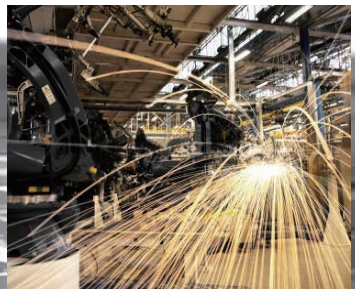
SC3 series

Compact Inverter with Vector Control



Product Range

Model		kW (HP)	0.2 (0.25)	0.4 (0.5)	0.75 (1)	1.5 (2)	2.2 (3)	3.7 (5)	5.5 (7.5)
SC3	021	1 phase 220V							
	023	3 phase 220V							
	043	3 phase 440V							

Main Features

* High performance vector control
* Built-in operation wheel
* Full PCB coating and isolated air duct
* Dual RS485 communication interface
* Built-in PID controller
* Built-in RFI filter
* Built-in Modbus communication(up to 115200bps)
* Drive PM motor(Customized model)
* Built-in proportion linkage function
* Built-in 8 sets of programmed operation function
* Built-in 5 point V/F curve
* Built-in multi-function monitoring
* Built-in energy saving algorithm
* Built-in low current/overtorque detection
* Cooling fan auto on/off in different temperature
* 12 sets of alarm record, with detailed information of the latest 2 alarm (with frequency / current / voltage / temperature rising rate /DC bus voltage /operation time record)
* Din rail installation
* External keypad
* Output frequency up to 599Hz
* Output short circuit function

Model Identification

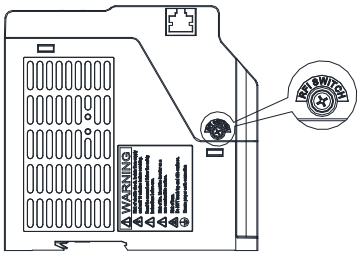
SC3 **043** **0.75K** **XY**

Series	Voltage level	Capacity	Version
SC3 series	043：three phase 440V 023：three phase 220V 021：single phase 220V	0.75kW	None：General model -xy：Customized or specialized or region difference

Product Features

Built-in RFI filer

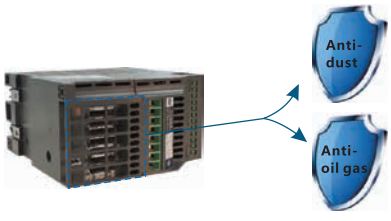
- A screw switch to turn on/off RFI filter, reduce electromagnetic interference.



Note: Please refer to manual for installation details.

Coating & Isolated Air Duct

- All PCB is coated with insulation material.
- Heat sink is separated and isolated from the PCB, prevent dust/oil from contacting electronic components.



Note: Please do not install the inverter in a heavily polluted environment without any protection.

Dual RS485 interface

- Screw terminal for easy connection with multiple machines.
- RJ45 for easy connection with external keypad.

Note: External keypad and RS485 cannot work at the same time.

Easy Maintenance

- Fan is removable.
- The position of the fan is on the top, very easy to replace.

Optimized Operation Wheel Design

- The position of the operation wheel is lower than the front cover, avoiding all external force from damaging the wheel.

Grouping Parameters - Easy Setup

Group	Parameter Number	Name	Setting Range
01-00	P.1	Maximum frequency	0.00 ~ 01-02 (P.18) Hz
01-01	P.2	Minimum frequency	0 ~ 120.00Hz
01-02	P.18	High-speed maximum frequency	01-00 (P.1) ~ 599.00Hz
01-03	P.3	Base frequency	50Hz system setting: 0 ~ 599.00Hz
			60Hz system setting: 0 ~ 599.00Hz
01-04	P.19	Base voltage	0 ~ 1000.0V
			99999: Change according to the input voltage

SC3 series: Similar functions are grouped into same sectors instead of sequence numbers.

Electrical Specifications

220V Series single-phase

Frame		A			B	
Model SC3-021- □□□ K-xy		0.2	0.4	0.75	1.5	2.2
Output	Rated output capacity (kVA)	0.6	1	1.5	2.5	4.2
	Rated output current (A)	1.8	2.7	4.5	8	11
	Applicable motor capacity (HP)	0.25	0.5	1	2	3
	Applicable motor capacity (kW)	0.2	0.4	0.75	1.5	2.2
	Overload current rating	150% 60 seconds 200% 1 second (inverse time characteristics)				
	Carrier frequency (kHz)	1~15kHz				
	Maximum output voltage	Three-phase 200-240V				
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)	0.75	1.5	2.5	3.5	6.4
	Cooling method	Self cooling	Forced air cooling			
	Weight (kg)	0.66	0.6	0.73	1.38	1.4

220V Series three-phase

Frame		A				B	
Model SC3-023 - □□□ K-xy		0.2	0.4	0.75	1.5	2.2	3.7
Output	Rated output capacity (kVA)	0.6	1.2	2	3.2	4.2	6.7
	Rated output current (A)	1.8	3	5	8	11	17.5
	Applicable motor capacity (HP)	0.25	0.5	1	2	3	5
	Applicable motor capacity (kW)	0.2	0.4	0.75	1.5	2.2	3.7
	Overload current rating	150% 60 seconds 200% 1 second (inverse time characteristics)					
	Carrier frequency (kHz)	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)	0.75	1.5	2.5	4.5	6.4	10
	Cooling method	Self cooling	Forced air cooling				
	Weight (kg)	0.69	0.69	0.70	0.73	1.32	1.4

Electrical Specifications

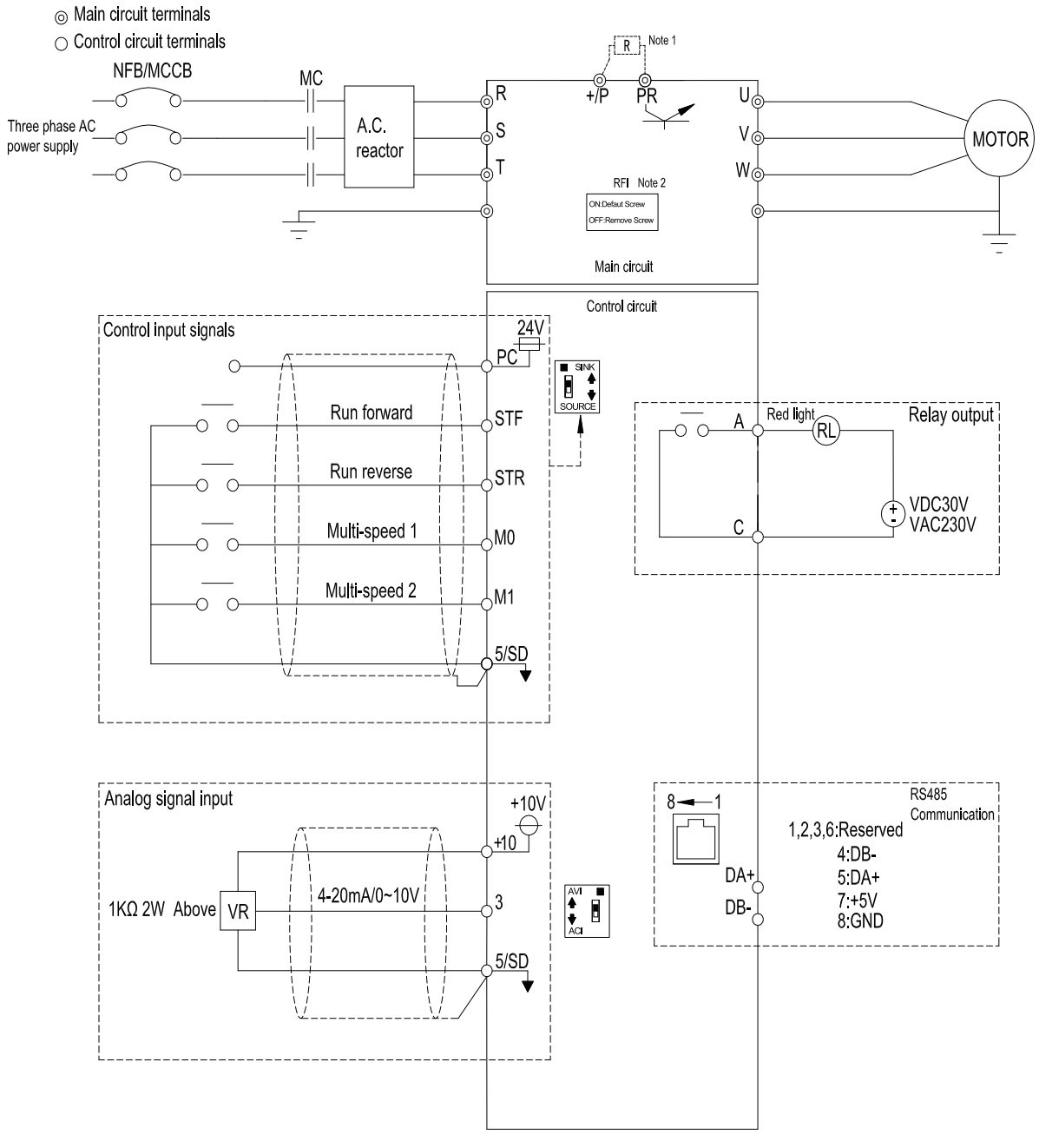
440V Series three-phase

Frame		A			B		
Model SC3-043- □□□ K-xy		0.4	0.75	1.5	2.2	3.7	5.5
Output	Rated output capacity (kVA)	1	2	3	4.6	6.9	9.2
	Rated output current (A)	1.5	2.6	4.2	6	9	12
	Applicable motor capacity (HP)	0.5	1	2	3	5	7.5
	Applicable motor capacity (kW)	0.4	0.75	1.5	2.2	3.7	5.5
	Overload current rating	150% 60 seconds 200% 1 second (inverse time characteristics)					
	Carrier frequency (kHz)	1~15kHz					
	Maximum output voltage	Three-phase 380-480V					
Power supply	Rated power voltage	Three-phase 380-480V 50Hz / 60Hz					
	Power voltage permissible fluctuation	Three-phase 323-528V 50Hz / 60Hz					
	Power frequency permissible fluctuation	±5%					
	Power source capacity (kVA)	1.5	2.5	4.5	6.9	10.4	11.5
	Cooling method	Self cooling	Forced air cooling				
	Weight (kg)	0.74	0.74	0.81	1.37	1.37	1.42

Common Specifications

Control method		SVPWM, V/F control, General flux vector control
Output frequency range		0~599.00Hz
Frequency setting resolution	Digital setting	Within 100Hz, the resolution is 0.01Hz Above 100Hz, the resolution is 0.1Hz.
	Analog setting	DC 0~5V or 4~20mA signal: 11 bit, DC 0~10V signal: 12 bit.
Output frequency accuracy	Digital setting	Maximum target frequency±0.01%.
	Analog setting	Maximum target frequency±0.1%.
Starting torque		Under General flux vector control: 180% / 3Hz, 200% / 5Hz
V/F characteristics		Constant torque curve, variable torque curve, five-point VF curve
Acceleration / deceleration curve characteristics		Linear acceleration / deceleration curve, S shape acceleration /deceleration curve 1 & 2 & 3
Drive motor		Induction motor (IM)
Stalling protection		The stalling protection level can be set from 0~250%. Default value 150%
Target frequency setting		Built-in keypad setting, DC 0~5V/10V signal, DC 4~20 mA signal, multi-speed stage level setting, communication setting.
Built-in keypad	Operation monitoring	Output frequency, output current, output voltage, PN voltage, electronic thermal accumulation rate, temperature rising accumulation rate, output power, analog input signal value, digital input and output terminal status...; alarm history 12 sets with operation details of the latest two set.
	LED indicator(6)	Frequency monitoring indicator, voltage monitoring indicator, current monitoring indicator, motor running indicator, mode switch indicator, PU mode indicator.
Communication function		RS485 communication, choose between Shihlin / Modbus communication protocol, baud rate up to 115200bps.
Protection mechanism / alarm function		Output short circuit protection, over-current protection, over-voltage protection, under-voltage protection, motor over-heat protection (06-00(P.9)), IGBT module over-heat protection, communication error protection, PID error protection, memory error protection, CPU error protection, stall prevention, module over-heat protection, input power fail protection, terminal 3-5 disconnect protection, over torque protection, current leakage to ground protection, hardware detect circuit error protection.
Environment	Ambient temperature	-10 ~ +50°C(non-freezing), side by side installation-10~ +40°C(non-freezing).
	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 m, when altitude is above 1000 m, derate the rated current 2% per 100 m
	Vibration	Vibration below 5.9m/s² (0.6G)
	Grade of protection	IP20
	Over voltage level	II
	Degree of environmental pollution	2
	Class of protection	Class I
International certification		CE

Wiring Diagram



NOTE

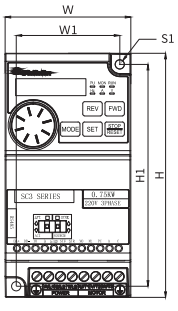
1.There is no +/P and PR terminal in frame A (SC3-043-0.4K~1.5K, SC3-023-0.2K~1.5K, SC3-021-0.2K~0.75K.)

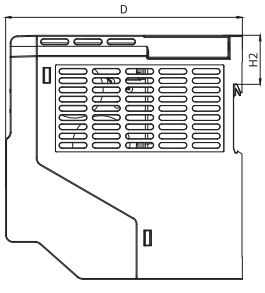
2.All series includes built-in RFI filters, in order to comply with CE regulations, please refer to related parts in this manual .

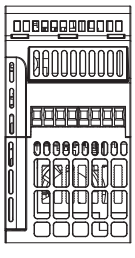
Dimensions

Unit : mm

Frame A



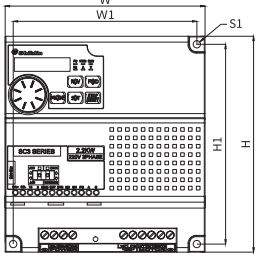


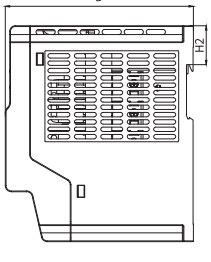


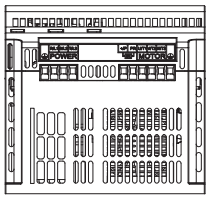
Frame A

Model type	W (mm)	W1 (mm)	H (mm)	H1 (mm)	H2 (mm)	D (mm)	S1 (mm)
SC3-021-0.2K	68	56	132	120	26.5	128	5
SC3-021-0.4K							
SC3-021-0.75K							
SC3-023-0.2K							
SC3-023-0.4K							
SC3-023-0.75K							
SC3-023-1.5K							
SC3-043-0.4K							
SC3-043-0.75K							
SC3-043-1.5K							

Frame B







Frame B

Model type	W (mm)	W1 (mm)	H (mm)	H1 (mm)	H2 (mm)	D (mm)	S1 (mm)
SC3-021-1.5K	136	125	147	136	26.5	128	5
SC3-021-2.2K							
SC3-023-2.2K							
SC3-023-3.7K							
SC3-043-2.2K							
SC3-043-3.7K							
SC3-043-5.5K							