



5600/5600E Series Inverter Open Loop Vector Mini Type (IM/PM)





Company Profile

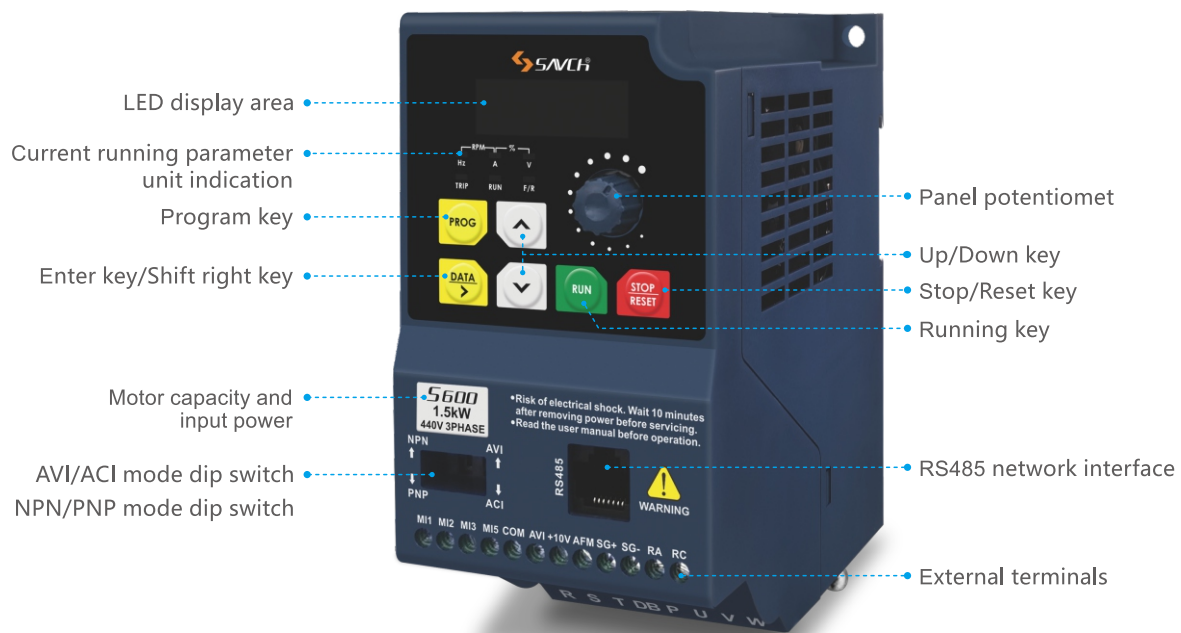
Savch Electric Co., Ltd was set up in Quanzhou, Fujian province in 2001 and established a research and development center in Shanghai. It is one of the first few companies to develop and produce motor drives in China. In 2005, it became China's top ten inverter brands. The company relies on a strong R & D team and world-class power electronics production and quality control system (OEM for top international brand) to provide customers with high-performance servo drives, inverters, computer controllers and other industrial control products.

The company focuses on the frontier technology fields of "industrial intelligence, energy saving, green energy", and adheres to the core goal of "creating value for customers", and establishes a technical R&D team that highly conforms to customer industry characteristics and highly integrated mechatronics and provide more efficient and resource-efficient system solutions for various industries customers. For the pass years, the company has established a global equal and close cooperation agent system, and customer service system with user satisfaction as an indicator, widely used in ceramics, packaging, textile, dyeing and finishing, engineering upgrading, lifting, road, CNC machine tools, glass, mining, petroleum, shipbuilding, military and even farming and animal husbandry and other equipment fields.



S600/S600E series open-loop vector mini type inverters are the upgraded products of the last series with more specific functions. The considerate operation methods offer the great convenience to the users.

Instruction



More Optimized Motor Control Algorithm

- Optimized open-loop vector control algorithm, starting torque: 150%/1Hz, overload capacity 150%/60 seconds.

Lower Heat Generation

- Advance 3phase to 2 phase shift technology, reduce 33.3% of heat generation.

Faster Calculation Speed

- Adopt nanometer production techniques, built-in dual core CPU improves the calculation speed greatly.

Flexible Combination

- Support extension manipulator, optional functions: 1 high-speed pulse output, 2 analog output, extended 1 relay output (2 channels in total).

Reliability

- Protection: Over voltage (OU), low voltage (LU), over current (OC1 / OC2 / OC3), over heat (OH), over load (OL) etc.
- Over voltage / over current tall prevention.
- 2 sections of prohibited frequency could avoid resonance effectively.

Great Performance

- Auto torque compensation-available to reach 150% when the start torque is 1Hz.
- Auto slip compensation-more accurate speed.
- Low noise-motor runs more stably.
- Great over load performance-available to run 60s on 150%of rated torque.

Functions Description

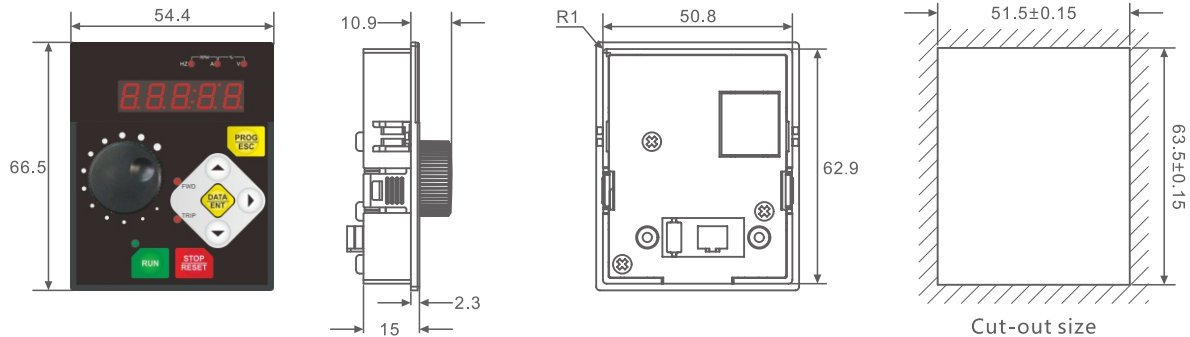
- Main / auxiliary frequency superimposed control.
- Pulse input frequency control (build-in).
- Many stop methods (STOP key, AVI zeroing stop).
- Display: Voltage, current, set frequency and the actual frequency, rotation (User defines).
- 3 point V/f curve setting, V/f separation control.
- Available to achieve 16 sections of program running with built-in PLC.
- Other functions: power lost memory, reverse running prohibition, AVR, DC braking, acceleration and deceleration auto adjustment, password protection on parameter.
- Extended keypad could achieve parameter copy.

Input Output

- Input : 2 line / 3 line control, external EF, UP / DOWN, program running auto control, counting, pulse input. Control running direction with FWD / REV triggering.
- Output: FWD / REV running indication, counting arrival indication, program running indication, frequency arrival indication, over torque indication, low voltage indication.

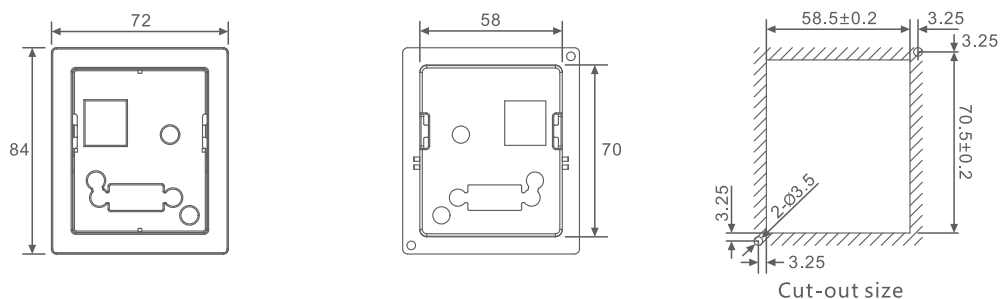
Remote Operation Keypad

- Remote keypad(EL-OP-A2) external dimensions and installation dimensions (Unit: mm)

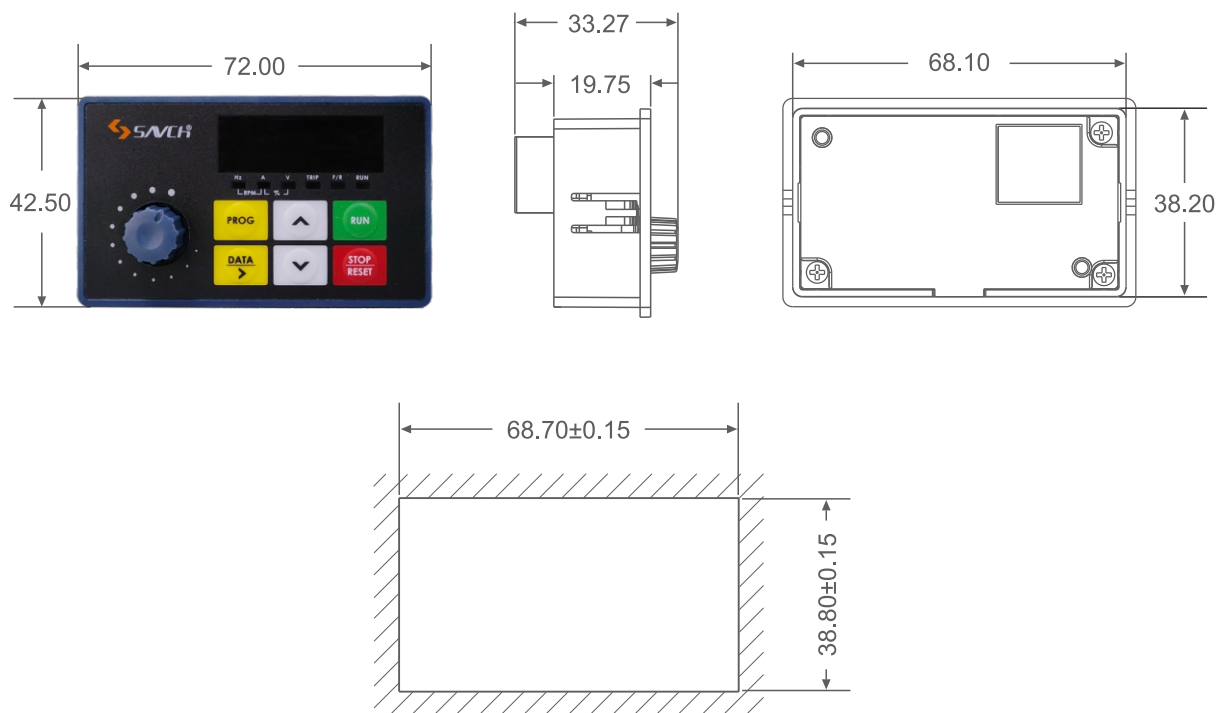


Note: This keyboard can be extended with ordinary network cable (8 cores).

- Dimensions of epitaxial supporting box (Unit: mm)

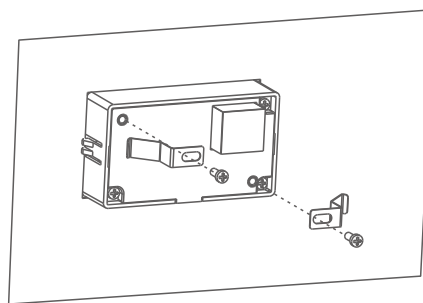
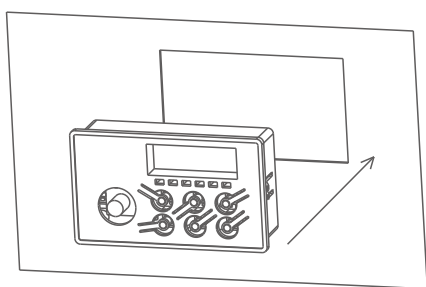


- Remote keypad(EL-OP-B2) external dimensions and installation dimensions (Unit: mm)



Note: This keyboard can be extended with ordinary network cable (8 cores).

- Keypad dimensions Installation



Model Description

S	600	–	4T	1.5G
SAVCH	S600: Asynchronous S600E: Permanent magnet synchronization		Input power source: 2T: 3ph 220V (Note: 2T2.2G or below with compatibility of single phase) 4T: 3ph 440V	0.4: 0.4kW 0.75: 0.75kW 1.5: 1.5kW 2.2: 2.2kW 4.0: 4.0kW 5.5: 5.5kW

Product Specification

- Common specification

Item		Explanation
Control characteristic	Control mode	V/f control, open loop vector control
	Range of output frequency	0~500.00Hz
	Frequency setting resolution	0.01 Hz
	Output Frequency setting resolution	0.01 Hz
	PWM carrier frequency	Adjust from 0.5kHz to 12kHz
	Torque boost	1Hz/150%
	V/f curve	Three types: line, multi-point. Nth power V/f curve (1.2th power, 1.4th power, 1.6th power, 1.8th power, 2th power)
	V/f separation	Two types: full separation, semi-separation
	Jump frequency	Adjust from 0.1Hz to 500.00Hz
	Acceleration/deceleration time	0.00 to 65000 seconds (4-stage acceleration/deceleration time is set independently), linear or S-curve acceleration/deceleration mode.
	Over current stall prevention level	Can be set according to the motor load characteristics with 100~200% of the rated current of the driver
	DC brake	When stopping, it can be operated from 0.00 to the maximum operating frequency, and the braking current is 0 to 100% of the rated current. Start time 0-100.0 seconds, stop time 0-100.0 seconds.
	Brake torque	20% (external optional brake resistor can reach 125%)
	Speed ratio	Open loop vector control: 1:100
Operation characteristic	Frequency setting signal	bit operation board set by  
		external terminal DC0-10V, DC4-20mA, Serial communication (RS485)
	Operation signal	bit operation board Available to be operated by RUN, STOP keys
		external terminal 2-wire/3-wire operation, jog operation, serial communication (RS485)
Input terminal of multi-function		Forward and reverse running, three-wire operation control, Forward and reverse jog running, free stop, reset fault, running pause, external fault input, increment/decrement frequency terminal setting, 16-segment preset speed switching, acceleration/deceleration time switching, frequency source switching, running command switching, PID control, PLC status reset, prohibit acceleration and deceleration, length count, frequency increase and decrease setting clear, high speed pulse frequency, stop DC braking, clear running time of this time.

Item		Explanation
Operation characteristic	Output terminal of multi-function	Inverter operation, fault output, frequency level detection FDT output, frequency arrival, zero speed operation, overload pre-alarm, count value arrival, length arrival, PLC cycle completion, cumulative running time arrival, frequency limitation, torque limit Ready to run, upper limit frequency arrival, lower limit frequency arrival (operation related), undervoltage status output, communication setting, cumulative power-on time arrival, frequency arrival output, timing arrival output, offload, reverse In operation, the zero current state, the module temperature reaches, the output current exceeds the limit, the lower limit frequency arrives (the stop is also output), the alarm output (continues to run), and the running time arrives.
	Analog signal output	Corresponding to the actual output frequency, output current, output voltage, etc.
	Fault signal contact	Contact "ON" (relay or two open collector outputs when the AC drive fails)
Inner function		Output frequency upper and lower limit setting, instantaneous power failure restart, abnormal fault restart, speed tracking, Simple PLC, multi-speed operation, PID control, timing control, Automatic regulated output regulation, Abnormal record, parameter lock, parameter factory reset, Reverse rotation prohibited, overcurrent stall prevention, overvoltage stall prevention, electronic thermal relay
Protection function		Short circuit protection, acceleration over current, deceleration over current, constant speed over current, acceleration over voltage, deceleration over voltage, constant speed over voltage, bus undervoltage fault, motor overload, inverter overload, over torque protection, loss phase on the output, module overheating, external fault, communication fault, current detection fault, parameter read and write abnormality, inverter hardware abnormality, motor short circuit to ground, running time arrival, the power-on time arrives, the load dropped, the PID feedback disconnected, and the fast current limit timeout.
Number of part on keypad		Contains 5-digit 8-segment LED display, 7 status indicator LED lights can set the frequency, display the actual output frequency, output current, user-defined unit Parameter browsing and modification settings and parameter locking, abnormal fault display Executable operation, stop, reset, forward/reverse, jogging
Environment	Operation temperature	-10°C to +40°C
	Temperature of stock	-20°C to +60°C
	Humidity of operation environment	Below 90%RH, No condensation
	Height of installation	No more than 1000m in height, no corrosive gas, liquid, dust
	Vibration	Below 20Hz 9.80665m/s ² (1G), 20~50Hz 5.88m/s ² (0.6G)
	Enclosure	IP20 (Depending on the end customer's installation environment)

- Standard Specification
 - 220V single phase/Three phase series

Item			Specification				
S600/E-2T***G			0.4	0.75	1.5	2.2	4.0
Output	Max.motor output power (kW)		0.4	0.75	1.5	2.2	4.0
	Max.motor output power (HP)		0.5	1	2	3	5.4
	Output rated capacity(kVA)		1.1	1.5	2.7	3.7	6.5
	Output rated current(A)		2.3	4.0	7.0	9.6	17.0
	Output frequency range		0~500Hz				
	Overload capacity		150%-60sec				
	Max output voltage		Same to input voltage				
Input	Phase, voltage, Frequency		Single phase/three phase 200~240V 50/60Hz				
	Voltage frequency variations		Voltage:±15% frequency:±5%				
	Input current(A)	Single phase	5.4	8.2	14.2	23	×
		Three phase	3.1	5.0	7.7	11.1	22.2
Cooling method			Fan cooling				

■ Three phase 440V Series

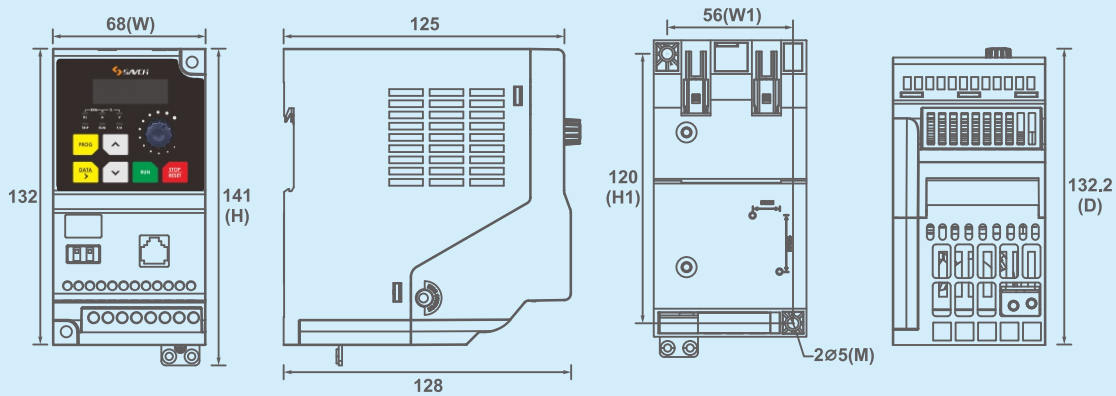
Item		Specification				
S600/E-4T***G		0.75	1.5	2.2	4.0	5.5
Output	Max.motor output power (kW)	0.75	1.5	2.2	4.0	5.5
	Max.motor output power (HP)	1	2	3	5.4	7.4
	Output rated capacity(kVA)	1.9	2.9	3.9	6.9	9.9
	Output rated current(A)	2.5	3.8	5.1	9	13
	Output frequency range	0~500Hz				
	Overload capacity	150%-60sec				
	Max output voltage	Same to input voltage				
Input	Phase, voltage, Frequency	Three phase 380-460V 50/60Hz				
	Voltage frequency variations	Voltage:±15% frequency:±5%				
	Input current(A)	3.4	5.0	5.8	10.5	15
Cooling method		Fan cooling				

External Dimensions

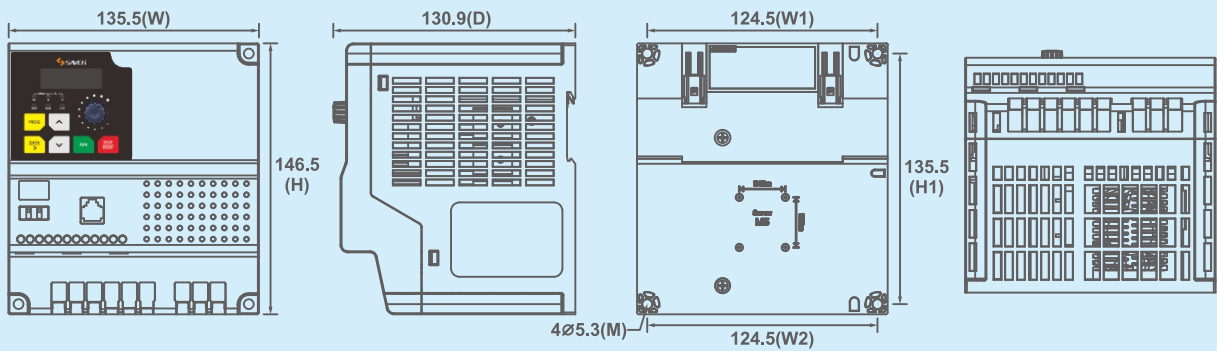
● Inverter Size (Unit: mm)

Type	W	W1	W2	H	H1	D	M	Fig.
S600/E-2T0.4G	68	56		141	120	132.2	5	Size 1
S600/E-2T0.75G								
S600/E-4T0.75G								
S600/E-4T1.5G								
S600/E-2T1.5G	135.5	124.5	124.5	146.5	135.5	130.9	5.3	Size 2
S600/E-2T2.2G								
S600/E-2T4.0G								
S600/E-4T2.2G								
S600/E-4T4.0G								
S600/E-4T5.5G								
S600/E-4T2.2G	78	66		132	122	135.7	5.2	Size 3

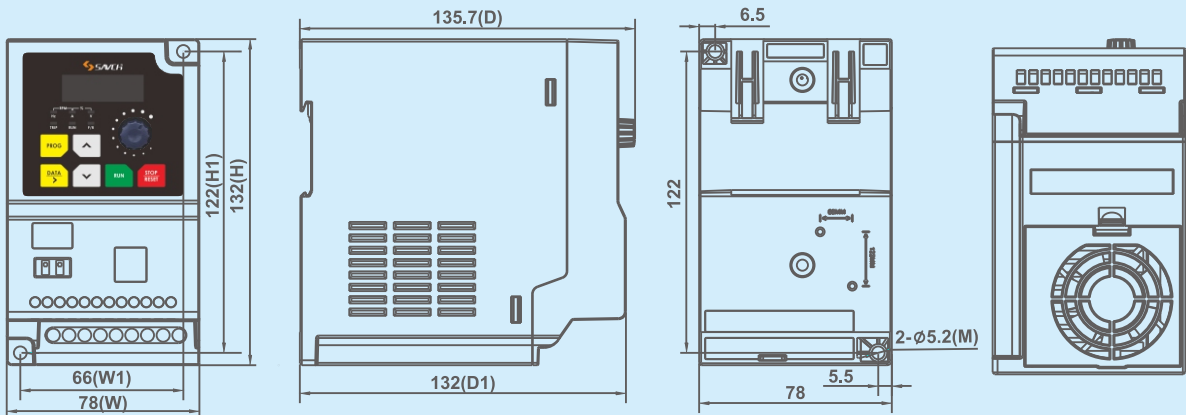
• External Dimensions of inverter (Unit: mm)



Size 1	2T	0.4G~0.75G
	4T	0.75G~1.5G



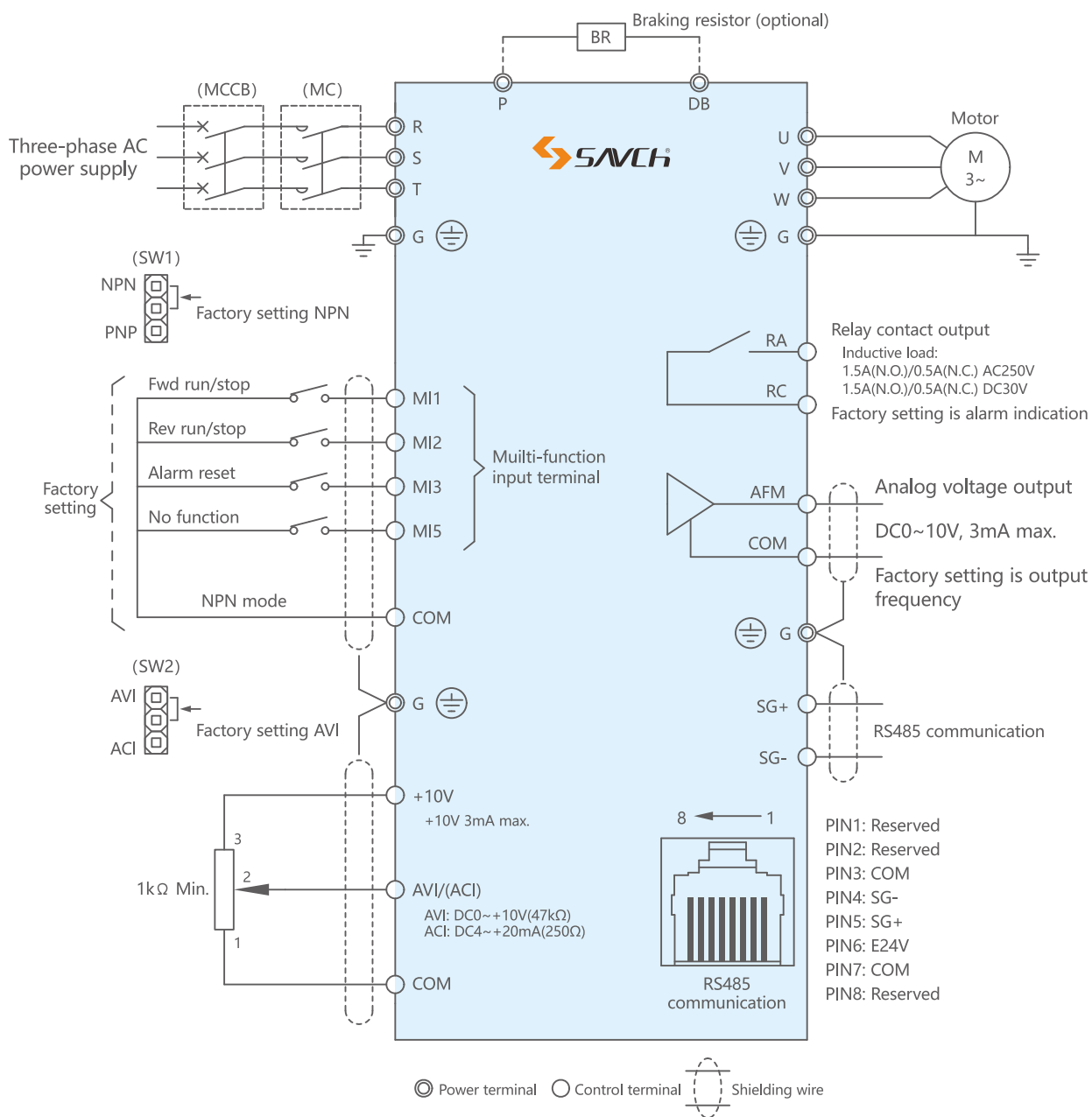
Size 2	2T	1.5G~4.0G
	4T	2.2G~5.5G



Size 3	4T	2.2G
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Basic Wiring Diagram

Wiring of AC motor drive can be divided into two parts, the main circuit and control circuit. Users must connect terminals as diagram shows. The following diagram is the standard wiring diagram of S600/S600E series AC motor driver.



Remarks:

1. Multi-function input terminals MI1~MI3 can switch NPN mode or PNP mode according to SW1, input terminal MI5 NPN mode only.
2. Analog frequency command AVI: It can switch 4~20mA or 0~+10V as input signal according to SW2.
3. When use remote panel, SG+/SG- RS485 serial communication function disabled.

Application

Satisfy the needs of low frequency drive needs, especially the use of middle and small machines .The flexible combination could meet the requirements of matched development and achieve the machinery automation. Many fields could introduce these series.

Industry	Examples	
Logistics equipment	Assembly line, conveying equipment, auto storage & transport equipment.....	
Electronic manufacturing equipment	Winding machine, wave soldering machine, PCB equipment, foam mechanical equipment, small plastic machinery.....	
Machine tools equipment	Engraving machine, centerless grinder, line cutting machine. EDM machine.....	
Textile machinery	Small flat knitting machine, glove machine, winding machine, spreading machine, loom.....	
Others	Stone cutting machine, washing machine, printing equipment, pharmaceutical machinery, food machinery, medical equipment, fitness appliance (treadmill, body shaping machine), screen print machine, fan & water pump (water supply)....	