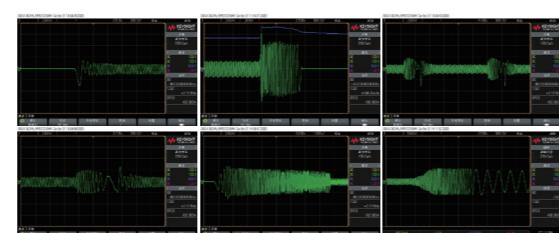
The braking torque could be higher and braking time shorter if working with a braking resistor. The 0.75-22kW models are designed with built-in braking units.

(Remarks) The braking performance varies from motor characteristics and load conditions.

Random Carrier Function

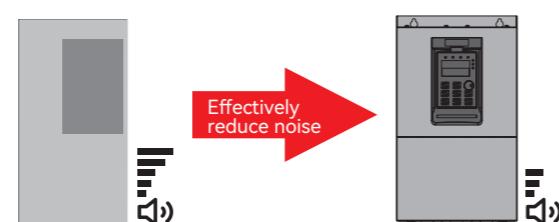
【Superior Control Performance】

The improved low frequency and high torque quickstarting performance brings a faster response speed and a higher production efficiency. The probability of equipment failure and shutdown can be reduced effectively with the enhanced current suppression algorithm so as to ensure a more stable processing capacity of the equipment.



【Noise Reduction】

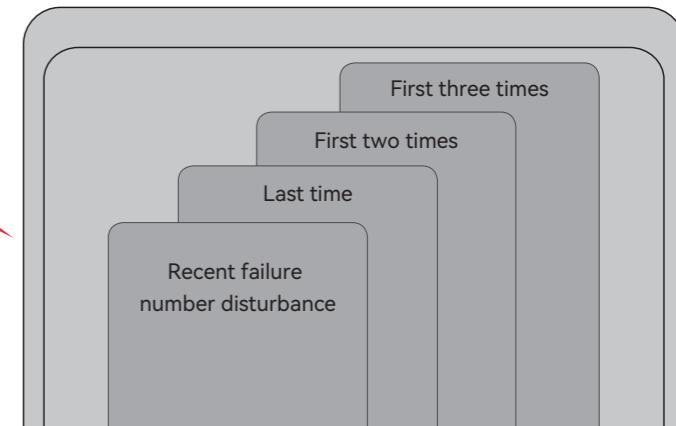
The random carrier function helps reduce the noise of the equipment so as to improve the environmental comfort.



Optimized fault record

It can save up to 15 on-site data records when failures occur, and the data records are more complete, which is more conducive to analysis and processing.

- Frequency
- Electric current
- Bus voltage
- Output terminal status
- Inverter temperature



G/P Dual Power Marked

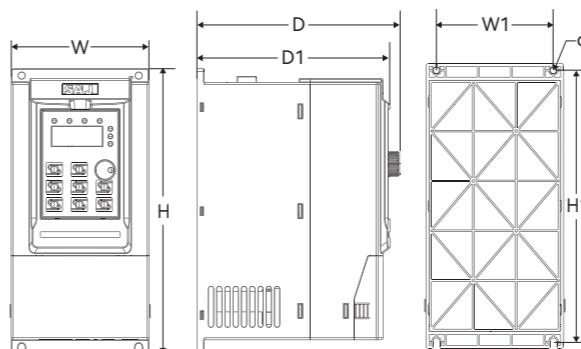
G/P dual power marking is more convenient for model selection which allows customers to select a G or P operation mode according to their load demands.

| GP model settings | Overload capacity | Load characteristics | Applicable overload capacity |
|-------------------|-------------------|---|---------------------------------|
| G type | Standard overload | Type selection according to the power of G-type machine | Rated current 150% 60s, 180% 1s |
| P type | Mild overload | Type selection according to the power of P-type machine | Rated current 120% 60s, 150% 1s |

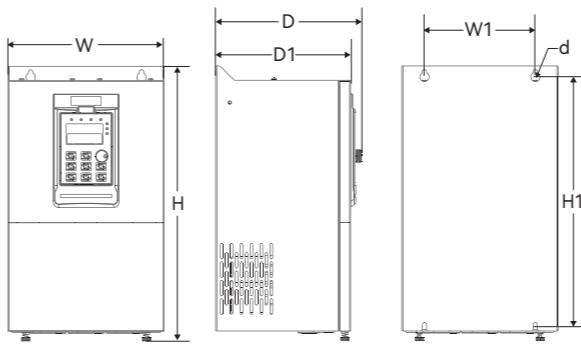
/// SELECTION GUIDE

| Specification Model | Power | Power Capacity | Input Current | Output Current | Adapted Motor | |
|--|---------|----------------|---------------|----------------|---------------|---------|
| | kW | kVA | A | A | kW | HP |
| Single phase input 220V and three-phase output 0-220V | | | | | | |
| VM1000B-2SR75GB-E | 0.75 | 1.5 | 8.2 | 4.5 | 0.75 | 1 |
| VM1000B-2S1R5GB-E | 1.5 | 3 | 14 | 7 | 1.5 | 2 |
| VM1000B-2S2R2GB-E | 2.2 | 4 | 23 | 9.6 | 2.2 | 3 |
| Three phase input 220V and three-phase output 0-220V | | | | | | |
| VM1000B-2TR75GB-E | 0.75 | 1.5 | 5 | 3.8 | 0.75 | 1 |
| VM1000B-2T1R5GB-E | 1.5 | 3 | 5.8 | 5.1 | 1.5 | 2 |
| VM1000B-2T2R2GB-E | 2.2 | 4 | 10.5 | 9 | 2.2 | 3 |
| VM1000B-2T004GB-E | 4 | 5.9 | 14.6 | 13 | 4 | 5.5 |
| VM1000B-2T5R5GB-E | 5.5 | 8.9 | 26 | 25 | 5.5 | 7.5 |
| VM1000B-2T7R5GB-E | 7.5 | 11 | 35 | 32 | 7.5 | 10 |
| VM1000B-2T011GB-E | 11 | 17 | 46.5 | 45 | 11 | 15 |
| VM1000B-2T015G-E | 15 | 21 | 62 | 60 | 15 | 20 |
| Three phase input 380V and three-phase output 0-380V | | | | | | |
| VM1000B-4TR75GB-E | 0.75 | 1.5 | 3.4 | 2.5 | 0.75 | 1 |
| VM1000B-4T1R5GB-E | 1.5 | 3 | 5 | 3.8 | 1.5 | 2 |
| VM1000B-4T2R2GB-E | 2.2 | 4 | 5.8 | 5.1 | 2.2 | 3 |
| VM1000B-4T004GB/5R5PB-E | 4/5.5 | 5.9/8.9 | 10.5/14.6 | 9/13 | 4/5.5 | 5.5/7.5 |
| VM1000B-4T5R5GB/7R5PB-E | 5.5/7.5 | 8.9/11 | 14.6/20.5 | 13/17 | 5.5/7.5 | 7.5/10 |
| VM1000B-4T7R5GB-E | 7.5 | 11 | 20.5 | 17 | 7.5 | 10 |
| VM1000B-4T011GB/015PB-E | 11/15 | 17/21 | 26/35 | 25/32 | 11/15 | 15/20 |
| VM1000B-4T015GB/018R5PB-E | 15/18.5 | 21/24 | 35/38.5 | 32/37 | 15/18.5 | 20/25 |
| VM1000B-4T018R5GB/022PB-E | 18.5/22 | 24/30 | 38.5/46 | 37/45 | 18.5/22 | 25/30 |
| VM1000B-4T022GB/030PB-E | 22/30 | 30/40 | 46.5/62 | 45/60 | 22/30 | 30/40 |
| VM1000B-4T030G/037P-E | 30/37 | 40/57 | 62/76 | 60/75 | 30/37 | 40/50 |
| VM1000B-4T037G/045P-E | 37/45 | 57/69 | 76/92 | 75/91 | 37/45 | 50/60 |
| VM1000B-4T045G/055P-E | 45/55 | 69/85 | 92/113 | 91/110 | 45/55 | 60/70 |
| VM1000B-4T055G/075P-E | 55/75 | 85/114 | 113/157 | 112/150 | 55/75 | 70/100 |
| VM1000B-4T075G/093P-E | 75/93 | 114/134 | 157/180 | 150/170 | 75/93 | 100/125 |
| VM1000B-4T093G/110P-E | 93/110 | 134/160 | 180/214 | 170/210 | 93/110 | 125/150 |
| VM1000B-4T110G/132P-E | 110/132 | 160/192 | 214/256 | 210/253 | 110/132 | 150/180 |
| VM1000B-4T132G/160P-E | 132/160 | 192/231 | 256/307 | 253/304 | 132/160 | 180/220 |
| VM1000B-4T160G/185P-E | 160/185 | 231/245 | 307/345 | 304/340 | 160/185 | 220/250 |
| VM1000B-4T185G/200P-E | 185/200 | 245/260 | 345/385 | 340/377 | 185/220 | 250/275 |
| VM1000B-4T200G/220P-E | 200/220 | 260/280 | 385/430 | 377/426 | 200/220 | 275/300 |
| VM1000B-4T220G/250P-E | 220/250 | 280/355 | 430/468 | 426/465 | 220/250 | 300/340 |
| VM1000B-4T250G/280P-E | 250/280 | 355/396 | 468/525 | 465/520 | 250/280 | 340/380 |
| VM1000B-4T280G/315P-E | 280/315 | 396/445 | 525/590 | 520/585 | 280/315 | 380/430 |
| VM1000B-4T315G/355P-E | 315/355 | 445/500 | 590/665 | 585/650 | 315/355 | 430/480 |
| VM1000B-4T355G/400P-E | 355/400 | 500/565 | 665/785 | 650/725 | 355/400 | 480/545 |
| VM1000B-4T400G-E | 400 | 565 | 785 | 725 | 400 | 545 |

/// DIMENSION (UNIT: MM)



| Model | Outline size | | | | Installation dimension | | Opening size |
|---------------------------|--------------|-----|-----|-----|------------------------|-----|--------------|
| | H | W | D | H1 | H1 | W1 | |
| VM1000B-2SR75GB-E | 187 | 88 | 138 | 130 | 177 | 73 | 5 |
| VM1000B-2S1R5GB-E | | | | | | | |
| VM1000B-2S2R2GB-E | | | | | | | |
| VM1000B-2TR75GB-E | | | | | | | |
| VM1000B-2T1R5GB-E | | | | | | | |
| VM1000B-4TR75GB-E | 207 | 100 | 147 | 139 | 197 | 85 | 5 |
| VM1000B-4T1R5GB-E | | | | | | | |
| VM1000B-4T2R2GB-E | | | | | | | |
| VM1000B-2T2R2GB-E | 247 | 130 | 167 | 159 | 237 | 113 | 5 |
| VM1000B-4T004GB/5R5PB-E | | | | | | | |
| VM1000B-2T004GB-E | | | | | | | |
| VM1000B-4T5R5GB/7R5PB-E | | | | | | | |
| VM1000B-4T7R5GB-E | | | | | | | |
| VM1000B-2T011GB-E | | | | | | | |
| VM1000B-4T015GB/018R5PB-E | | | | | | | |
| VM1000B-2T011GB-E | | | | | | | |
| VM1000B-4T018R5GB/022PB-E | | | | | | | |
| VM1000B-4T022GB/030PB-E | | | | | | | |
| VM1000B-2T015G-E | | | | | | | |
| VM1000B-4T030G/037P-E | | | | | | | |
| VM1000B-4T037G/045P-E | | | | | | | |
| VM1000B-4T045G/055P-E | | | | | | | |
| VM1000B-4T055G/075P-E | | | | | | | |
| VM1000B-4T075G/093P-E | | | | | | | |
| VM1000B-4T093G/110P-E | | | | | | | |
| VM1000B-4T110G/132P-E | | | | | | | |
| VM1000B-4T132G/160P-E | | | | | | | |
| VM1000B-4T160G/185P-E | | | | | | | |
| VM1000B-4T185G/200P-E | | | | | | | |
| VM1000B-4T200G/220P-E | | | | | | | |
| VM1000B-4T220G/250P-E | | | | | | | |
| VM1000B-4T250G/280P-E | | | | | | | |
| VM1000B-4T280G/315P-E | | | | | | | |
| VM1000B-4T315G/355P-E | | | | | | | |
| VM1000B-4T355G/400P-E | | | | | | | |
| VM1000B-4T400G-E | | | | | | | |



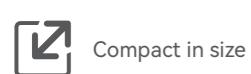
| Model | Outline size | | | | Installation dimension | | Opening size |
|---------------------------|--------------|-----|-----|-----|------------------------|-----|--------------|
| | H | W | D | H1 | H1 | W1 | |
| VM1000B-2T5R5GB-E | 348 | 182 | 211 | 196 | 331 | 156 | 6 |
| VM1000B-2T7R5GB-E | | | | | | | |
| VM1000B-4T011GB/015PB-E | | | | | | | |
| VM1000B-4T015GB/018R5PB-E | | | | | | | |
| VM1000B-2T011GB-E | 373 | 220 | 205 | 190 | 356 | 156 | 6 |
| VM1000B-4T018R5GB/022PB-E | | | | | | | |
| VM1000B-4T022GB/030PB-E | | | | | | | |
| VM1000B-2T015G-E | 435 | 256 | 222 | 208 | 419 | 170 | 6 |
| VM1000B-4T030G/037P-E | | | | | | | |
| VM1000B-4T037G/045P-E | | | | | | | |

VM600G

Economical Frequency Converter



Single-phase 220V: 0.75~2.2kW
Three-phase 380V: 0.75~7.5kW



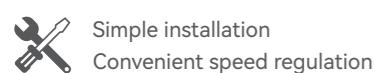
Compact in size



Better protection function



Professional motor drive
Superior performance



Simple installation
Convenient speed regulation



Compatible with synchronous
Motor & asynchronous motor



The product is safer to use

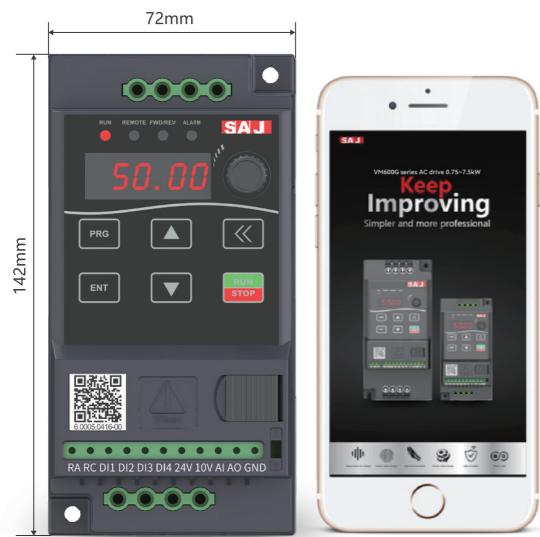
Specification Parameter

| | Item | Description |
|-------------------------|---|---|
| Control characteristic | Control mode | V/F control |
| | Output frequency range | 0~1000Hz |
| | Starting torque | 0.5Hz/130% |
| | Carrier frequency | 0.6~15.0kHz |
| | Overload capacity | 150% rated current 60s, 180% rated current 1s |
| | Torque lift | Automatic torque lift/manual torque lift 0.1 ~ 30.0% |
| I/O terminals | Analog input | 1 way |
| | Digital input | 4 way |
| | Analog output | 1 way |
| | Relay output | 2.2kW (including) models below 1 normal open; For 4kW or more models, 1 channel is normally open and 1 channel is normally closed |
| | RS485 communication terminal | 1 Integrated in the RJ45 cable port |
| | 10V power terminal | 1 way |
| Basic functions | 24V power terminal | 1 way |
| | Run command channel | Three channels: set operation panel, control terminal, and RS485 communication control, which can be switched in various ways |
| | Frequency source | Digital set, panel potentiometer set, analog voltage set, analog current set, RS485 communication set, PID control set, switchable by many ways |
| | DC braking function | DC braking frequency: 0~50Hz, braking time: 0~60s Braking action current value: 0~150% |
| | V/F curve | Linear; 1.1~1.9 power; Square type; Customize V/F curves |
| | Simple PLC, multi-speed control | Up to 15 speed to achieve simple PLC operation |
| | Integrated PID | It is convenient to realize process control closed-loop control system |
| | Protection function | Input/output phase loss protection, overcurrent protection, overvoltage protection, undervoltage protection, overheat protection, overload protection, power-on short circuit detection etc |
| | LED display | 5-bit LED display |
| | Parameter locking function | The parameter read-only function can be set to prevent misoperations |
| Application environment | Automatic voltage adjustment AVR function | When the grid voltage changes, the output voltage can be kept constant automatically |
| | Operetion place | Indoor, free from direct sunlight, no dust, no corrosive gas, no combustible gas, no oil mist, no water mist, no drip or salt,etc. |
| | Altitude | Lower than 1000m. Service in derated capacity when above 1000m. Derate 1% capacity every 100m increase in height. |
| | Ambient temperature | -10 °C to +50 °C (If the ambient temperature is 40°C to 50 °C, please reduce the amount to use) |
| | Humidity | ≤ 95%RH, no water condensation |
| | Vibration | < 5.9m/s ² (0.6G) |
| | Storage temperature | -25°C ~ 60°C |
| | Protection class | IP20 |

Product Advantage

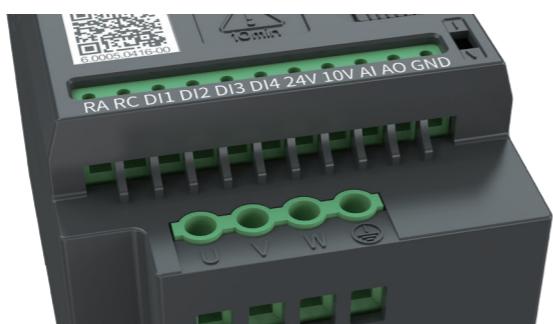
Compact Design

Compared with the previous product, the installation size is reduced by 30% and the volume is reduced by 45%, which is more conducive to saving installation space.



High-efficiency Debugging

Equipped with macro function parameter, which will automatically adjust all related parameters when being adjusted then improve the setting efficiency.



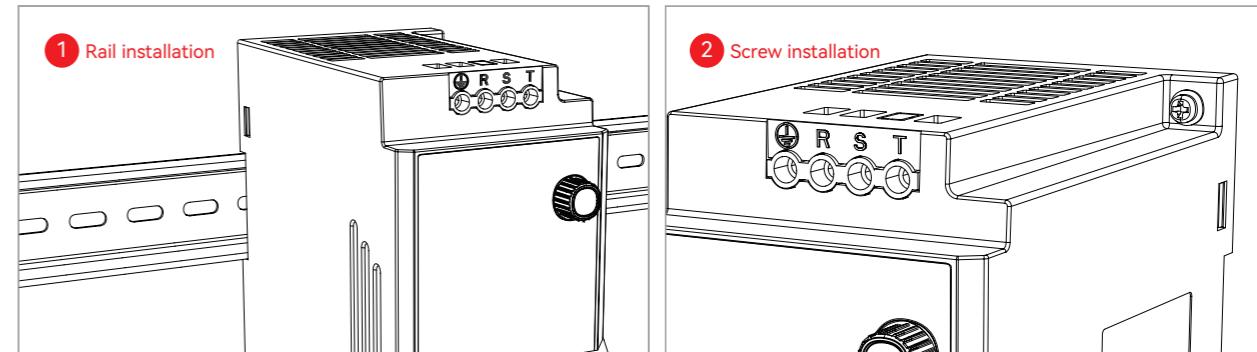
Disassembly-free junction box

Larger operation space

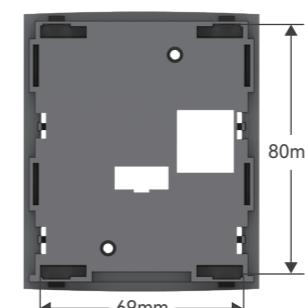
Opening terminal design

Two Installation Options

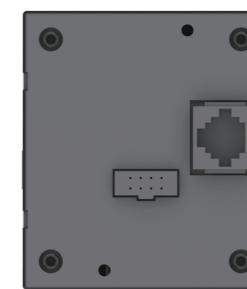
Improve installation convenience and installation efficiency, and further save installation space, suitable for side-by-side installation.



External keyboard effect diagram



Tray opening size



Extension of the network port on the back of the keyboard

Dismountable Keypad

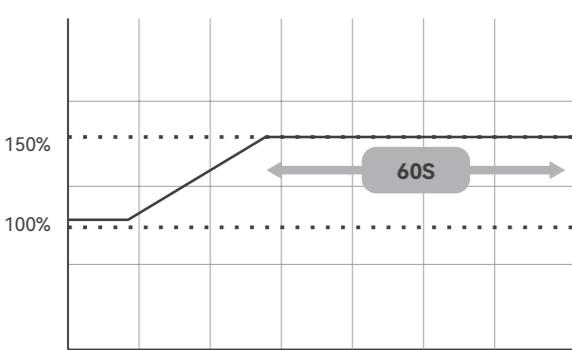
Support parameter copy

Note: LCD keyboard is under development

Excellent driving ability

The output frequency range is wide which meets speed regulation requirements for most industrial scenes.

Overload capability is 150% rated current for 60S, which provides a wide range of strong driving capability



Compatible with single-phase motor and three-phase asynchronous motor

Single Phase Motor Option

Changing speed for single phase motor, wide speed changing range, no current shock, equipment service time will be longer



Multiple Protection Mechanisms

AC Drive overcurrent, overvoltage, short circuit protection, motor overload protection, Input/output phase loss protection, etc.

Overcurrent Protection

Overvoltage Protection

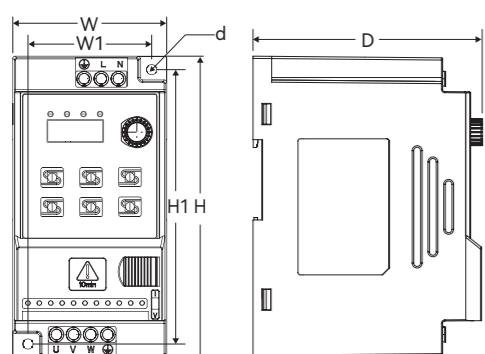
Overload Protection

Phase Absence Protection

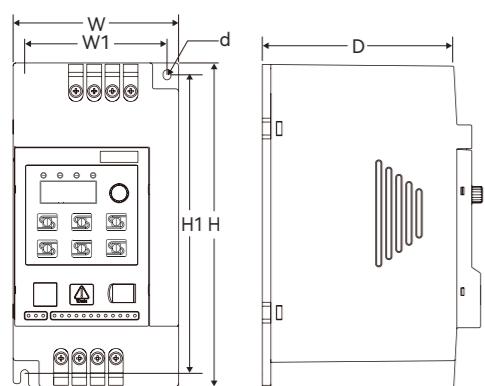
/// SELECTION GUIDE

| Model | Rated Power | Power capacity | Input current | Output current | Motor G/P | |
|---|-------------|----------------|---------------|----------------|-----------|-----|
| | kW | kVA | A | A | kW | HP |
| Single 220V input three-phase 0-220V output | | | | | | |
| VM600G-2SR75-E | 0.75 | 1.5 | 8.2 | 4 | 0.75 | 1 |
| VM600G-2S1R5-E | 1.5 | 3 | 14 | 7 | 1.5 | 2 |
| VM600G-2S2R2-E | 2.2 | 4 | 23 | 9.6 | 2.2 | 3 |
| Three 380V output three-phase 0-380V output | | | | | | |
| VM600G-4TR75-E | 0.75 | 1.5 | 3.4 | 2.5 | 0.75 | 1 |
| VM600G-4T1R5-E | 1.5 | 3 | 5 | 3.8 | 1.5 | 2 |
| VM600G-4T2R2-E | 2.2 | 4 | 5.8 | 5.1 | 2.2 | 3 |
| VM600G-4T004-E | 4 | 5.9 | 10.5 | 9 | 4 | 5.5 |
| VM600G-4T5R5-E | 5.5 | 8.9 | 14.6 | 13 | 5.5 | 7.5 |
| VM600G-4T7R5-E | 7.5 | 11 | 20 | 17 | 7.5 | 10 |

/// DIMENSION (UNIT: MM)



| Model | Outline size | | | Installation dimension | | Opening size |
|----------------|--------------|----|-----|------------------------|----|--------------|
| | H | W | D | H1 | W1 | |
| VM600G-2SR75-E | 142 | 72 | 116 | 130 | 59 | 5 |
| VM600G-2S1R5-E | | | | | | |
| VM600G-2S2R2-E | | | | | | |
| VM600G-4TR75-E | | | | | | |
| VM600G-4T1R5-E | | | | | | |
| VM600G-4T2R2-E | | | | | | |



| Model | Outline size | | | Installation dimension | | Opening size |
|----------------|--------------|-----|-----|------------------------|----|--------------|
| | H | W | D | H1 | W1 | |
| VM600G-4T004-E | 196 | 95 | 132 | 179 | 79 | 5.5 |
| VM600G-4T5R5-E | 225 | 115 | 154 | 208 | 99 | 5.5 |
| VM600G-4T7R5-E | | | | | | |

eSolar Pump O&M Platform



Real Time Monitoring



Intelligent Alert



Remote Setup



Device Management



Data Analysis



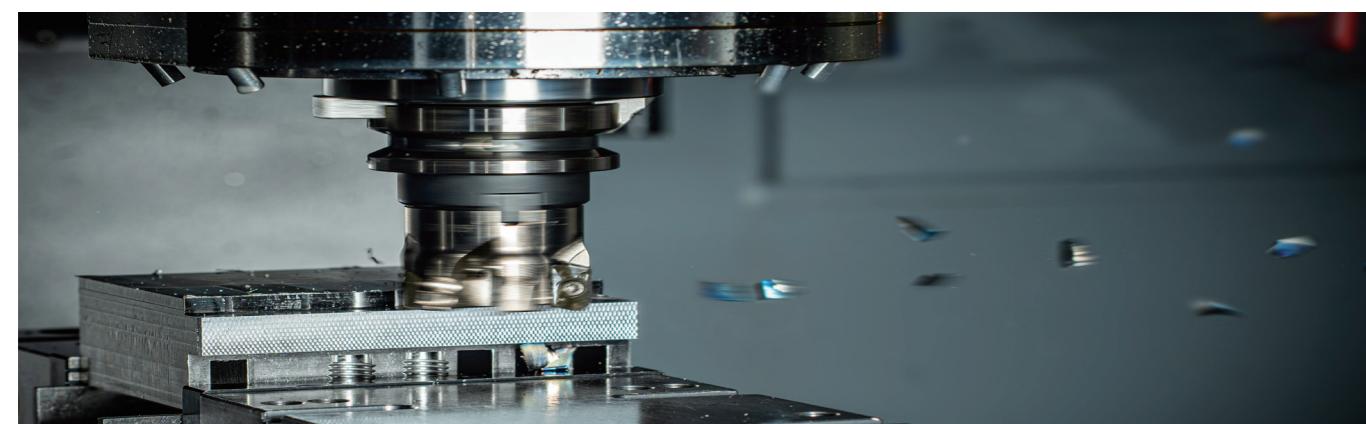
Smart Operation



PRODUCT APPLICATION

/// VM1000B Application

VM1000B frequency inverter can be used in machine tools, metal products, petrochemical, gas, lifting equipment, pulp and paper, textile, printing and dyeing, ceramics and other industries.



/// VM600G Application

VM600G frequency inverter can be used in packaging machinery, woodworking machinery, food processing, moving machinery, printing machinery, fan pump etc.



GLOBAL STRUCTURE

2 Manufacturing
Bases

80+ Worldwide Business
Footprints

6 Key Marketing
Zones

