

SE3 Series

High Performance Vector Control AC Drive



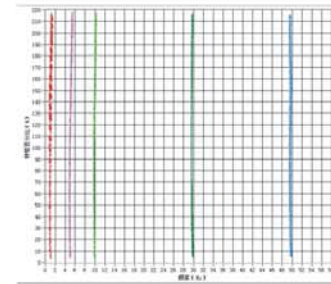
Product Range

Model	KW (HP)	0.4 (0.5)	0.75 (1)	1.5 (2)	2.2 (3)	3.7 (5)	5.5 (7.5)	7.5 (10)	11 (15)	15 (20)	18.5 (25)	22 (30)	
SE3	021	1-Phase 220V											
	023	3-Phase 220V											
	043	3-Phase 440V											

Product Features

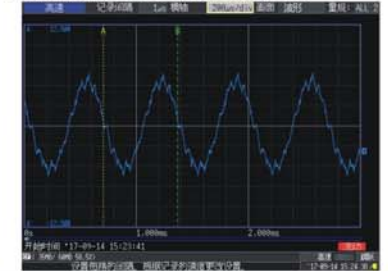
High Performance Vector Control Technology

- High starting torque: Sensorless vector control (SVC) 200% 0.5Hz, and closed-loop vector control (FOC + PG) 180% 0Hz.



High output frequency 0~1500Hz

- Support high speed spindle function, which can be applied to complicated and precise machining process. The application includes high-speed drilling machine, engraving machine, centrifuge equipment.



High Performance Synchronous Motor Control Technology

- Supports induction motor (IM) and synchronous motor (IPM and SPM) control.



Support multiple high-speed bus connections

- Equipped with high-speed communications: CANopen, Profibus, DeviceNet, EtherCAT, MODBUS TCP;



Product Features

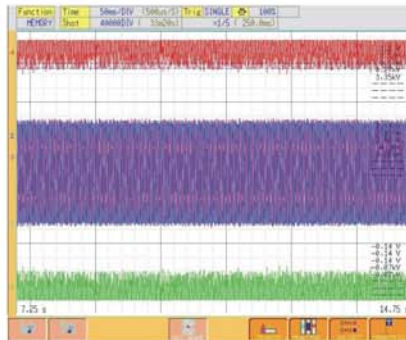
Supports Multiple Control Modes for Different Applications

Built in position control, speed control, and tension control functions. Through IO switching, multiple control functions can be applied to speed, torque, and position controls. Position control function supports home position return mode, zero servo control, and Pr/Pt modes. (Selective options: PG301C, PG301L, PG302L)A



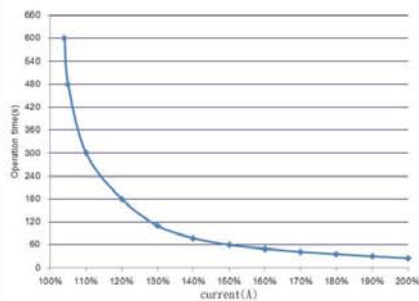
Low-noise Carrier Wave Control (Soft-PWM)

Motor noise is controlled so that the metallic sound is transformed into a more pleasing buzz. Low noise operations to reduce the interference exerted upon external radio frequencies



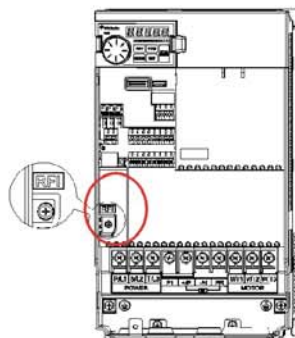
High Overload Capacity

Significantly improved overload capacity to 150% for 60 seconds and 200% for 3 seconds, making it suitable for tooling machinery applications that requires the ability to handle sudden load changes.



RFI filter has been built in all the products

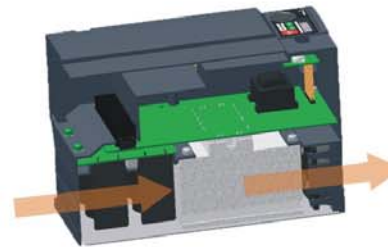
Built in RFI filter in SE3 series, which reduces electromagnetic interference effectively.



Product Features

Isolated Air Channel

Fan wind channels are sealed and isolated from the heat dissipation system and electrical parts. Dust will not be able to infiltrate the interior of the machine through the fans.



LED Operation Interface

- 5 Digit LED display
- 7 Digit LED display light
- Subsided shuttle knob
- Easy for operation



12 Sets of Alarm Records

Complete alarm system for recording the output frequency, output current, output voltage, accumulated count of temperature increase, PN voltage, total AC drive operation time, AC drive operational status, alarm output time. A total of 12 alarm code, 12 groups of alarm code.

Parameter	Name	Factory Value	Setting Range	Content
P.288	06-40	Alarm code query	0~12	0 176
P.289	06-41	Alarm code display	Read	Read 176
P.290	06-42	Alarm code query	0~10	0 176
P.291	06-43	Alarm code display	Read	Read 176

Protection System Improvement

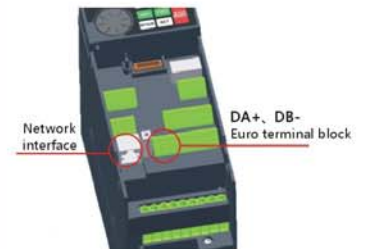
Output phase failure protection, Over-current protection, over-voltage protection, under-voltage protection, motor over-heat protection, IGBT module over-heat protection, communication abnormality protection.

Parameter	Name	Factory Value	Setting Range	Content
06-18 P.280	Short circuit detection when starting	0	0	No Short circuit detection when starting when starting
			1	Short circuit detection when starting
06-19 P.282	Short circuit detection when in the operation	50.0%	0~100.0%	---

(Above : Short circuit protection , Control the startor end of the short circuit detection and set the detection level.)

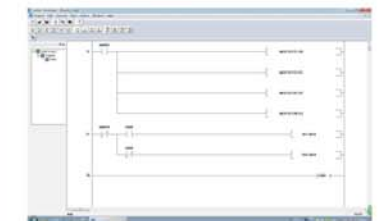
Easy for communication wiring

Standard RJ45 network and DA+ , DB EU terminals are equipped, which allows communication wiring by multiple devices.



Built-in PLC Functions

Provides PLC programming software, easy for editing. Applicable for programming small number of points, and support multiple functions.



Product Features

Parameter grouping, easy for debug

- Parameter grouping, easy for debug

Parameter Group	Parameter NO.	Parameter Name	Setting Range	Factory	User setting
02-10	P.60	2-5filter time	0~2000ms	30ms	
02-11	P.139	The bias rate og 2-5 voltage signal	0~100.0%	0	
02-12	P.192	The minimum input positive voltage of 2-5	0~10.00V	0	
02-13	P.193	The maximum input positive voltage of 2-5	0~10.00V	10.00V	
02-14	P.194	The percentage corresponding to the The minimum input positive voltage of terminal 2-5	-100.0%~100.0%	0%	
02-15	P.195	The percentage corresponding to the The maximum input positive voltage of terminal 2-5	-100.0%~100.0%	100.0%	

Previous design: It is inconvenient for set up while parameters are not in order.
SE3 model: After grouping relative functions, it is easier for set up.

Easy to disassemble the fan

The fan design of AC drive is on the top of SE3 which can reduce dusts effectively.
The screwless winging will not affect daily maintenance of the fan.



Applicable Industries



Air Compressor



Injection molding machine



Toolroom machine



Engraving Machine



PCB High speed drilling Machine



Centrifugal Machine

Electrical Specifications

220V series one-phase/three-phase

Frame		A		B		
ModelSE3-021- [] - xy		0.4K	0.75K	1.5K	2.2K	
Output	HD	Rated output capacity (kVA)	1	1.5	3.2	4.2
		Rated outputcurrent (A)	2.7	4.5	8	11
		Applicable motor capacity (HP)	0.5	1	2	3
		Applicable motor capacity (kW)	0.4	0.75	1.5	2.2
		Overload current rating	150% 60 seconds 200% 3seconds (inverse time characteristics)			
	ND	Carrier frequency (Hz)	1~15KHz			
		Rated outputcapacity (kVA)	1.2	2	3.4	4.8
		Rated outputcurrent (A)	3	5	8.5	12.5
		Applicable motor capacity (HP)	0.5	1	2	3
		Applicable motor capacity (kW)	0.4	0.75	1.5	2.2
Overload current rating		120% 60seconds (inverse time characteristics)				
Carrier frequency (Hz)		1~15KHz				
Maximum output voltage		Three-phase 200-240V				
Power supply	Rated power voltage	One-phase 200-240V 50Hz / 60Hz				
	Power voltage permissible fluctuation	One-phase 170-264V 50Hz / 60Hz				
	Power frequency permissible fluctuation	±5%				
	Power source capacity (kVA)	1.5	2.5	4.5	6.9	
Cooling method		Self cooling		Forced air cooling		
Inverter weight (kg)		1.0	1.0	1.5	1.5	

Frame		A	B	C	D							
ModelSE3-023- [] - xy		0.4K	0.75K	1.5K	2.2K	3.7 K	5.5 K	7.5K	11K	15K		
Output	HD	Rated output capacity (kVA)	1.2	2	3.2	4.2	6.7	9.5	12.5	18.3	24.7	
		Rated outputcurrent (A)	3	5	8	11	17.5	25	33	49	65	
		Applicable motor capacity (HP)	0.5	1	2	3	5	7.5	10	15	20	
		Applicable motor capacity (kW)	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	
		Overload current rating	150% 60 seconds 200% 3seconds (inverse time characteristics)									
	ND	Carrier frequency (Hz)	1~15KHz									
		Rated outputcapacity (kVA)	1.3	2.1	3.4	4.8	7.4	10.3	13.7	19.4	26.3	
		Rated outputcurrent (A)	3.2	5.5	8.5	12.5	19.5	27	36	51	69	
		Applicable motor capacity (HP)	0.5	1	2	3	5	7.5	10	15	20	
		Applicable motor capacity (kW)	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	
Overload current rating		120% 60seconds 150% 3seconds (inverse time characteristics)										
Carrier frequency (Hz)		1~15KHz										
Maximum output voltage		Three-phase 200-240V										
Power supply	Rated power voltage	Three-phase 200-240V 50Hz / 60Hz										
	Power voltage permissible fluctuation	Three-phase 170-264V 50Hz / 60Hz										
	Power frequency permissible fluctuation	±5%										
	Power source capacity (kVA)	1.5	2.5	4.5	6.4	10	12	17	20	28		
Cooling method		Forced air cooling										
Inverter weight (kg)		1.0	1.0	1.0	1.5	1.5	4.0	4.1	5.7	5.8		

Note: The test conditions of rated output current, rated output capacity and frequency converter inverter power consumption are: the carrier frequency (P.72) is at the set value; the frequency converter/inverter output voltage is at 220V; the output frequency is at 60Hz; and the ambient temperature is 40°C.

Electrical Specifications

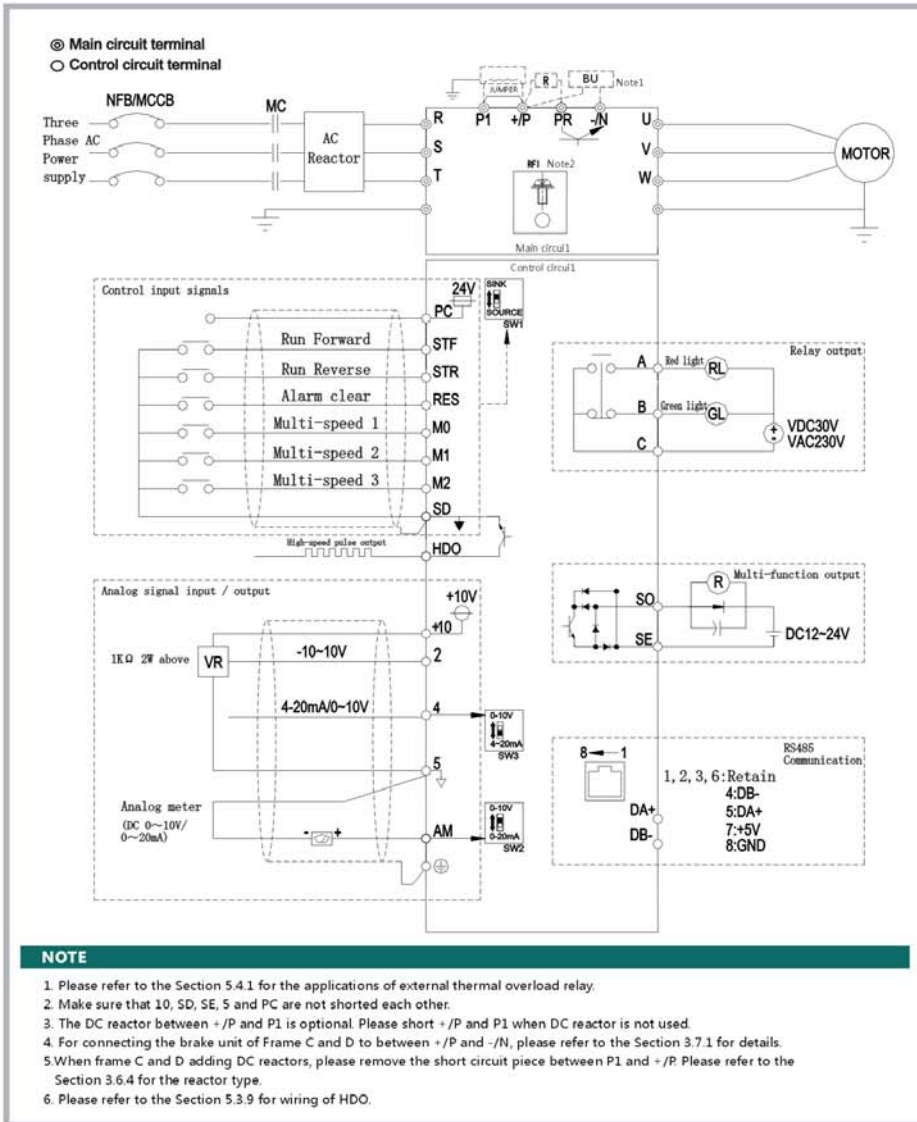
440V series three-phase													
Frame		A			B		C			D			
Model SE3-043- [] - xy		0.4K	0.75K	1.5K	2.2K	3.7K	5.5K	7.5K	11K	15K	18.5K	22K	
Output	HD	Rated output capacity (kVA)	1	2	3	4.6	6.9	10	14	18	25	29	34
		Rated output current (A)	1.5	2.7	4.2	6	9	12	17	24	32	38	45
		Applicable motor capacity (HP)	0.5	1	2	3	5	7.5	10	15	20	25	30
		Applicable motor capacity (kW)	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22
		Overload current rating	150% 60 seconds 200% 3seconds (inverse time characteristics)										
	ND	Carrier frequency (kHz)	1~15kHz										
		Rated output capacity (kVA)	1.4	2.3	3.5	5	8	12	15.6	21.3	27.4	31.6	37.3
		Rated output current (A)	1.8	3	4.6	6.5	10.5	15.7	20.5	28	36	41.5	49
		Applicable motor capacity (HP)	0.5	1	2	3	5	7.5	10	15	20	25	30
		Applicable motor capacity (kW)	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22
Power supply	Overload current rating	120% 60seconds (inverse time characteristics)											
	Carrier frequency (kHz)	1~15kHz											
	Maximum output voltage	Three-phase 380-480V											
	Rated power voltage	Three-phase 380-480V 50Hz / 60Hz											
	Power voltage permissible fluctuation	Three-phase 323-528V 50Hz / 60Hz											
	Power frequency permissible fluctuation	±5%											
Cooling method	Power source capacity (kVA)	1.5	2.5	4.5	6.9	10.4	11.5	16	20	27	32	41	
	Inverter weight (kg)	1.0	1.0	1.0	1.5	1.5	3.9	4.0	4.0	5.7	5.8	5.8	

Note: The test conditions of rated output current, rated output capacity and frequency converter inverter power consumption are: the carrier frequency (P.72) is at the set value; the frequency converter/inverter output voltage is at 440V; the output frequency is at 60Hz, and the ambient temperature is 40°C.

Common Specifications

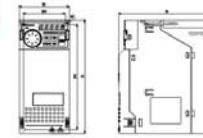
Control method	SVPWM control, V/F control, close-loop V/F control (VF+PG), general flux vector control, sensorless vector control (SVC), close-loop vector control (FOC+PG), torque control (TQC+PG)	
Output frequency range	0-1500.00Hz	
Frequency setting resolution	Digital setting	The resolution is 0.01Hz.
	Analog setting	0.01Hz/60Hz (terminal 2 -10 ~ +10V / 13bit) 0.15Hz/60Hz (terminal 2 0 ~ +10V / 12bit) 0.03Hz/60Hz (terminal 2 0 ~ 5V / 11bit) 0.06Hz/60Hz (terminal 4 0 ~ 10V, 4-20mA / 12bit) 0.12Hz/60Hz (terminal 4 0 ~ 5V / 11bit)
Output frequency accuracy	Digital setting	Maximum target frequency=0.01%.
	Analog setting	Maximum target frequency=0.1%.
Speed control range	IM: When SVC, 1:200; when FOC+PG, 1:1000 PM: When SVC, 1:20; when FOC+PG, 1:1000.	
Start torque	200% 0.5 Hz	
V/f characteristics	Constant torque curve, variable torque curve, five-point curve, VF separation	
Acceleration / deceleration curve characteristics	Linear acceleration / deceleration curve, S pattern acceleration / deceleration curve	
Drive motor	Induction motor (IM), permanent magnet motor (SPM, IPM)	
Stalling protection	The stalling protection level can be set to 0-250%	
Target frequency setting	Parameter unit setting, DC 0-5V/10V signal, DC -10 ~ +10V signal, DC 4-20 mA signal, multiple speed stage level setting, communication setting, HDI setting.	
PID control	Please refer to parameter description	
Built-in simple PLC	Supports 21 basic instructions and 14 application instructions, including PC editing software.	
Parameter unit	Operation monitoring	Output frequency, output current, output voltage, PN voltage, output torque, electronic thermal accumulation rate, temperature rising accumulation rate, output power, Analog value input signal, digital input and output terminal status.; alarm signal and alarm history 12 groups at most
	LED indication lamp (7)	Forward rotation indication lamp, reverse rotation indication lamp, frequency monitoring indication lamp, mode switch indication lamp, PU control indication lamp, PLC indication lamp and work indication lamp
Communication function	Built-in Shihlin/Modbus communication protocol, can select MODBUS TCP, CANopen, Profibus, DeviceNet, EtherCAT, high speed card	
Protection mechanism / alarm function	Output short circuit protection, Over-current protection, over-voltage protection, under-voltage protection, motor over-heat protection, IGBT module over-heat protection, communication abnormality protection.	
Environment	Ambient temperature	Heavy load : -10 ~ +50°C (non-freezing) , Light load : -10 ~ +40°C (non-freezing), please refer to 3.4.2 Class of protection and operation temperature for details.
	Ambient humidity	Below 90%Rh (non-condensing).
	Storage temperature	-20 ~ +65°C.
	Surrounding environment	Indoor, no corrosive gas, no flammable gas, no flammable powder.
	Altitude	Altitude below 2000 meters, when altitude is above 1,000 m, derate the rated current 2% per 100 m
	Vibration	Vibration below 5.9m/s ² (0.6G).
International certification	Grade of protection	IP20
	The degree of environmental pollution	2
	Class of protection	Class I

Wiring Diagram



Dimensions

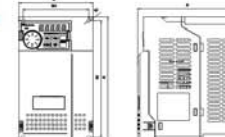
Frame A



单位 : mm

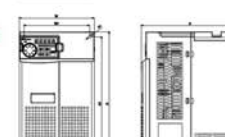
Frame A						
Model type	W (mm)	W1 (mm)	H (mm)	H1 (mm)	D (mm)	S1 (mm)
SE3-043-0.4~1.5K	62.0	74.0	167.0	155.0	144.0	5.2
SE3-023-0.4~1.5K						
SE3-021-0.4~0.75K						

Frame B



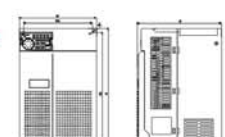
Frame B						
Model type	W (mm)	W1 (mm)	H (mm)	H1 (mm)	D (mm)	S1 (mm)
SE3-043-2.2~3.7K	105.0	93.0	178.0	166.0	146.0	5.2
SE3-023-2.2~3.7K						
SE3-021-1.5~2.2K						

Frame C



Frame C						
Model type	W (mm)	W1 (mm)	H (mm)	H1 (mm)	D (mm)	S1 (mm)
SE3-043-5.5~11K	141.0	123.6	270.0	252.6	185.0	6.5
SE3-023-5.5~7.5K						

Frame D



Frame D						
Model type	W (mm)	W1 (mm)	H (mm)	H1 (mm)	D (mm)	S1 (mm)
SE3-043-15~22K	175.0	156.4	300.0	281.4	191.8	6.2
SE3-023-11~15K						