Shihlin
Factory Automation

AC Drive Family
Superior Performance for all Industries

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SS2 Series

Compact Design
Vector Control AC Drive

Product Range

| Model		KW (HP)	0.4 (0.5)	0.75 (1)	1.5 (2)	2.2 (3)	3.7 (5)	5.5 (7.5)
SS2	SS2021	1-phase 220V						
	SS2023	3-phase 220V						
	SS2043	3-phase 440V						

Main Features

* Built-in shuttle knop to adjust output frequency and set parameters easily
* Built-in RS-485 communication interface
* Support MODBUS and Shihlin communication protocol
* Built-in proportion linkage control function to support multi inverters connection
* Maximum 650Hz frequency output
* Support DIN rail mount
* The resolution of frequency setting: digital 0.01Hz ; analog 1/1000
* The accuracy of output frequency: 0.01%
* Multi-function input/output terminals
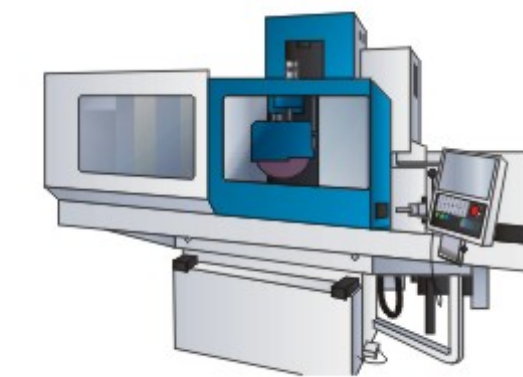* Support 2 analog setting types: 0-10V and 4-20mA

Application
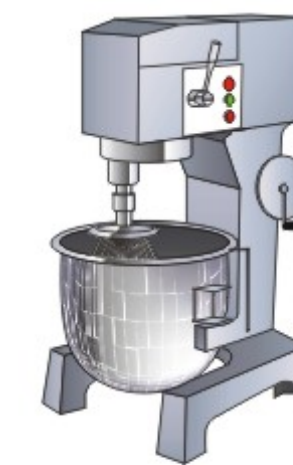
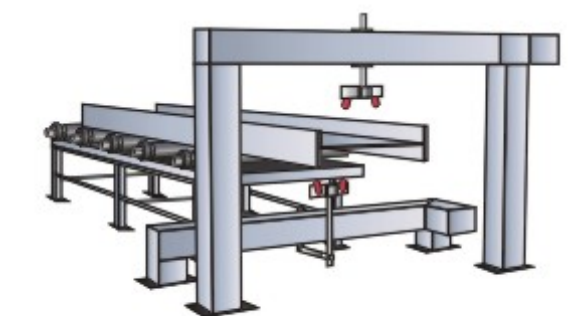Mixer Machine
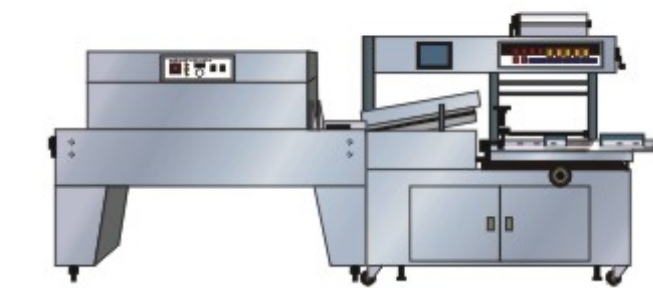
Packing Machine
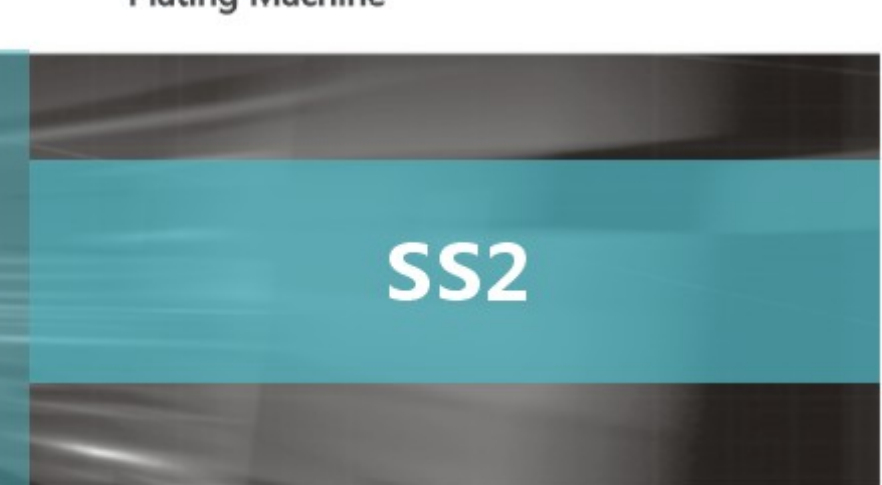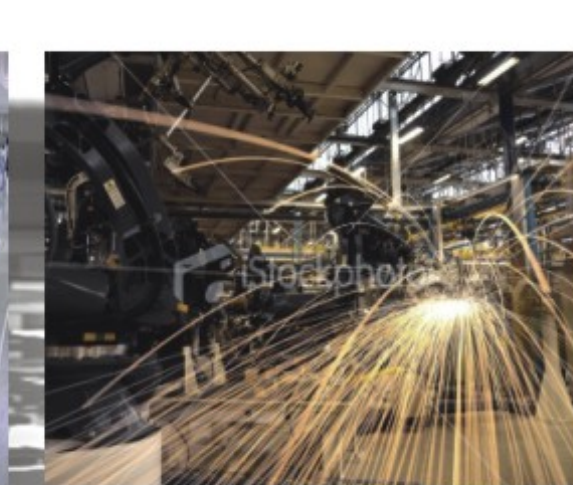

Constant pressure Water supply
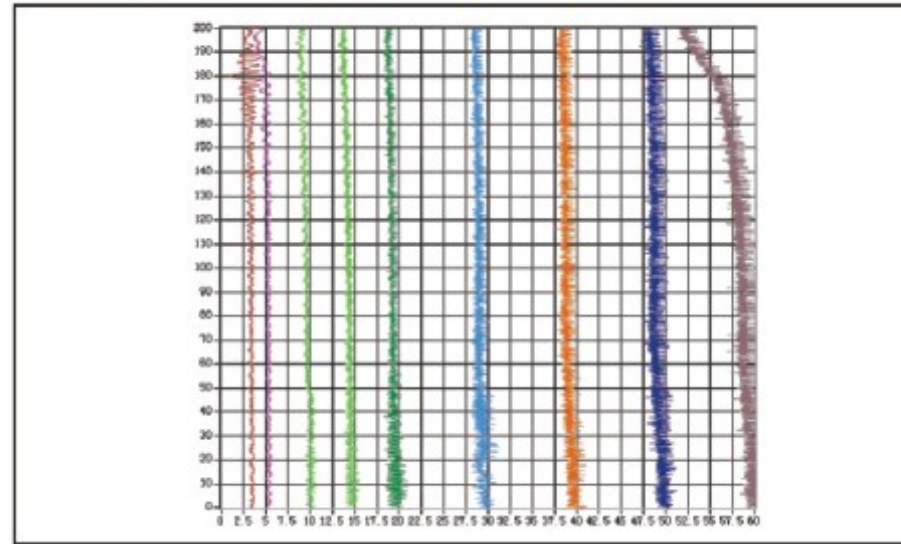

Grinding Machine
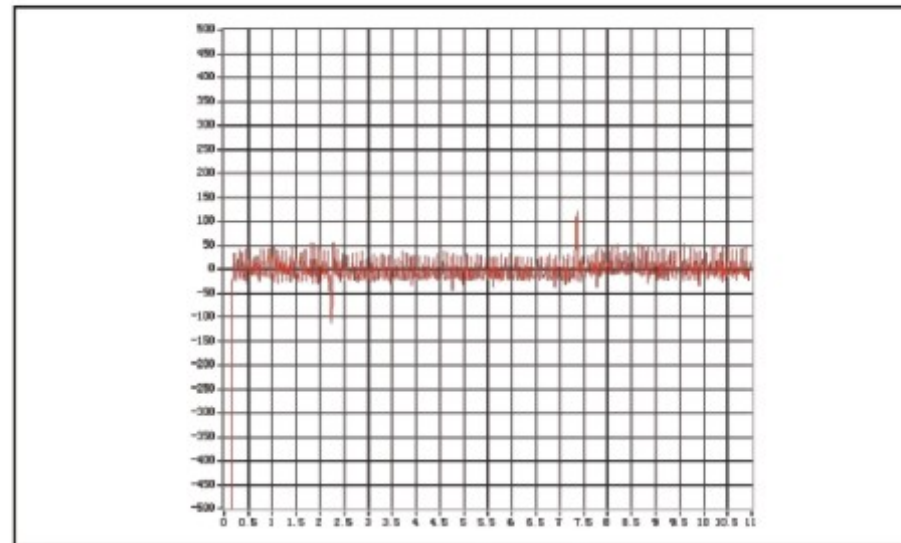

Desktop type lathe

Plating Machine

SS2

Product Features

General flux vector control technique

- General flux vector control technique
- A 32-bit RISC CPU for high-speed computation.
- Starting torque, 150%3Hz

- Speed accuracy is within 1% (0%~100% loading changes)

- Motor parameter auto-tuning function
- Stalling protection level reaches to 250%.

High performance and function

- The maximum output frequency up to 650Hz
- Soft-PWM functions for eliminating motor noises and preventing the temperature of AC drive module too high.
- Built-in energy-saving control function, the AC drive will control the output voltage automatically in order to reduce the output power losses when the AC drive is running.
- Cooling fan operation method is selectable.

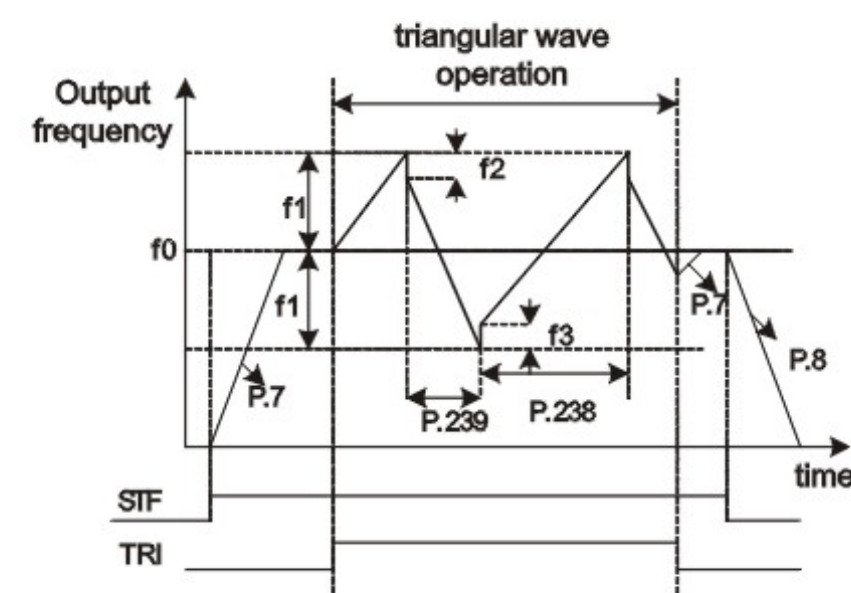### Built-in proportion linkage function
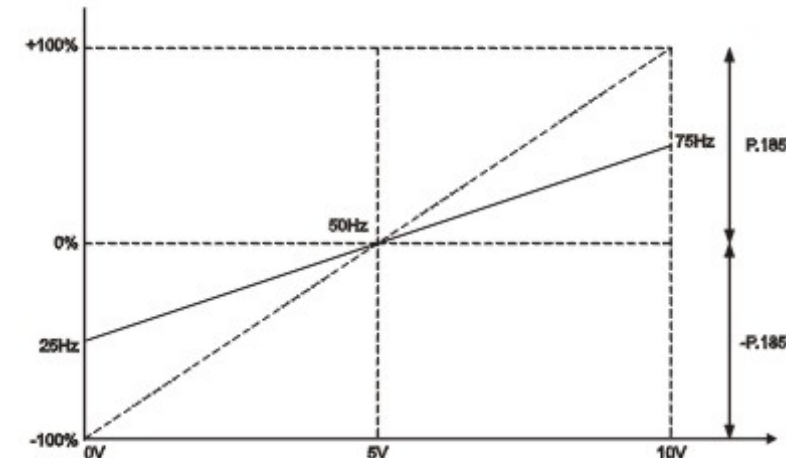
PID feedback control function
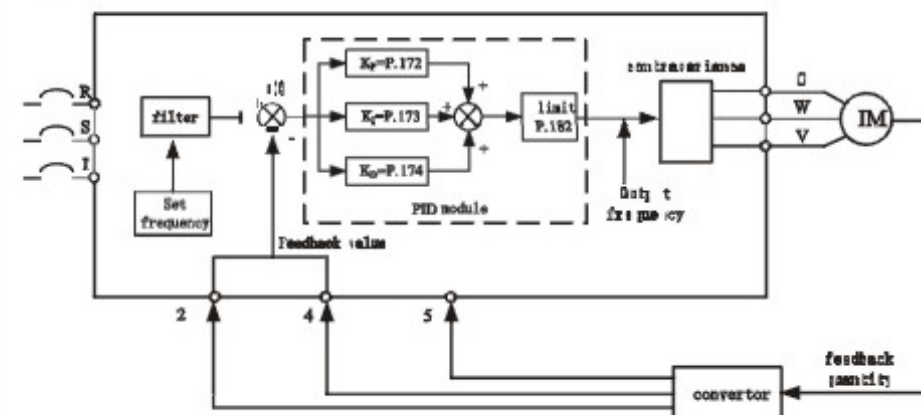
Triangular wave function (traverse)

- This is suitable for operations that need traversing and winding movements such as textile operations.

f0 : Setting value of frequency
f1 : Generated amplitude for setting frequency （f0×P.235）
f2 : Compensation from acceleration to deceleration （f1×P.236）
f3 : Compensation from deceleration to acceleration （f1×P.237）
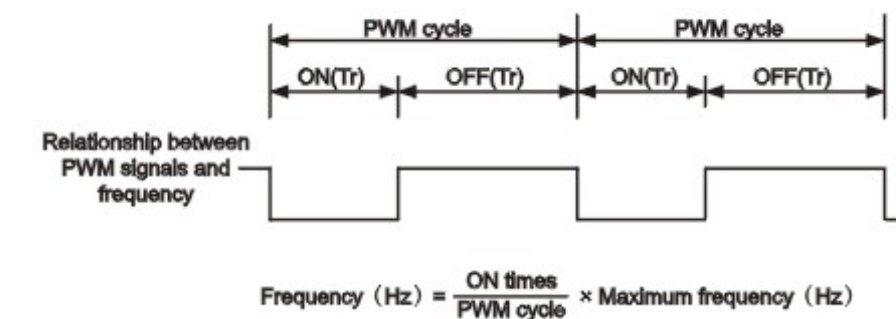
Built-in frequency and parameter setting knob

Product Features

PWM control function

- The operating frequency can be controlled with the PWM signals output from PLC.
- The terminal M2 can be set as PWM signal input.

$$Frequency（Hz）= \frac{ON\ times}{PWM\ cycle} \times Maximum\ frequency（Hz）$$

Hardware protection design

- Output short circuit protection.
- Under circumstances of damaged motor insulation or erroneous wiring, to protect the output
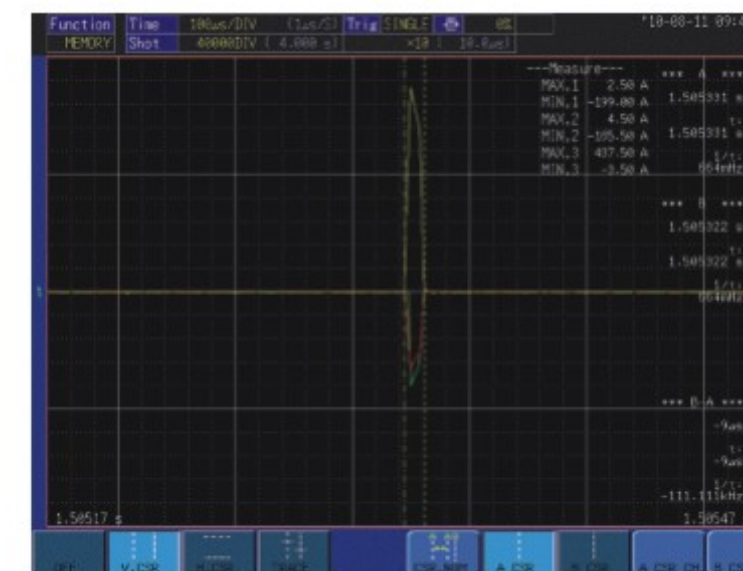
Programmed operation mode with manually operated
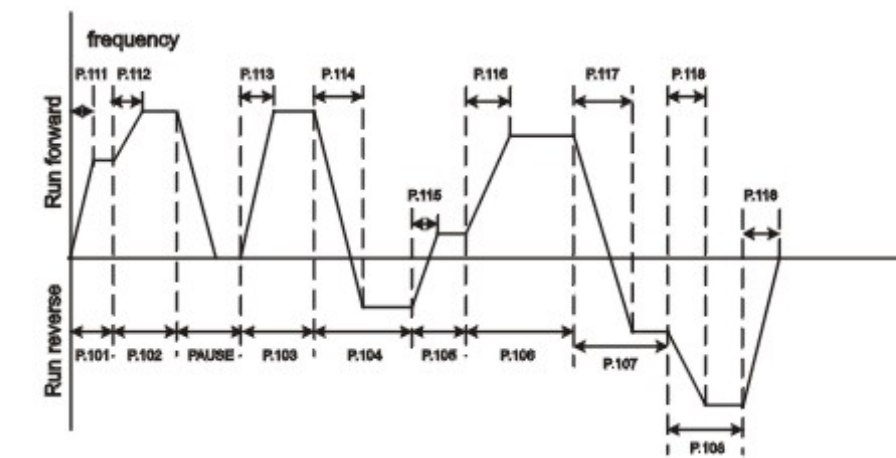
Easy to install design

- Din rail design-Multiple AC drives can be mounted side-by-side in the panel.

- Built-in standard RJ45 port for RS485 communication.
- Screwless terminal blocks designed

- The cooling fan is removable and easy to clean.
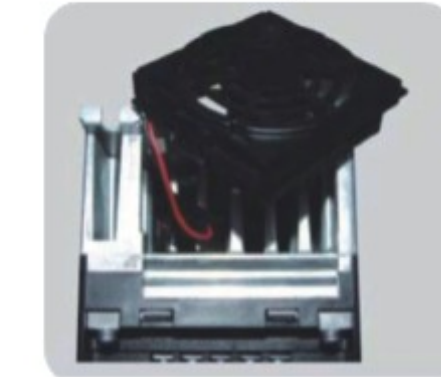
Equipped with grid power frequency switching mechanism

- It provides automatic switch between the grid power and frequency conversion.
- If the motor is running at rated frequency, using grid power frequency has a much better efficiency.
- In order to prevent the motor from stopping for a long time during the maintenance of AC drive, it is recommended AC drive to have grid power switching function.

SS2 Series

Compact Design Vector Control AC Drives
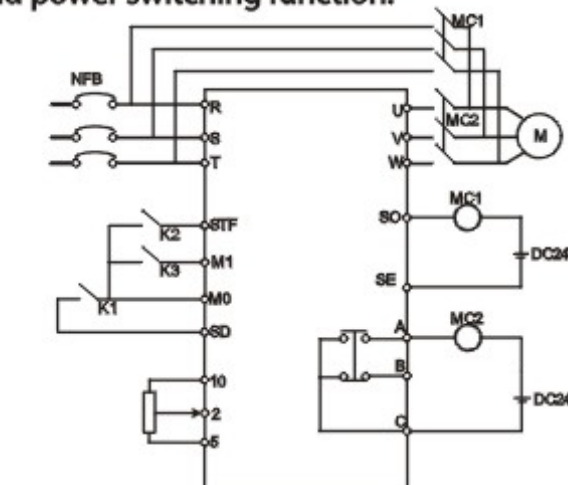
Electric Specifications

220V Series Single-Phase

Model SS2-021-□□□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 (Note)	0.95	1.5	2.5	4.2
	Rated output current A (Note)	2.7	4.5	8	11
	Overload current rating	150% 60 seconds; 200% 1 second (inverse time characteristics)			
	Maximum output voltage	3 Phase 200~240V AC			
Power Supply	Rated power voltage	Single phase 200~240V 50Hz / 60Hz			
	Power voltage permissible fluctuation	Single phase 170~264V 50Hz / 60Hz			
	Power frequency permissible fluctuation	±5%			
	Power source capacity kVA	1.5	2.5	3.5	6.4
Cooling Method		Self-cooling	Forced air cooling		
Weight (kg)		1.1	1.2	1.6	1.7

220V Series Three-Phase

Model SS2-023-□□□K		0.4	0.75	1.5	2.2	3.7
Applicable Motor Capacity	HP	0.5	1	2	3	5
	kW	0.4	0.75	1.5	2.2	3.7
Output	Rated output capacity kVA (Note)	1.2	2	3.2	4.2	6.7
	Rated output current A (Note)	3	5	8	11	17.5
	Overload current rating	150% 60 seconds; 200% 1 second (reverse time characteristics)				
	Maximum output voltage	3 Phase 200~240V AC				
Power Supply	Rated power voltage	3 Phase 200~240V 50Hz / 60Hz				
	Power voltage permissible fluctuation	3 Phase 170~264V 50Hz / 60Hz				
	Power frequency permissible fluctuation	±5%				
	Power source capacity kVA	1.5	2.5	4.5	6.4	10
Cooling Method		Self-cooling	Forced air cooling			
Weight (kg)		1.1	1.2	1.2	1.6	1.7

440V Series Three-Phase

Model SS2-043-□□□K		0.4	0.75	1.5	2.2	3.7	5.5
Applicable Motor Capacity	HP	0.5	1	2	3	5	7.5
	kW	0.4	0.75	1.5	2.2	3.7	5.5
Output	Rated output capacity kVA (Note)	1	2	3	4.6	6.9	9.2
	Rated output current A (Note)	1.5	2.6	4.2	6	9	12
	Overload current rating	150% 60 Seconds; 200% 1 Second					
	(reverse time characteristics)	Three-phase 380~480V					
Power Supply	Rated power voltage	3 Phase 380~480V 50Hz / 60Hz					
	Power voltage permissible fluctuation	323~528V 50Hz / 60Hz					
	Power frequency permissible fluctuation	±5%					
	Power source capacity kVA	1.5	2.5	4.5	6.9	10.4	13.8
Cooling Method		Self-cooling	Self-cooling	Forced air cooling			
Weight (kg)		1.1	1.1	1.2	1.6	1.7	1.7

Common Specifications

Control Method		SVPWM control, V/F control, general flux vector control.
Output Frequency Range		0. 1~650Hz (The starting frequency setting range betwee 0 and 60Hz).
Frequency Resolution	Digital setting	If the frequency value is set below 100Hz, the resolution will be 0.01Hz. If the frequency value is set above 100Hz, the resolution will be 0.1Hz.
	Analog setting	When setting the signal DC 0~5V, the resolution will be 1/500; When setting the signal DC 0~10V or 4~20mA, the resolution will be 1/1000.
Output Frequency Accuracy	Digital setting	Maximum target frequency±0.01%.
	Analog setting	Maximum target frequency±0.5%.
Voltage / Frequency output Characteristics		Base voltage (P.19), base frequency (P.3) can be arbitrarily set. Constant torque model and applicable load model can be selected (P.14).
Start Torque		150% 3Hz, 200% 5Hz: when using the general flux vector control.
Torque Boost		The torque boost setting range between 0 and 30% (P.0), auto boost, slip compensation.
Acceleration / Deceleration Curve Characteristics		The resolution (0.01s/0.1s) of acceleration/deceleration time (P.7, P.8) is switched by P.21. The setting range has 0~360s or 0~3600s for selection. And different acceleration/deceleration curve model can be selected by P.29.
DC Braking		The DC braking action frequency range between 0 and 120Hz (P.10); the DC braking time is 0~60 Seconds (P.11); and the DC braking voltage is 0~30% (P.12). Linear braking and idling braking selection (P.71).
Stalling Protection		The stalling protection level can be set between 0 and 250% (P.22).
Target Frequency Setting		Operation panel setting, DC 0~5V signal setting, DC 0~10V signal setting, DC 4~20mA signal setting, two voltage input or one voltage and one current input can be selected; Multi-speed stage levels setting, communication setting.
PID Control		Please refer to P.170~P.183 in Chapter 5.
Multifunction Control Terminals		Motor starting (STF, STR), the second function (RT), '16-speed operation' (RL, RM, RH, REX), external thermal relay (OH), reset (RES), etc. (can be set by the user (P.80~P.84, P.86))
Multiple Output Terminals	Multi-function output terminals SO, SE P.40	AC drive running (RUN), output frequency detection (FU), Up to frequency (SU), overload detection (OL), zero current detection (OMD), alarm (ALARM), Section detection (PO1), Periodical detection (PO2), and Pause detection (PO3), AC drive output (BP), Commercial power-supply output (GP).
	Multi-function output relay A, B, C P.85	
	Analog output AM, 5	Multi-function DC (0~10V) Output: output frequency, output current (P.54).
Operation Panel	Running status monitoring	Output frequency monitoring, output current monitoring, and output voltage monitoring.
	HELP mode	Alarm history monitoring.
	LED indication lamp(6)	Run indication lamp, frequency monitoring indication lamp, voltage monitoring indication lamp, current monitoring indication lamp, mode switching indication lamp, and PU control indication lamp.
Communication Function	RS485	Internal RS485 communication, RJ-45 connector.
Protection Mechanism / Alarm function		Output short circuit protection,Over-current protection, (+/P)-(-/N)over-voltage protection, under-voltage protection, motor over heat protection (P.9), IGBT module over-heat protection, braking transistor abnormality protection, communication abnormality protection, etc.
Environmental Condition	Ambient temperature	-10 ~ +50℃ (non-freezing), installation side by side -10~ +40℃.
	Ambient humidity	Below 90%Rh (non-condensing)
	Storage temperature	-20 ~ +65℃
	Operating environment	Indoor, no corrosive gas, no flammable gas, no flammable dust
	Altitude and vibration	Maximum operating altitude is 2000 Meters. If AC drive is installed at altitude 1000~2000m, decrease 2% of rated current for every 100m increase in altitude.
	Grade of protection	IP20
	The degree of environmental pollution	2
	Class of protection	Class I
Certification		CE C

SS2 Series

Compact Design
**Vector Control AC Drives**

SS2

Wiring Diagram

NOTE

1. For the usage of the external thermal relay, please refer to P.80~P.84, P.86 in Chapter 5.
2. Make sure not to short circuit the PC and SD.
3. In the above figure, Dotted line metal, please refer 3.5.7
4. The SO terminal can select to FM or 10X function, please refer to P.64, P.74.
5. For single-phase series inverters, there is no T/L3 terminal, and the corresponding wiring(dotted line) doesn't need to be connected.
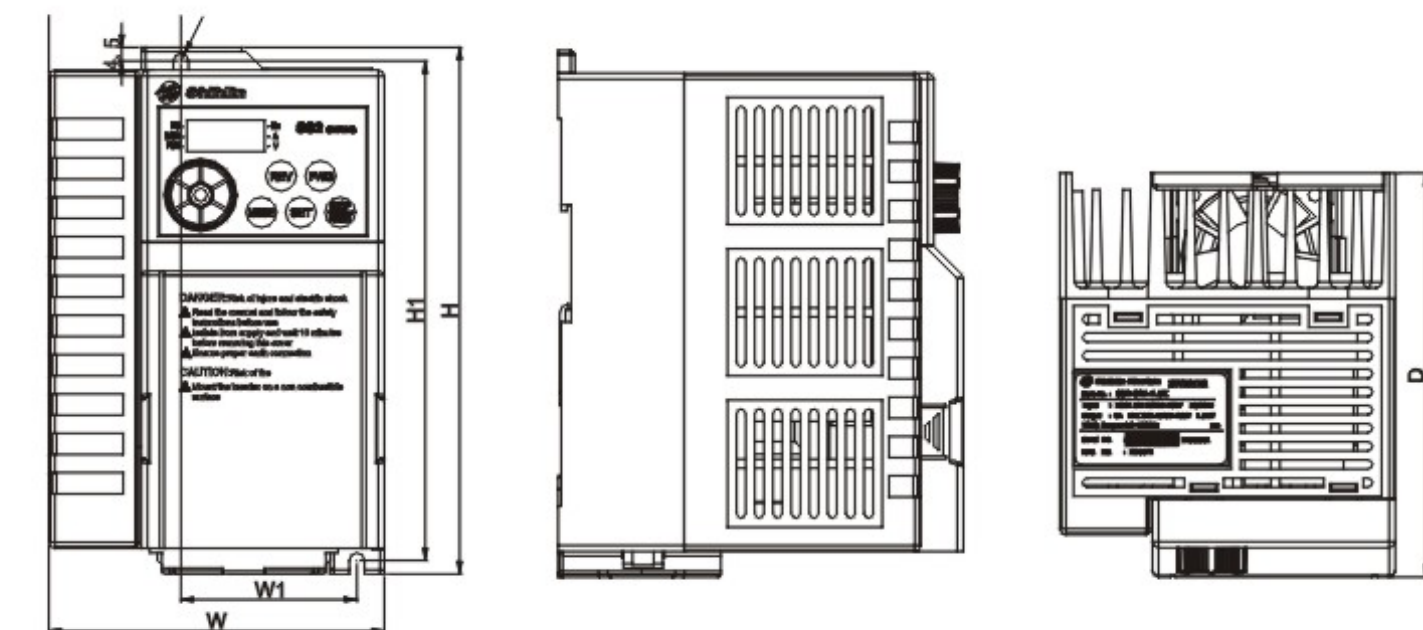
Dimensions

Frame A
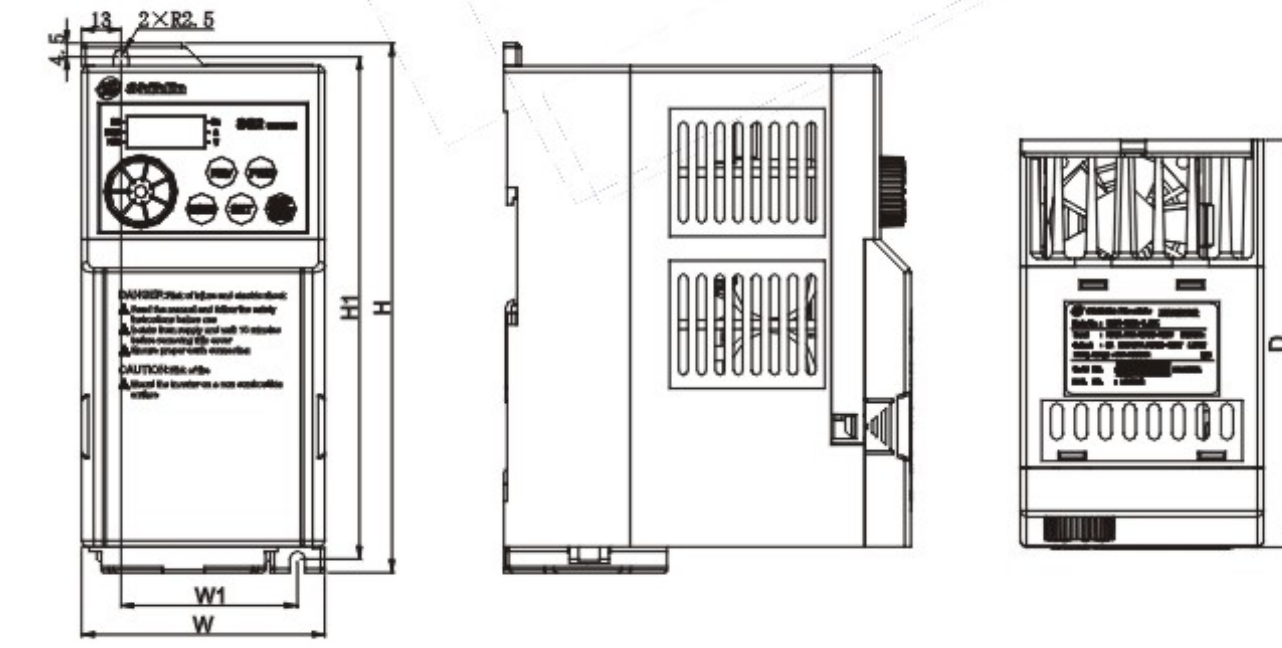
Model	H(mm)	H1(mm)	W(mm)	W1(mm)	D(mm)
SS2-021-0.4K					
SS2-021-0.75K					
SS2-023-0.4K					
SS2-023-0.75K					
SS2-023-1.5K	174	165	80	58	134
SS2-043-0.4K					
SS2-043-0.75K					
SS2-043-1.5K					

Frame B

Model	H(mm)	H1(mm)	W(mm)	W1(mm)	D(mm)
SS2-021-1.5K					
SS2-021-2.2K					
SS2-023-2.2K					
SS2-023-3.7K	174	165	110.5	58	134
SS2-043-2.2K					
SS2-043-3.7K					
SS2-043-5.5K					

Factory Automation

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SA3 Series

PD301
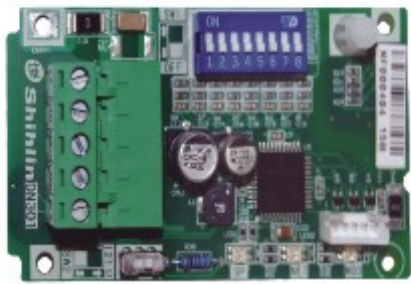PROFIBUS communication expansion board
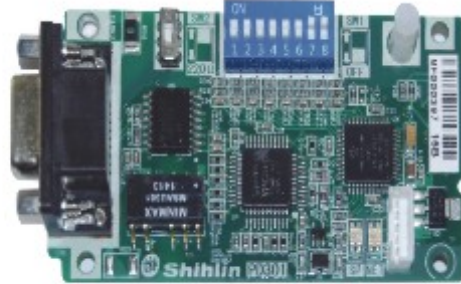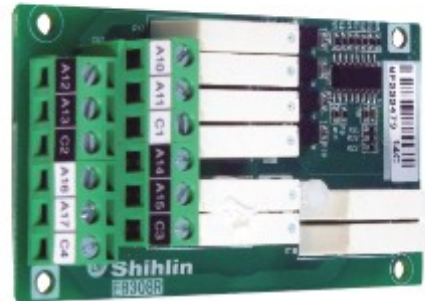
EB362R
I/O expansion board

PG302L
Speed feedback board (supports Resolver signal)

DN301
DeviceNet communication expansion board

EB308R
I/O expansion board

PU301C
PU301C LCD Controller

CP301
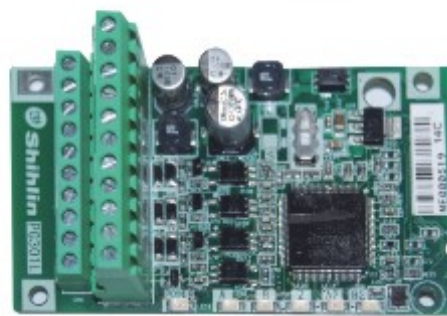CANopen communication expansion board

EP301
Ethernet communication expansion board

PG301C
Speed feedback board (supports open collector type output)

PG301L
Speed feedback board (supports differential type output)
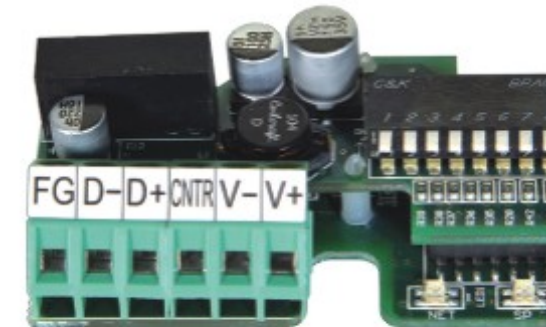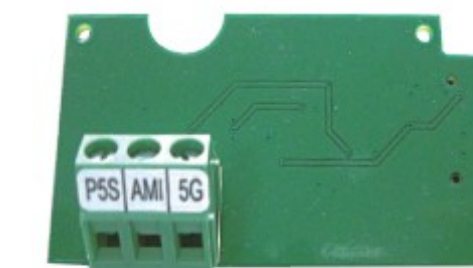
SS2 Series

DU06 operation panel

DU08

SE2 Series

SE2-PD01
Profibus communication board

SE-IB01
4-20mA current expansion board

SE-EB01
I/O expansion board

SE2-DN01
Device-Net communication board

DU03B
external operation panel

DU03C-S
external operation panel

DU07
external operation panel