

# Generation II Driver Notifications

## Notifications v1.2

Dear users, please go through the instructions in detail before the installation. Also, please hand the manual to the actual operator of the machine and preserve it properly.

Drivers are precision electronic devices. For the safety of both operators and the machine, please ensure all installations, tests and adjustments are operated by professional personnel. For the description with "DANGER", "WARNING" and "CAUTION" in the manual, please read them in detail. If there are any concerns, please contact our branches in your region. Our professionals are glad to be at your service. The following are the guidelines you should comply with before finishing reading the complete manual:

- The installing environment should be indoor and without water vapor, corrosive or flammable gas.
- Implement the wirings according to the wiring diagram.
- The grounding must be strictly implemented and follow the current National Electrical Code. (References: NFPA 70: National Electrical Code, 2005 Ed.)
- Do not modify the wirings while the device is powered up.

### 1. Safety Precautions

Please pay extra attention to the instructions below while operating the product.	
	<ul style="list-style-type: none"> <li>■ Install the driver according to the instructions in the manual or it might cause damage to the equipment.</li> <li>■ Do not operate the product in places exposed to water vapor, corrosive or flammable gases. It might cause damage to the device, electric shocks, fire or explosion.</li> <li>■ Do not install the product at a temperature exceeding the specified range. It might cause device damage or malfunctioning.</li> <li>■ The driver series are designed to control the motors. Do not touch the internal circuits or parts while the driver is powered up.</li> <li>■ The internal circuit board of the driver contains CMOS ICs, which are vulnerable to static electricity. Do not touch the circuit board with your hands before taking any precautions.</li> <li>■ The product has been certified by EN 61800-5-1/EN 61800-3. It is for use in industrial environments.</li> <li>■ Do not apply the product to machines that might lead to casualties, device damage or system shut down.</li> </ul>
	<ul style="list-style-type: none"> <li>■ Please cut off all the external device loads when powering up the driver for the first time in case the built-in testing program starts running the motor immediately after power input. It may be dangerous for the operators around.</li> <li>■ The driver is a precision instrument. Please prevent non-maintenance staff or non-professional electronic control personnel from disassembling the device.</li> <li>■ Please apply the correct ground loop to prevent signal errors.</li> <li>■ Please separate the communication cable of the driver from all the other motor and power cables with individual wiring ducks to prevent the controller from malfunction caused by large noise interference.</li> </ul>

	<ul style="list-style-type: none"> <li>■ The driver adopts microcomputer design. Please install the driver in a safe area and keep the area clean. Please keep iron shavings, wires, water, corrosive gas and liquid from the driver to avoid malfunctioning.</li> <li>■ Please reserve at least 50mm in width for ventilation and heat dissipation.</li> <li>■ The grounding of the driver and machine tool system is necessary for leakage protection and prevention of lightning strikes. Please ensure the driver and the machine tool system are grounded properly before installing.</li> <li>■ The power system of the driver should meet the rated voltage. If the operating environment provides an unstable voltage source, please apply a voltage stabilizer so that the driver can function properly.</li> <li>■ Please turn off the power before plugging/unplugging the cables or modifying the wirings to prevent electric shocks or damage to the driver.</li> <li>■ Please make sure all the terminals are in the correct positions while wiring to prevent the driver from damage caused by wiring mistakes.</li> <li>■ Do not touch the terminals within 10 minutes after cutting off the power in case that the residual voltage might cause electric shocks.</li> <li>■ Unload the driver after the driver is powered off after 30 minutes.</li> <li>■ To ensure communication quality, the length of USB extension cords in use shall not exceed five meters. Besides, do not charge or supply power via the USB port; otherwise, it may cause controller malfunction.</li> </ul>
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### 2. Installation Notifications:

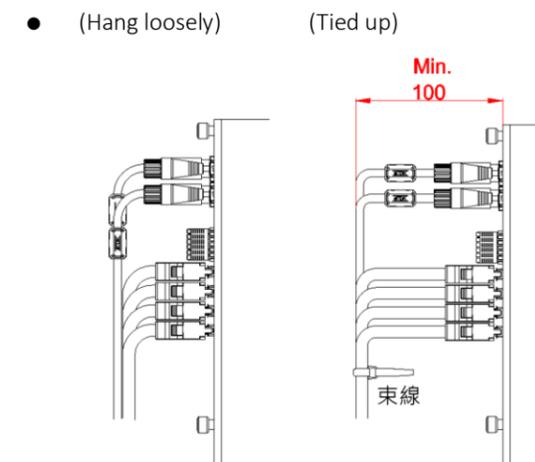
- The leakage current of an all-in-one driver is usually over 3.5 mA. In accordance with EN 61800-5-1, fixed installation is required.
- The direction of the installation must be in accordance with the regulations, otherwise it will cause servo failures.
- When installing the driver, the air intake and vent holes should not be sealed, and the driver should not be tipped; otherwise it will cause malfunctions.
- Do not install the driver near flammable materials.
- Ensure every mounting hole is locked up when fixing the driver.
- Ensure the installation surface can support the weight of the driver.

### 3. Wiring and Other Notifications

- When using a solenoid valve or other inductive loads, please apply an arc extinguisher or an RC voltage dependent resistor to ensure the life of the contact points. Advantages of the arc extinguisher:
  - 1) Extend the life of electrical contacts.
  - 2) Reduce the sparks from the contact points.
  - 3) Prevent the inductive loads from interferences caused by back EMF.
  - 4) Restrain the impulse voltage.
- Do not connect other cables to extend the original length. It might cause signal errors or malfunction.
- Please crimp or weld the wire connections while doing the wirings.
- If the servo line in use is not a standard Syntec cable, please verify all the terminals are connected properly before power-on. Wrong wirings will lead to controller output command errors and malfunction.
- The +5V output capacity of the encoder is 500mA and is only for a single encoder. Do

not connect it with other loads or it might cause error due to the lack of driving force.

- Do not use counterfeit terminal strips. Those terminal strips cannot provide overall protection for the system. The quality is also not guaranteed and tend to cause electrical control problems of the machine tools
- Do not stake on top.
- The six power lines, R, S, T and U, V, W, should not be close to other signal lines, and should be at least 30 cm apart.
- After cutting off the power, the capacitor of the driver still contains large amount of charge. Do not touch the 6 power lines, R, S, T and U, V, W, until the power indicator goes out.
- If the encoder line should be longer, please use twisted-pair and signal cable with isolated ground. Do not extend it over 20 meters. In case of extensions over 20 meters, please double the wire diameter of signal cables to reduce signal attenuation.
- The driver is fragile. Please handle it with care.
- Do not allow conductive foreign matter such as screws or metal chips, or combustible foreign matter such as oil enter the driver.
- Applicable motor types : Please refer to the catalogue.
- It is suggested that M3 communication and encoder cables be hung loosely (Left Figure). If bundling is needed (Right Figure), please leave at least 100mm between the M3 wire connector and the bend to avoid poor contact of the connector.



- Please follow the wire diameter regulations. The suggested choice of wire diameter varies with the motor wattage. Please refer to the table below :

Type	Wattage	Wire Diameter
Axial	100W~850W	20AWG
	850W~7.5kW	16AWG
Spindle	Below 7.5kW	12AWG
	Above 11kW	10AWG

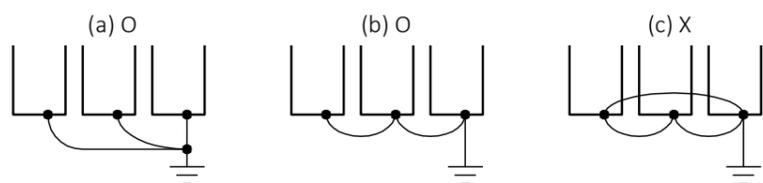
- Please connect the ground wire to class-3 (under 100Ω). Poor grounding might cause signal error, electric shock, or fire.
- The grounding of the motor must be connected to one of the grounding terminals of the frequency converter.
- In accordance with EN 61800-5-1 (Section 4.3.5.5.2), since the normal contact current

of the frequency converter is higher than 3.5 mA AC or 10 mA DC, a fixed protective earthing connection must be used. In addition:

- 1) The cross-sectional area of the protective earthing wire should be copper wires of at least 10mm<sup>2</sup> or aluminum wires of at least 16mm<sup>2</sup>.
- 2) Automatically cut off the power when the protective earthing conductor is interrupted.
- 3) Replace the original protective earthing conductor with a spare one that has the same cross-sectional area.

● Grounding Directions:

- 1) The length of grounding wires should comply with the electrical equipment regulations; the shorter the better.
- 2) The grounding wire of the driver should be grounded separately with high-current loads such as electric welders or high frequency motors.
- 3) Please refer to the picture below when the controller is grounded with multiple electrical control devices. Do not make it a loop.



● Waste Disposal Advice



- 1) When a product comes to the end of its life, please recycle it in accordance with the local regulations and treat it as industrial waste.
- 2) To recycle a product, we usually sort the components into steel shavings, electrical parts, etc.; then we sell them to licensed industrial waste management companies.
- 3) The batteries of the products should be recycled in accordance with the local law.

# Driver Specifications

Model		S08-SVD22B1-010	S08-SVD22B1-030	S08-SPD22B1-110	S08-SVD32B1-020	S08-SPD32D1-050	S08-SPD32B1-075	S08-SPD32B1-110	S08-SPD32B1-185
Input Voltage		MAIN:AC 3PH 200~230V 50/60Hz CONT.:AC 1PH 200~230V 50/60Hz			MAIN:AC 3PH 380~440V 50/60Hz CONT.:AC 1PH 380~440V 50/60Hz				
Input Current		MAIN : 8A CONT. : 0.25A	MAIN : 22A CONT. : 0.25A	MAIN : 71A CONT. : 0.25A	MAIN : 9A CONT. : 0.15A	MAIN : 22A CONT. : 0.15A	MAIN : 31A CONT. : 0.15A	MAIN : 48A CONT. : 0.15A	MAIN : 81A CONT. : 0.15A
Output Voltage		AC 3PH 0~230V 0~400Hz			AC 3PH 0~440V 0~400Hz				
Rated Output Current		7.6A	17.6A	42A	8.4A	15A	21A	27A	42A
Rated Power		1kW	3kW	11KW	2kW	5KW	7.5KW	11KW	18.5KW
Terminal Specifications	RST、PBN、UVW	Wire Specification : 30~10 AWG ; Operating Temperature : -40°C~+115°C ; Rated Torque : 0.69N·m							
	I/O、STO Communication Port	Wire Specification : 28~16 AWG ; Operating Temperature : -40°C~+115°C							
Power Supply		TN System <sup>(1)</sup> Allowed Voltage Deviation : -15% ~ +10% Allowed Frequency Deviation : -5% ~ +5%							
Environment Conditions	Temperature	Operating Temperature : 0°C ~ 55°C(Not frozen. If the ambient temperature exceeds 45°C, the air circulation system must be activated.) Storing/ Transporting Temperature : -20~65°C (Not frozen)							
	Humidity	Operating Humidity : Below 90%RH (Not Condensed), Storing/ Transporting Humidity : Below 90%RH (Not Condensed)							
	Surrounding Area	Indoor (Avoid direct sunlight), Avoid Corrosive Gas, Avoid Inflammable Gas							
	Height	Operating/ Storage Altitude (Max.) : 1,000 meters Transporting Altitude (Max.) : 10,000 meters							
	Vibration	5.9 m/s <sup>2</sup>							
Pollution Degree		2							
IP Level		IP20							
Frame Size W × H × D mm		70 × 160 × 180	100 × 180 × 180	170 × 310 × 200	100 × 180 × 180	140 × 220 × 185		170 × 310 × 170	170 × 310 × 200
Weight		2Kg	2.5Kg	7Kg	2.5Kg	4.3Kg	4.2Kg	7KG	

NOTE :

(1) TN System : The neutral point of the power system is grounded directly to earth, and the other exposed metal components are grounded by protective earthing conductors.