



PRODUCT SERIES

SB200

High Performance Universal Inverter



3Ph 400V
1.5—400KW



COMPANY PROFILE

CONTINENTAL HOPE GROUP (CHG), one of the largest privately-owned multi-businesses corporations in China. CHG is a high-tech based diversified corporation, headquartered in Sichuan Chengdu China, operating multi-businesses grouped under 4 divisions: Mechatronics, Energy & Chemicals, Hotel/Tourism/Real-Estate Development and Construction. Our products and services covers various segments including Frequency Inverters, HVAC, Chemicals, Hotels, Construction (General Contracting), Real Estate Development, Theme Park, Banking, Insurance, Food processing, Agricultural products and etc.

As one of the earliest companies which embark upon the frequency conversion technology research field, SLANVERT has become one of the biggest inverter manufacturers in China. SLANVERT is one of the winner of 'China Top Brand' in China's low-voltage inverter industry that had successfully obtained international standards such as ISO9001:2008, ISO14001 and CE certifications. SLANVERT enjoys the reputation of 'Chinese Frequency Technology Expert' as we own an independent intellectual property system that is supported by dozens of patents and proprietary technologies. Based on these technologies and patents, SLANVERT has successfully developed many top rank Chinese high-quality inverters include SB70 series, SB60/61 series, SB60⁺/61⁺ series, SE62 series, SB61Z⁺ series, SBH series, and SB200 series. Our products are widely used in many fields such as metallurgy, machinery, building material, chemical industry, petroleum, biotechnology and pharmacy. Our efforts and contribution finally won lots of honour's, such as 'Gold Medal of the Fourth Shanghai Science and Technology Exposition', 'Gold Medal of China Fair of Inventions and Technologies', 'National Torch Program Project', 'National Innovation Fund Project' and 'National Key & New Product Project'.



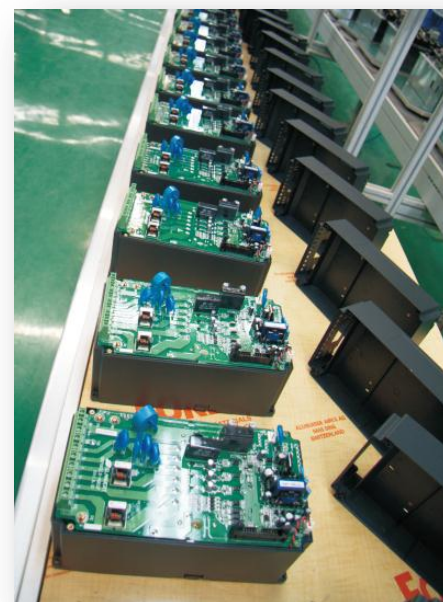
PRODUCT OVERVIEW

Combining the latest technology of Hope SLANVERT, the Universal frequency converters of fan and water pump of SB200 series adopts variable voltage and frequency algorithm of high-performance optimizing space vector of SLANVERT. It has advanced functions like automatic torque elevation, sliding compensation, oscillation suppression, starting tracking, prevention of speed loss, accurate dead-time compensation, automatic voltage regulation, PID procedure and automatic carrier frequency regulation. Powerful function of constant-pressure water supply and clock module are internally set. It can be applied to most industrial controls.



Water Supply Function

- One can hold two without extension card
- One can hold five with extension card
- Fire fighting water supply, water injection control
- Clean water basin detection, cesspit detection and sewage pump controlling
- Dormant operation, automatic awakening
- Change pumps at fixed time, examine and repair water pump
- Time-phased given pressure



APPLICATION FIELDS

Water supply



Petrifaction



Chemical



Cement



Weaving



Papermaking



Dyeing



Water treatment



Electricity



Metallurgy



Package



Ceramic

Frequency converters of SLANVERT SB200 series are widely used in drive, draught fan, air blower, centrifuge, and centrifugal pump of various industries and constant-voltage water supply and constant-temperature heating system in daily life. It can also be used to various fans and water pumps of other industries and speed regulation and energy reform of various experimental facilities.

FUNCTIONAL CHARACTERISTICS

Extremely high reliability

- Adopt power components of internationally famous brands
- Can conduct test fully loaded continuously under constant temperature 40°C

Extremely high ability of resisting voltage fluctuation

- Fluctuation range: -15%~+10%
- Have the function of automatic voltage regulation

Torque control and over-load ability

- Can elevate torque manually, automatically, or manually and automatically
- Rated current 150%/min

Powerful function of PID

- Bipolar PID with revision function
- Special software of water supply is

Internally set, including 4 modes water supply

- Circulating switchover of one holding
- two can be realized without extension

Abundant input and output ports

- Possess 8-way input digital port
- Possess 3-way analog input and 2-way analog output port
- Possess 5-way relay output and 2-way digital output

The design is more user-friendly

- Users can define 30 user parameters
- Can choose to display parameters corrected
- Set the function of duplicating parameters
- Functions of button and locking
- 5 groups of fault types and records of fault state
- 67 monitoring parameters



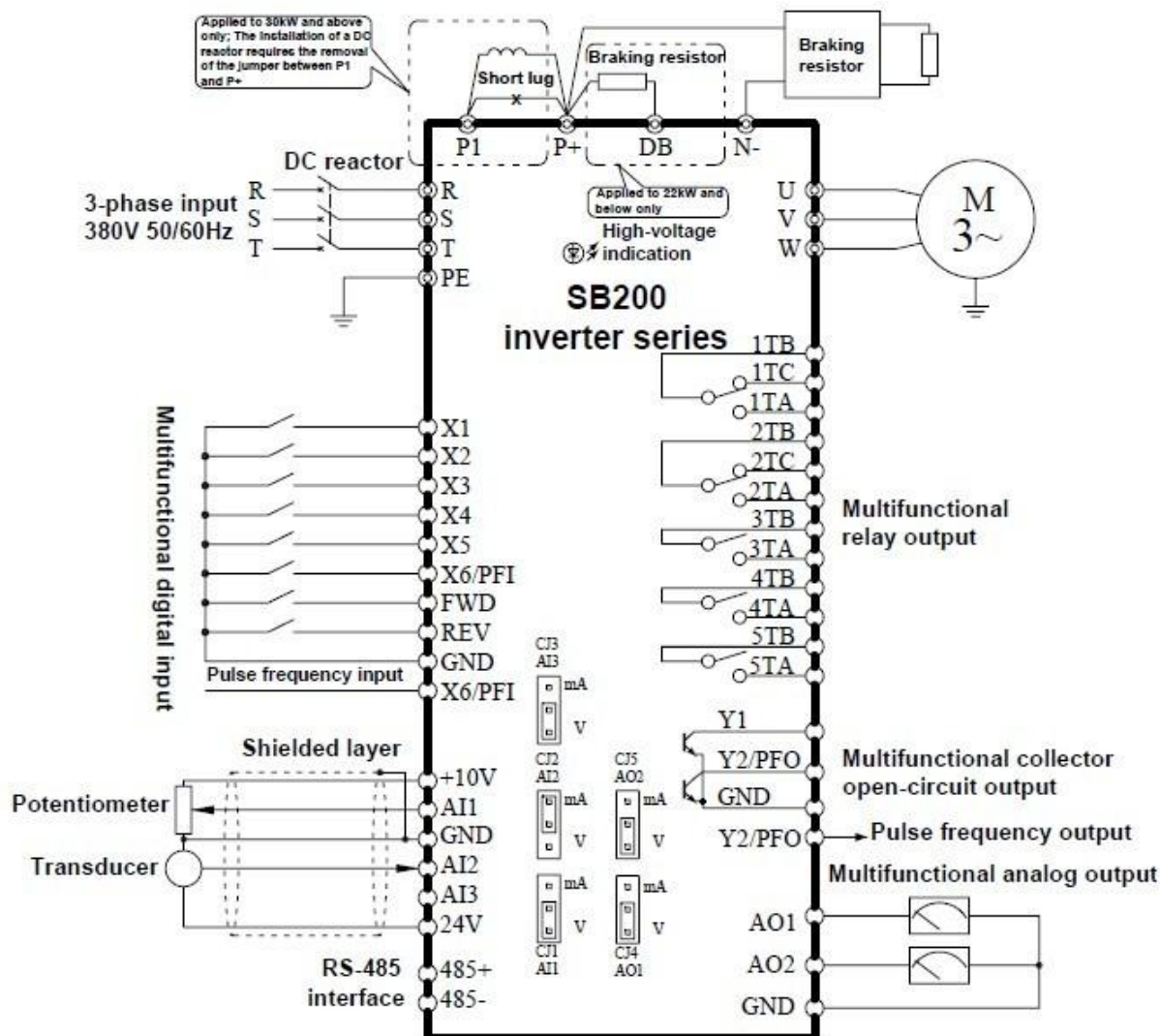
TECHNICAL SPECIFICATIONS

	Item	Description
Input	Rated Voltage /Frequency	3-phase, 380~480V; 50/60Hz
	Range	Voltage: -15%~+10%; voltage unbalance:<3 % ; frequency: 47~63Hz
Output	Output Voltage	3-phase; 0v-input voltage; error: below 5%
	Output Frequency	0.00-650.00Hz
Basic Specification	Overload Capacity	110% of rated current; 1 minute
	Frequency Resolution	Digital setting: 0.01Hz; analog setting: 0.1% of max frequency
	Output Frequency Accuracy	Analog setting: $\pm 0.2\%$ of max frequency ($25\pm 10^{\circ}\text{C}$); digital setting: 0.01Hz ($-10\sim +40^{\circ}\text{C}$)
	Command Execution Channel	Settings may be configured via the control panel, control terminal or communication port. Switching is enabled via the terminal
	Frequency Setting Channel	Control panel, communication port, UP/DOWN adjustment, AI1, AI2, AI3 or PFI
	Auxiliary Frequency Setting	Flexible auxiliary frequency micro-adjustment and frequency setting synthesis
	Torque Elevation	Auto/manual torque elevation
	V/F Curve	Customizable V/F curves, linear V/F curves and 5 torque reduction characteristic curves
	Jogging	Jogging frequency range: 0.10~50.00Hz; jogging acceleration/deceleration time: 0.1-60.0s
	Auto Energy Saving	Load-based auto V/F optimization, capable of auto energy saving
	AVR	When the grid voltage fluctuates within a specified range, the inverter can automatically maintain a constant output voltage
	Auto Carrier Regulation	Auto carrier regulation based on load characteristics and ambient temperature
	Random PWM	Tone adjustment for an operating motor
	Instantaneous Power Failure Solution	Uninterrupted operation via busbar voltage regulation in the event of an instantaneous power failure
	DC Braking	Braking time 0.0-60.0s; braking current: 0.0~100.0% of rated current
Terminal	PFI	Max input frequency: 50kHz
	PFO	Connector open circuit-type pulse square wave signal output; programmable
	Analog Input	3-channel analog signal input; options for voltage/current modes; Capable of positive/negative input
	Analog Output	2-channel analog signal output; options for 0/4~20mA or 0/2~10V; programmable
	Digital Input	8-channel multifunctional digital input
	Digital Output	2-channel multifunctional collector open-circuit output; 5-channel multifunctional relay output
	Communication	Inbuilt RS48S communication interface supporting; Modbus protocol and USS commands
Feature	Process Identification	Two PID parameter systems and multiple correction modes
	Water Supply Mode	Multiple water supply modes: fire water control, water injection control, clean water pool inspection, wastewater pool inspection, drainage pump control, sleeping, pump change at regular intervals and pump overhaul
	KWH Meter	Convenient for adjustment of the optimized energy saving schemes
Protection Functions		Protection is available for over current, over voltage, under voltage, input/output phase lack, output short-circuit, overheat, motor overload external fault, analog input disconnection, stall prevention, etc.

Deployment Recommended Diagram



Basic Wiring Diagram



Description Of Main Circuit Terminals

Symbol	Terminal name	Description
R, S, T	Input terminal	To 3-phase power supply
U, V, W	Output terminal	To 3-phase motor
P1, P+	DC reactor terminal	Connect an external DC reactor(shorted by a bar if reactor is not used)
P+, N-	DC bus terminal	Connect a braking unit, common DC bus or external rectifying unit. Contact us for the usage of the common DC bus.
DB	Braking terminal	Braking resistor is connected between P+ and DB
PE	Grounding terminal	Connect the inverter case to earth.

Functions Of Control Board Terminals

Symbol	Name	Function and description	Specification
485+ 485-	485 differential signal	RS485communication prot	Connect 1-32 RS485station(s) Input impedance:>10KΩ
GND	Ground	Analog and digital input/output, PFI, PFO, communication and +10V/24V earth terminals	
+10v	+10v reference power supply	+10v power supply offered to user	Max.output current is 15mA, the voltage accuracy better than 2%
Y2/PFO	Pulse frequency output (when the terminal is use for PFO)	Refer to the description of Parameter F6-38 for output function options	0~50 kHz Collector open-circuit output; Specification: 24V/50mA
X6/PFI	Pulse frequency input (when the terminal is applied to PFI)	Refer to the description of Parameters F6-35—F6-37	0~50 kHz; Input impedance: 1.5kΩ High level: >6V Low level: <3V Max input voltage: 30V
AO1 AO2	Multi-function analog output	Function options: Refer to the description of Parameters F6-27 and F6-31 Select the voltage/current output modes via Jumpers CJ4 and CJ5	Current mode: 0~20mA; load: ≤500Ω Voltage mode: 0~10V; output: 10mA
24V	24V power terminal	24V power supply offered to user	Max.output current:30mA
AI1 AI2 AI3	Analog input	Function option: Refer to the description of Parameters F6-00—26 Select the voltage / current input modes via Jumpers CJ1, CJ2 and CJ3	Input voltage range: -10~+10V Input current range: -20~+20mA Input impedance: Voltage input: 110kΩ Current input: 250Ω
X1-X6 PFI FWD REV	Digital input terminal	View digital input menu	Input impedance: ≥3kΩ Input voltage range: <30V Sampling period: 1ms Debouncing time: 10ms High level: >10V Low level: <4V Equivalent to high level when disconnected from the power supply
Y1 Y2 PFO	Digital output terminal	View digital output menu	Collector open-circuit output: Specification: 24Vdc/50mA Output action frequency:<500Hz
1TA/TB/TC 2TA/TB/TC 3TA/TB 4TA/TB 5TA/TB	Relay output terminal	View digital output menu	TA-TB: normally open TB-TC: normally closed Contacts: AC 250V 3A DC 24V 5A

Digital Input Functions

0: No signal	±12: External fault input	±29: Check of Contactor 4K2	±43: Pump #1 disabled/Motor Option
±1: Multistep frequency 1	±13: Fault reset	±30: Check of Contactor 5K1	±44: Pump #2 disabled/Motor Option
±2: Multistep frequency 2	±14: Clockwise jog	±31: Check of Contactor 5K2	±45: Pump #3 disabled
±3: Multistep frequency 3	±15: Anticlockwise jog	±32: Auxiliary setting channel disabled	±46: Pump #4 disabled
±4: Check of upper water level limit of clean water pool	±16: Emergency shutdown	±33: Switching of PID settings to AI2	±47: Pump #5 disabled
±5: Check of lower water level limit of clean water pool	±17: Inverter operation disabled	±34: DC-braking shutdown	±48: Small sleeping pump disabled
	±18: Free shutdown		±49: Drainage pump disabled
±6: Check of water shortage level of clean water pool	±19: UP/DOWN: UP	±35: PID (Process identification) disabled	±50: Wastewater tank lower water level limit
	±20: UP/DOWN: Down		±51: Wastewater tank upper water level limit
±7: Acceleration / deceleration time option 2	±21: UP/DOWN: CLEAR	±36: PID Parameter Option 2	±52: Signal of upper water level limit
±8: Multi-PID Option 1	±22: Check of Contactor 1K1	±37: Three-wire mode shutdown command	±53: Signal of lower water level limit
±9: Multi-PID Option 2	±23: Check of Contactor 1K2	±38: Internal virtual FWD terminal	±54: Signal of firefighting system in operation
±10: Multi-PID Option 3	±24: Check of Contactor 2K1	±39: Internal virtual REV terminal	±55: Priority pump startup option 1
±11: Switching of frequency settings to AI1	±25: Check of Contactor 2K2	±40: Maintenance of Analog Frequency Settings	±56: Priority pump startup option 2
	±26: Check of Contactor 3K1	±41: Acceleration/Deceleration	±57: Priority pump startup option 3
	±27: Check of Contactor 3K2	±42: Switching of command execution channel to terminal or panel	
	±28: Check of Contactor 4K1		

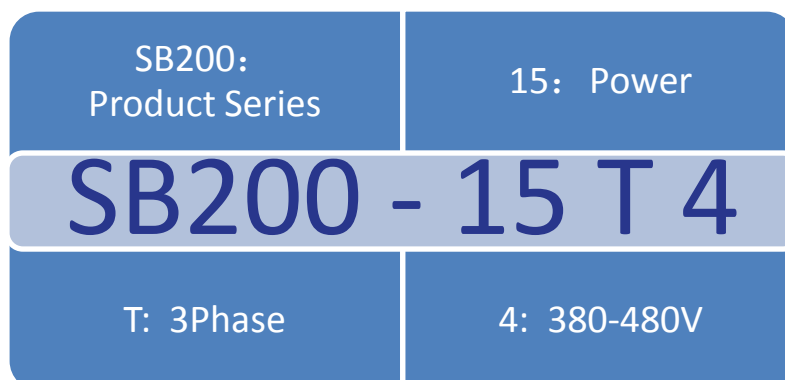
Digital Output Functions

0: Inverter ready	±15: Shutdown in process	±31: Motor #4 in line frequency	±47: Pump ready for acceleration
1: Inverter running	±16: Operation disabled	±32: Motor #5 in variable frequency	±48: Pump ready for deceleration
2: Frequency reach	±17: Under control of control panel	±33: Motor #5 in line frequency	±49: Startup signal of auxiliary starter
±3: Output of Monitor 1	±18: Output at a preset time	±34: X1	±50: Working terminal of sleeping
±4: Output of Monitor 2	±19: Upper frequency limit enabled	±35: X2	±51: Indication for sleeping
±5: Output of Monitor 3	±20: Lower frequency limit enabled	±36: X3	±52: Water shortage in suction
±6: Fault output	±21: Power generation in process	±37: X4	±53: Abnormal closing of contactor
±7: Motor overload	±22: PC Digital Quantity 1	±38: X5	±54: Drainage pump control
±8: Motor overload	±23: PC Digital Quantity 2	±39: X6	±55: Water injection valve control for Pump #1
±9: Undervoltage lockout	±24: Motor #1 in variable-frequency	±40: X7 (Extension terminal)	±56: Air vent valve control for Pump
±10: Shutdown by external fault	±25: Motor #1 in line frequency	±41: X8 (Extension terminal)	±57: Water injection valve control for Pump #2
±11: Fault self-reset in process	±26: Motor #2 in variable frequency	±42: X9 (Extension terminal)	
±12: Instantaneous poweroff/poweron in process	±27: Motor #2 in line frequency	±43: X10 (Extension terminal)	±58: Air vent valve control for Pump
	±28: Motor #3 in variable frequency	±44: X11 (Extension terminal)	±59: Firefighting patrol in operation
±13: Alarm output	±29: Motor #2 in line frequency	±45: FWD	±60: AI1>AI3
±14: Anticlockwise operation in	±30: Motor #4 in variable frequency	±46: REV	

Analog Output Function

0: Working Frequency (the max. frequency is taken as the full amplitude value)	3: Output voltage (1.5 times the rated inverter voltage is taken as the full amplitude value)	6: PID settings	13: DC busbar voltage (1000v is taken as the full amplitude value)
		7: PID output value	
1: Set frequency (the max. frequency is taken as the full amplitude value)	4: Output power (2 times the rated motor power is taken as the full amplitude value)	8: AI1	14: The offset value is taken as the output value (the offset value must not be negative)
		9: AI2	
2: Output current (Two times the rated inverter current is taken as the full amplitude value)	5: PID feedback value	10: AI3	
		11: PFI	
		12: UP/DOWN adjustment	

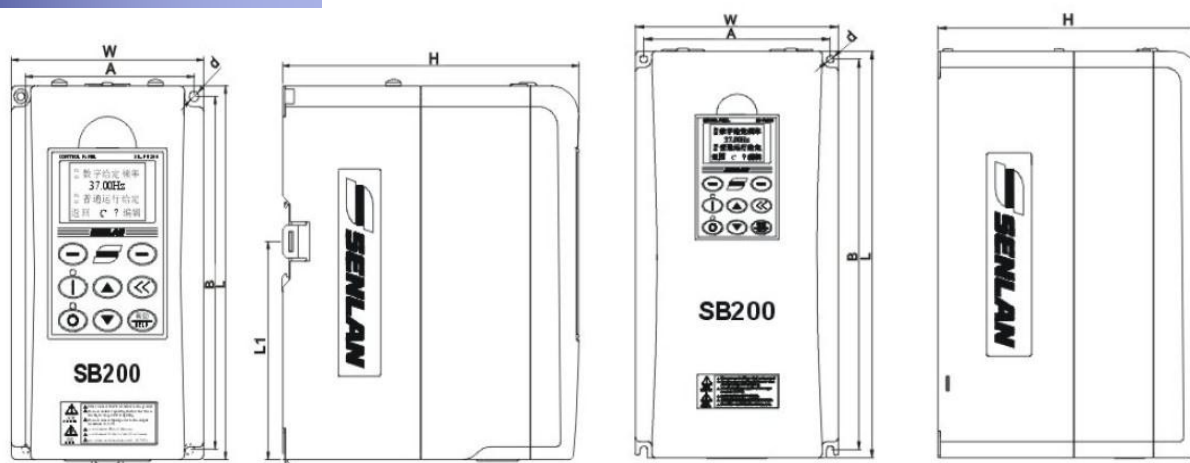
MODEL SELECTION GUIDE



Product Series

Model No.	Rated Capacity (kVA)	Common Application (110% In every 10 minutes on every minute)		Heavy Load Application (150% In every 10 minutes on every minute)	
		Rated Output Current (A)	Adapted Motor (kW)	Rated Output Current (A)	Adapted Motor (kW)
SB200-1.5T4	2.4	3.7	1.5	3	1.1
SB200-2.2T4	3.6	5.5	2.2	3.7	1.5
SB200-4T4	6.4	9.7	4	5.5	2.2
SB200-5.5T4	8.5	13	5.5	9.7	4
SB200-7.5T4	12	18	7.5	13	5.5
SB200-11T4	16	24	11	18	7.5
SB200-15T4	20	30	15	24	11
SB200-18.5T4	25	38	18.5	30	15
SB200-22T4	30	45	22	38	18.5
SB200-30T4	40	60	30	45	22
SB200-37T4	49	75	37	60	30
SB200-45T4	60	91	45	75	37
SB200-55T4	74	112	55	91	45
SB200-75T4	99	150	75	112	55
SB200-90T4	116	176	90	150	75
SB200-110T4	138	210	110	176	90
SB200-132T4	167	253	132	210	110
SB200-160T4	200	304	160	253	132
SB200-200T4	248	377	200	304	160
SB200-220T4	273	415	220	377	200
SB200-250T4	310	475	250	415	220
SB200-280T4	342	520	280	475	250
SB200-315T4	389	590	315	520	280
SB200-375T4	460	705	375	590	315
SB200-400T4	490	760	400	705	375

DIMENSION

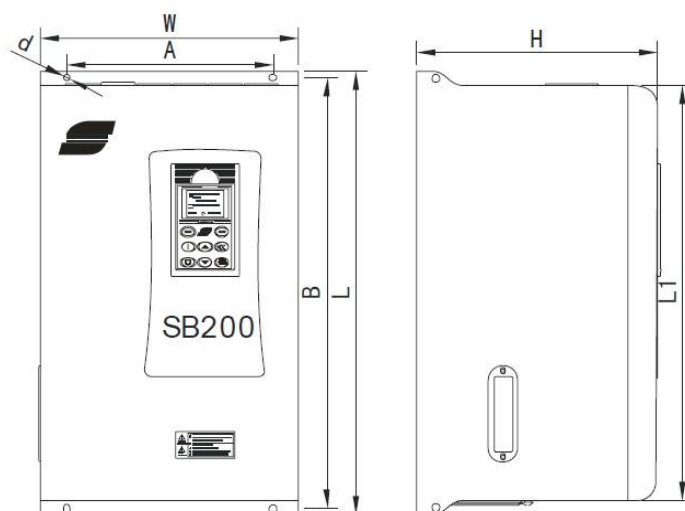


SB200-1.5~5.5T4

SB200-7.5~22T4

(Installable with a standard DIN Guide Rail)

Model	Overall dimensions			Mounting dimensions				Structure Form	Weight (kg)
	W (mm)	L (mm)	H (mm)	L1 (mm)	A (mm)	B (mm)	d (mm)		
SB200-1.5T4	100	180	157	105	87.5	170	φ4.5	Wall mounted type	2
SB200-2.2T4									
SB200-4T4	135	240	170	140	125	230	φ4.5		3
SB200-5.5T4									
SB200-7.5T4	150	300	195	-	138	288	φ5.5		7
SB200-11T4									
SB200-15T4	200	380	225	-	185	367	φ7		10
SB200-18.5T4									
SB200-22T4									



SB200-30 ~ 400T4

Model	Overall dimensions				Mounting dimensions			Structure Form	Weight (kg)
	W (mm)	H (mm)	H (mm)	L1 (mm)	A (mm)	B (mm)	d (mm)		
SB200-30T4	275	470	256	440	200	455	φ8	Wall mounted type	30
SB200-37T4									
SB200-45T4	280	570	290	520	200	550	φ10		39
SB200-55T4									
SB200-75T4	310	680	330	630	220	660	φ10		51
SB200-90T4									
SB200-110T4	350	800	330	750	220	780	φ12		70
SB200-132T4									
SB200-160T4	410	940	318	884	300	920	φ12		97
SB200-200T4									
SB200-220T4	500	1060	355	1000	320	1038	φ12		140
SB200-250T4									
SB200-280T4									
SB200-315T4	650	1180	360	1110	540	1152	φ13		195
SB200-375T4	650	1250	360	1180	540	1222	φ13		210
SB200-400T4									

SELECTION OF ACCESSORIES

Brake unit

- If the frequency converter has brake units internally set, just choose the appropriate braking resistance.
- If the frequency converter does not have brake units internally set, brake units of SZ series and braking resistance are needed.
- Braking resistance should be determined according to the actual generated power of loading, frequency of power generation, etc.
- Resistance should not be more than 1.5~2.0 times of the value recommended.



Exchange electric reactor

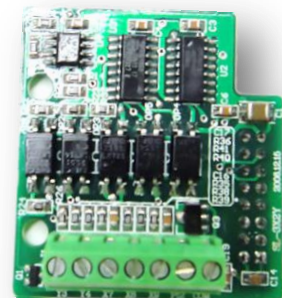
- Exchange electric reactor on the input side can restrain ultra-harmonics of input current of frequency converter, improving power factors of the input side.
- Advise to use it under following conditions:
 - The capacity of power grid is far higher than that of frequency converter and the power of frequency converter is more than 30kW;
 - Thyristor loads or power factor compensation devices with on-off control are connected to the same power source;
 - Voltage unbalance of three-phase sources is more than 3%;
 - Need to improve the voltage factors of input side.
- Exchange electric reactors on the output side have the following functions:
 - Reduce output harmonic of frequency converter;
 - Prevent electrical insulation from being destroyed;
 - Reduce common mode interference on the output side. Reduce shaft current of electrical machine.



Digital I/O expansion board

The digital I/O expansion board is used to expand the digital input and output terminals:

- SL-5X: 5 channels of digital input
- SL-5Y: 5 channels of digital output\
- SL-3X2Y: 3 channels of digital input plus 2 channels of digital output



Communication components

- Extension cord components on the operation panel
- Background monitor software SB Monitor
- Profibus-DP module



Relay extension board

- SL-5X6T add 5-way multi-function digital input terminal and 6 groups of relay output terminal
- During the circulating switchover of water supply, there should be more than two sets of circulating water pump, and they must be additionally equipped with the board.



Options of operational panel

- SB-PU70E has parameter copy function. It is especially useful in the same setting of multiple sets of frequency converters.



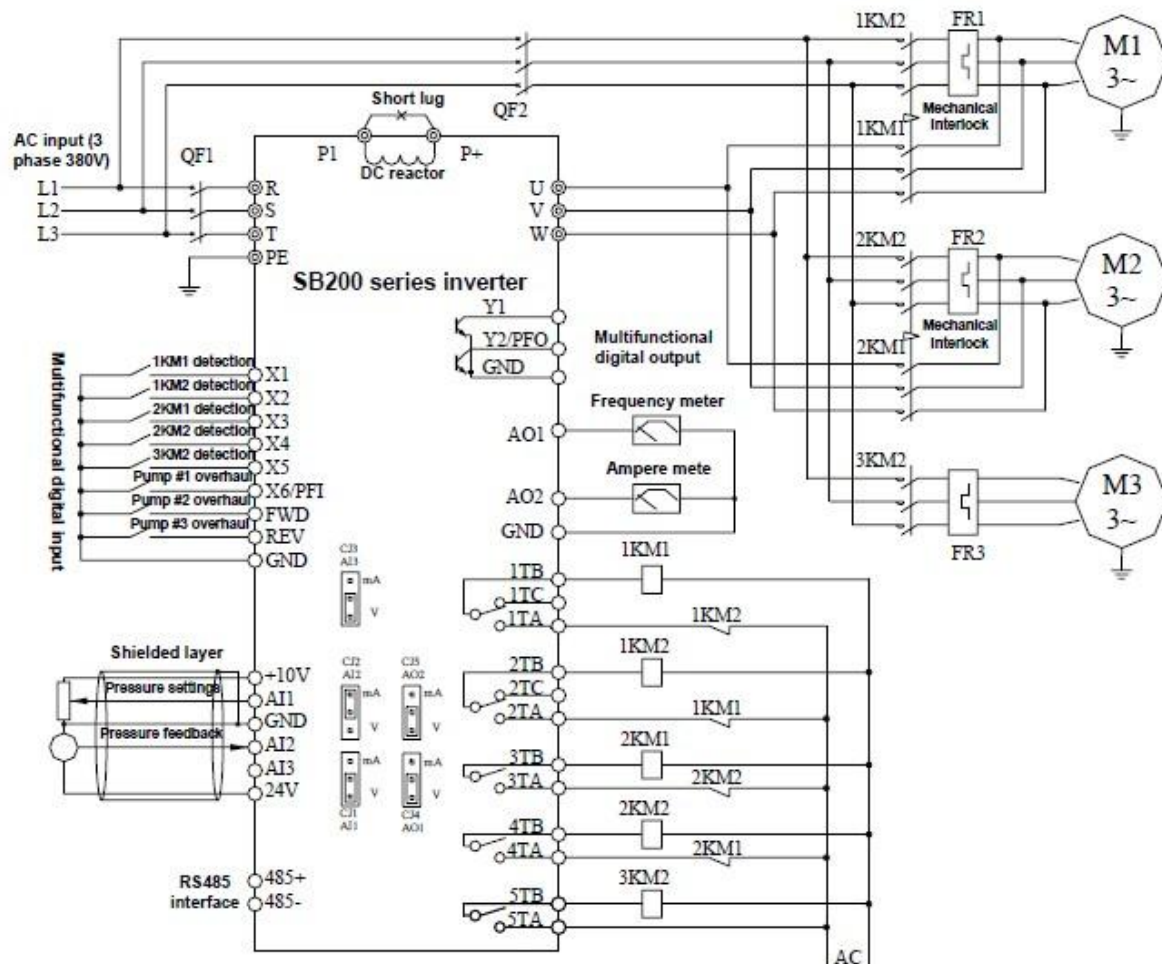
- SB-PU03 is operational panel with panel potentiometer, making it convenient for users to regulate given quantity.
- SB-PU05 is operational panel with encoder, suitable for occasions needing high-precision potentiometers, like machine tool.



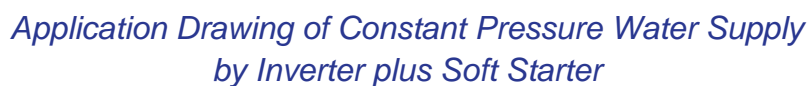
- SB-PU04 is liquid crystal (LCD) operational panel, supporting functions of Chinese/English display, parameter copy etc.



APPLICATION EXAMPLES

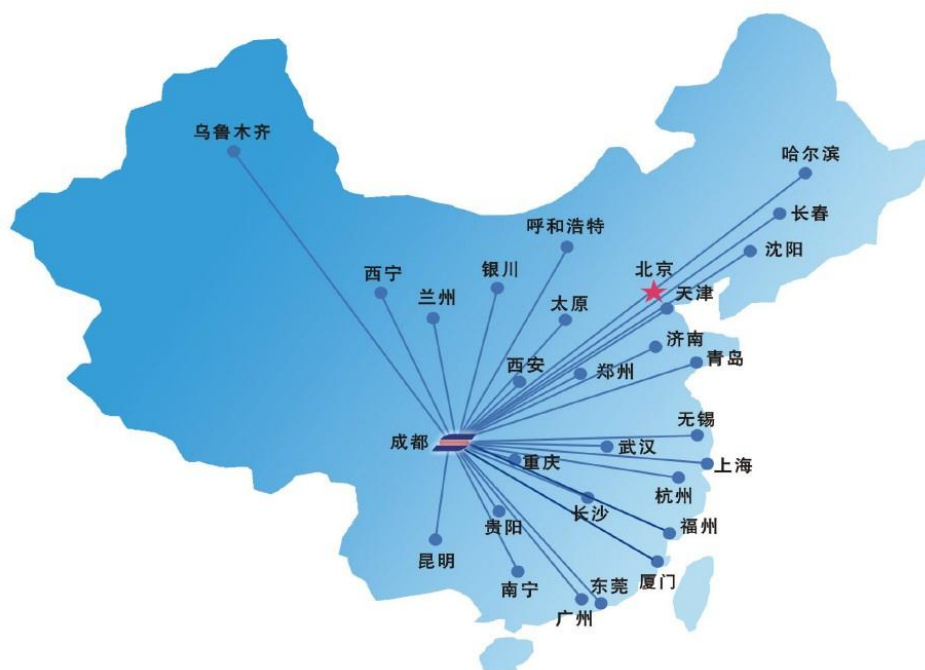


*Application Drawing of Two Variable-Frequencies Cyclic Switchover Pumps
(under Common Control) plus One Auxiliary Pump*



SERVICE NETWORK

Greater China



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