

# Catalogue

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The manual is subject to change without notice.

# I.introduction

Thank you for purchasing and using the general-purpose inverter of YL series of multi -functions and high performance.

Please read carefully the operation manual before pulling the inverter to use so as to correctly install and operate the inverter, give full play to its functions and ensure the safety. Please keep the operation manual handy for future reference, maintenance, inspection and repair.

Due to the inverter of a kind of electrical and electronic product it must be installed, tested and adjusted with parameters by specialized engineering persons of motors.

The marks of  **Caution**  **Danger** and other symbols in the manual remind you of the safety and prevention cautions during the handling, installation, running and inspection. Please follow these instructions to make sure the safe use of the inverter. In case of any doubt please contact our local agent for consultation. Our professional persons are willing and ready to serve you.

The manual is subject to change without notice.

**Danger** indicates wrong use may kill or injure people.

**Caution** indicates wrong use may damage the inverter or mechanical system.



Be sure to turn off the input power supply before wiring.

Do not touch any internal electrical circuit or component when the charging lamp is still on after the

AC power supply is disconnected, which means the inverter still has high voltage inside and it is very dangerous

Do not check components and signals on the circuit boards during the operation.

Do not disassemble or modify any internal connecting cord, wiring or component of the inverter by yourself.

Be sure to make correct ground connection of the earth terminal of the inverter

Never remodel it or exchange control boards and components by yourself. It may expose you to an electrical shock or explosion, etc.



Do not make any voltage - withstanding test with any component inside the inverter. These semi-conductor parts are subject to the damage of high voltage.

Never connect the AC main circuit power supply to the output terminals U.V.W of the inverter.

The main electric circuit boards of CMOS and IC of the inverter are subject to the effect and damage of static electricity. Don't touch the main circuit boards

Installation, testing and maintenance must be performed by qualified professional personnel.

The inverter should be discarded as industrial waste. It is forbidden to burn it.

## 1. Checks upon Delivery

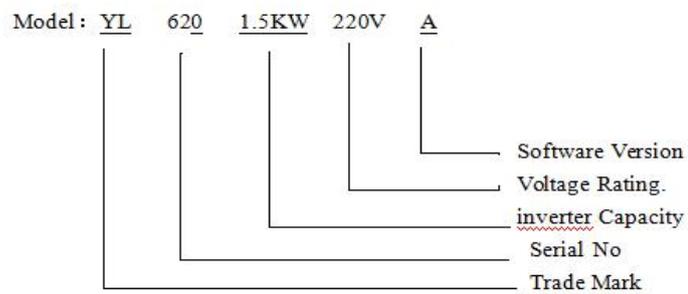
The inverter has been strictly and well packed before ex.work. In consideration of various factors during the transportation special attention should be paid to the following points before the assembly and installation. If there is anything abnormal please notify the dealer or the relevant people of our company.

- Check if the inverter has got any damage or deformation during the transportation and handling.
- Check if there is one piece of YL series inverter and one copy of the instruction manual available when unpacking it.
- Check the information on the nameplate to see if the specifications meet your order ( Operating

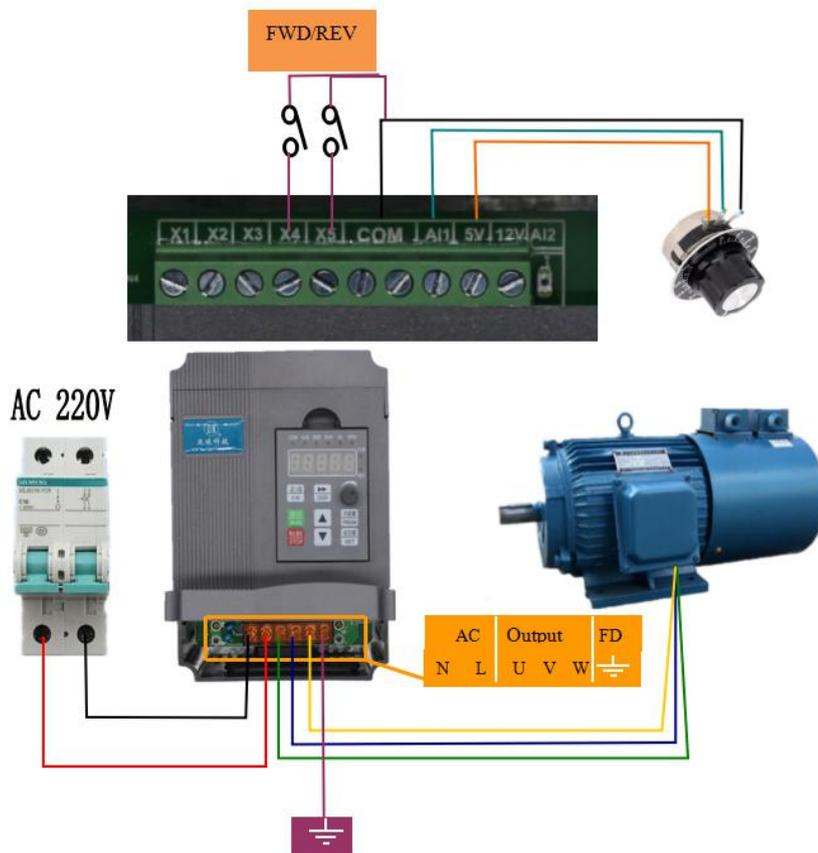
Voltage and KVA value).

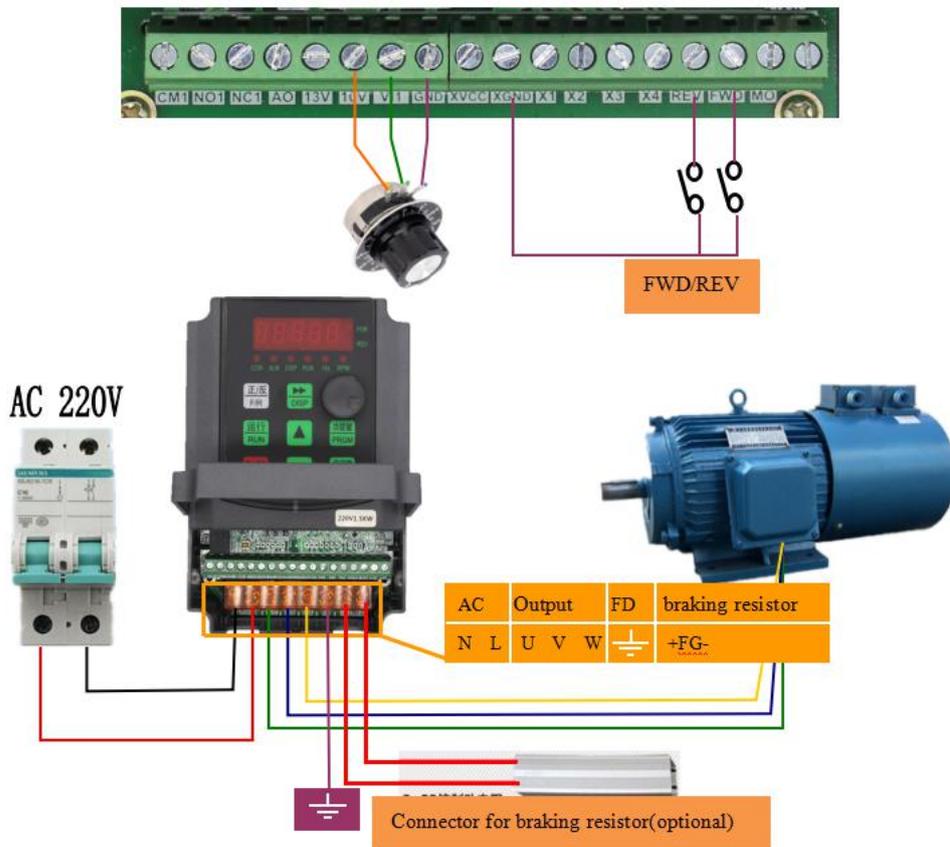
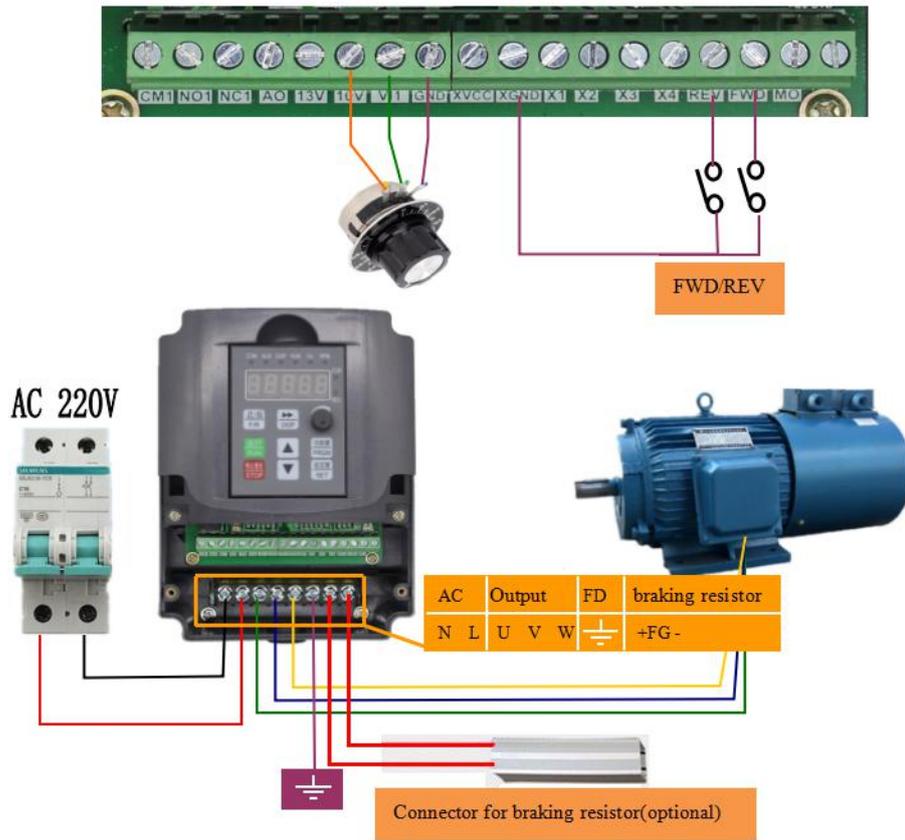
- Check if there is something wrong with the inner parts, wiring and circuit board.
- Check if each terminal is tightly locked and if there is any foreign article inside the inverter.
- Check if the operator buttons are all right.
- Check if the optional components you ordered are contained.

## 2. Nameplate Description of YL Series inverter



## 3. Basic Connection Diagram





## II. Safety Precautions

### 1. Before the Power-up



- Check to be sure that the voltage of the main circuit AC power supply matches the input voltage of the inverter.
- The symbol, , represents ground terminals. Be sure to make correct ground connection of the earth terminals of the motor and the inverter for safety.
- No contactor should be installed between the power supply and the inverter to be used for starting or stopping of the inverter. Otherwise it will affect the service life of the inverter.

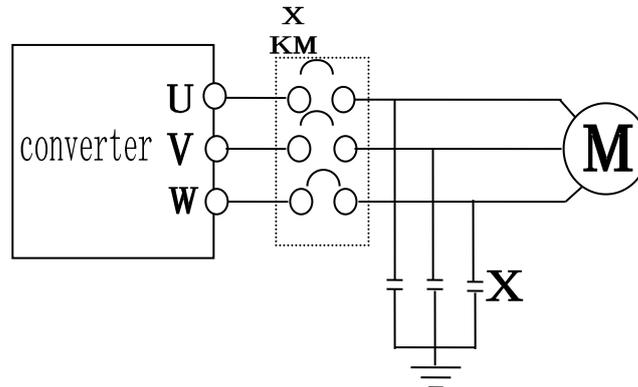


- R.S.T(N.L) terminals are power input terminals never mixed with U.V.W terminals. Be sure that the wiring of the main circuit is correct. Otherwise it will cause damages of the inverter when the power is applied to it.



- Do not carry the front cover of the inverter directly when handling. It should be handled with the base to prevent the fall-off of the front cover and avoid the dropping of the inverter, which may possibly cause the injuries to people and the damage to the inverter.
- Mount the inverter on a metal or other noncombustible material to avoid the risk of fire.
- Install the inverter in a safe location, avoiding high temperature, direct sunlight, humid air or water.
- Keep the inverter from the reach of children or persons not concerned.
- The inverter can only be used at the places accredited by our company. Any unauthorized working environment may have the risks of fire, gas explosion, electric shock and other incidents.
- Install a heat sink or other cooling device when installing more than one inverter in the same enclosure so that the temperature inside the enclosure be kept below 40°C to avoid overheating or the risk of fire.
- Be sure to turn off the power supply before disassembling or assembling the operation key panel and fixing the front cover to avoid bad contact causing faults or non-display of the operator.
- Do not install the inverter in a space with explosive gas to avoid the risk of explosion.
- If the inverter is used at or above 1000m above sea level, the cooling efficiency will be worse, so please run it by derating.
- Do not install any contactor and other components of capacitor or varistor on the output side of the inverter. Otherwise it will cause malfunctions and damages of components of the inverter. Do not install any switch component like air circuit breaker or contactor at the output of the inverter. If any of such components must be installed because of the requirements of process and others, it must be ensured that the inverter has no output when the switch acts. In addition, it is forbidden to install any capacitor for improvement of power factor or any varistor against thunder at the output. Otherwise it will cause malfunctions, tripping protection and damages of components of the inverter. Please remove them as shown in the below diagram.
- It will affect the service life of the inverter if a contact is connected to the front end of input of the inverter to control its starts and stops. Generally it is required to control it through FOR or RIIV terminals. Special attention should be paid to its use in the case of frequent starts and stops.

- Please use an independent power supply for the inverter. Do not use the common power supply with an electrical welder and other equipment with strong disturbance. Otherwise it will cause the protection or even damage of the inverter.



## 2. During the Power-up



- Do not plug the connectors of the inverter during the power up to avoid any surge into the main control board due to plugging, which might cause the damage of the inverter.
- Always have the protective cover in place before the power up to avoid electrical shock injury.

## 3. During the Operation



- Never connect or disconnect the motor set while the inverter is in running. Otherwise it will cause over-current trip and even burn up the main circuit of the inverter.



- Never remove the front cover of the inverter while the inverter is powered up to avoid any injury of electric shock.
- Do not come close to the machine when the fault restart function is used to avoid anything unexpected. The motor may automatically restart after its stop.
- The function of STOP Switch is only valid after setting, which is different with the use of emergent stop switch. Please pay attention to it when using it.



- Do not touch the heat sink, braking resistor, or other heat elements to avoid being scalded.
- Be sure that the motor and machine is within the applicable speed ranges before starting operation because the inverter is quite easy to run from lower speed to higher speed.
- Do not check the signals on circuit boards while the inverter is running to avoid danger.
- Be careful when changing the inverter settings. The inverter has been adjusted and set before ex work. Do not adjust it wantonly. Please make proper adjustments according to the required functions.
- Do consider the vibration, noise and the speed limit of the motor bearings and the mechanical devices when the inverter is running at or above the frequency of 50Hz.

### III. Standards and Specifications

#### 1. Particular Specifications

Type	Input Voltage	Power (KW)	Inverter Capacity (KVA)	Output Current (A)	Suitable Motor (KW)
YL600-1.5KW-110V	Single Phase 110V60Hz	1.5	2.8	14	1.5
YL600-2.2KW-110V	Single Phase 110V60Hz	2.2	4.0	20	2.2
YL620-1.5KW-110V Mini Specifications	Single Phase 110V60Hz	1.5	2.8	13.6	1.5
YL620-1.5KW-110V-A	Single Phase 110V60Hz	1.5	2.8	14	1.5
YL620-2.2KW-110V-A	Single Phase 110V60Hz	2.2	4.0	20	2.2
YL600-1.5KW-220V	Single Phase 220V50Hz	1.5	2.8	7.0	1.5
YL600-2.2KW-220V	Single Phase 220V50Hz	2.2	4.0	10	2.2
YL620-1.5KW-220V Mini Specifications	Single Phase 220V50Hz	1.5	2.8	7.0	1.5
YL620-1.5KW-220V-A	Single Phase 220V50Hz	1.5	2.8	7.0	1.5
YL620-2.2KW-220V-A	Single Phase 220V50Hz	2.2	4.0	10	2.2
YL620-3.0KW-220V-A	Single Phase 220V50Hz	3.0	5.5	13	3.0
YL620-4.0KW-220V-A	Single Phase 220V50Hz	4.0	5.9	19.2	4.0
YL620-5.5KW-220V-A	Single Phase 220V50Hz	5.5	8.9	25	5.5

### IV. Storage and Installation

#### 1. Storage

The inverter must be kept in its original package box before installation. Pay attention to the followings when keeping it in storage if the inverter is not used for the time being:

- It must be stored in a dry place without rubbish or dust.
- The suitable temperature for storage is between -20°C and +65°C.
- The relative humidity required is 0-95% without condensation.
- There is no corrosive gas or liquid in the storage ambience.
- It's better to lay the inverter on a rack and keep it in a proper package.

- It is better not to store the inverter for long time. Long time storage of the inverter will lead to the deterioration of electrolytic capacity. If it needs to be stored for a long time make sure to power it up one time within a year and the power-up time should be at least above five hours. When powered up the voltage must be increased slowly with a voltage regulator to the rated voltage value.

## 2. Installation Site and Environment

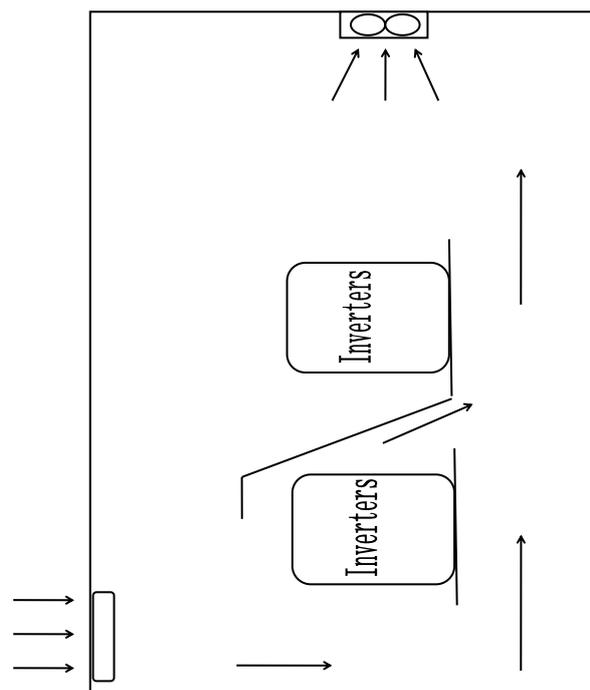
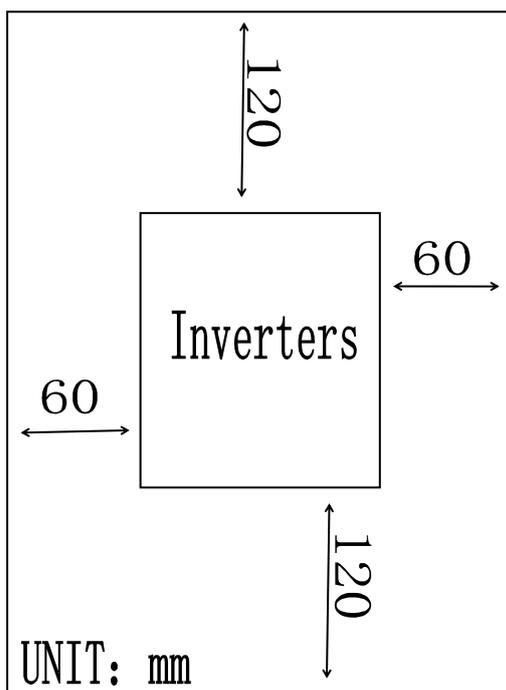
The inverter should be installed at the following location:

- Ambient temperature  $-5^{\circ}\text{C}$  to  $40^{\circ}\text{C}$  with good ventilation.
- No water drop and low moisture.
- Free from direct sunshine, high temperature and heavy dust fall.
- Free from corrosive gas or liquid.
- Less dust, oil gas and metallic particles
- Free from vibration and easy for service and inspection.
- Free from the interference of electromagnetic noise.

Attention: The ambient conditions of the inverter will affect its service life.

## 3. Installation and Direction

- There must be enough space left around the inverter for easy maintenance and cooling. See Diagram.
- The inverter must be installed vertically with the smooth ventilation for effective cooling.
- If there is any instability when installing the inverter, please put a flat board under the inverter bottom base and install it again. If the inverter is installed on a loose surface, stress may cause damage of parts in the main circuit so as to damage the inverter.
- The inverter should be installed on non-combustible materials, such as iron plate.
- If several inverters are installed, upper and lower, together in one cabinet, please add heat dissipation plates and leave enough space between the inverters. See Diagram.



## V.Wiring

### 1.Main Circuit Wiring Schematic Diagram

Power supply:Verify that the inverter s rated voltage coincides with the power supply voltage to avoid a damage of the inverter。

No fuse breaker:Refer tothe related list。

Ground fault circuit interrupter:Use one of anti-high harmonic。

Electromagnetic contactor:

Note:Do not use the electromagnetic contactor as the on/off button of power supply for

The inverter:

AC reactor:It is recommended to install an AC reactor for power factor improvement if the input capacity is more than 1000KVA.

Inverter:

- Be sure to make correct connections of the main circuit wires and control signal Wires of the inverter。
- Be sure to make correct setting of parameters for the inverter。

### 2.Function Description of Main circuit Terminals

Symbol	Function Description
R.S.T(N.L)	Input terminal of AC line power (220V class,for both single/three phase,single phase connected to any two phases)
U.V.W	Output terminal of the inverter
+DB-	Connector for braking resistor(optional)
FG	Grounding terminal 

### 3.Function Description of Control Circuit Terminals

#### YL600series

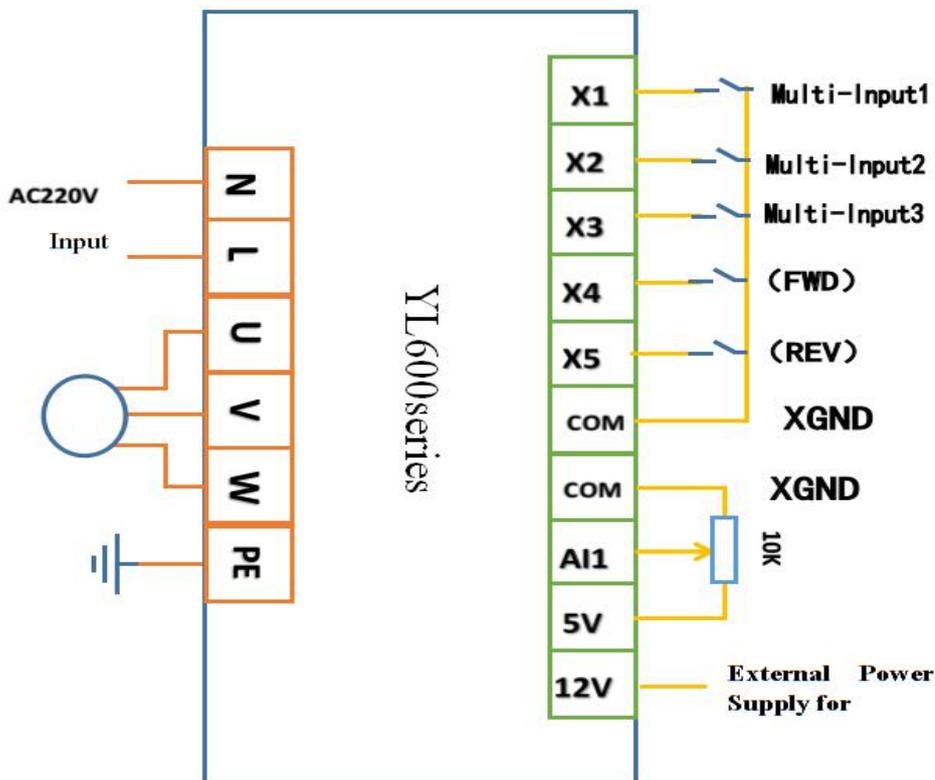
Symbol	Function Description	Factory setting
X1	Multi-Input 1	
X2	Multi-Input 2	
X3	Multi-Input 3	
X4	Multi-Input 4	Forward run
X5	Multi-Input 5	Reverse run
COM	Common Terminal of Digital and Control signals	
AI1	Analog Voltage Frequency Reference Input	
5V	Power Supply for Speed Setting	

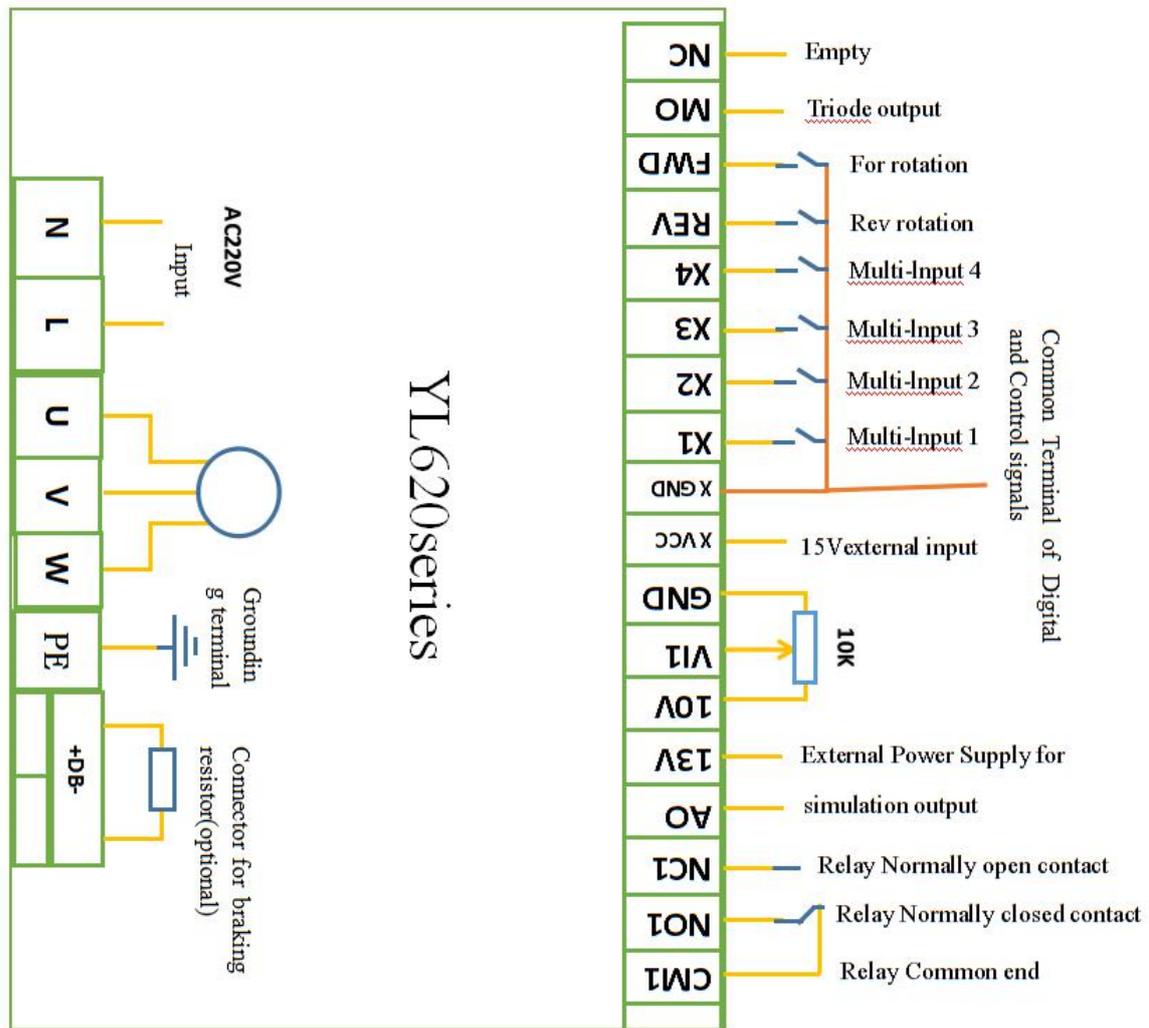
#### YL620series

Symbol	Function Description	Factory setting
NC	empty	
MO	Triode output	
FWD	For rotation	
REV	Rev rotation	
X4	Multi-Input 4	
X3	Multi-Input 3	
X2	Multi-Input2	
X1	Multi-Input 1	
XGND	Common Terminal of Digital and Control signals	
XVCC	15Vexternal input	
GND	Common Terminal of Digital and Control signals	
VI1	Analog Voltage Frequency Reference Input	
10V	Power Supply for Speed Setting	
13V	External Power Supply for	
AO	simulation output	
NC1	Relay Normally open contact	
NO1	Relay Normally closed contact	
CM1	Relay Common end	

#### 4.Basic Connection Diagram

The wiring of the inverter is divided into two parts,main circuit terminal connections and control Circuit terminal connections.The user can see the main circuit terminals,and the control circuit terminals After removing the cover of enclosure.The terminals must be connected correctly as the following wiring circuit diagrams.





Note: The above wiring diagram explained that only supplies the reference, take the actual product as the standard. The diagram is subject to change without notice.

## 5. Precautions on Wiring

### ① For the main circuit wiring:

- While wiring the sizes and specifications of wires should be selected and the wiring should be executed according to the electrical engineering regulations to ensure the safety.
- It is better to use shielded wire or wire and conduit for power cord and ground the shielded layer or two ends of wire conduit.
- Be sure to install a Non Fuse Breaker(NFB) between the power supply and the input terminals (R.S.T). (If using ground fault circuit interrupter please choose one corresponding to high frequency)
- Never connect AC power to the output terminal (U.V.W) of the inverter.
- Output wires mustn't be in touch of the metal part of the inverter enclosure, or it will result in earth short-circuit.
- Phase-shifting capacitors, LC, RC noise filters, etc, can never be connected to the output terminals of the inverter.
- The main circuit wire must be enough far away from other control equipments.

When the wiring between the inverter and the motor exceeds 15 meters for 220V class or 30 meters for 380V class,

much higher  $dV/dT$  will be produced inside the coil of the motor, which will cause the destruction to the interlay or insulation of the motor Please use a dedicated AC motor for the inverter or add a reactor at the inverter.

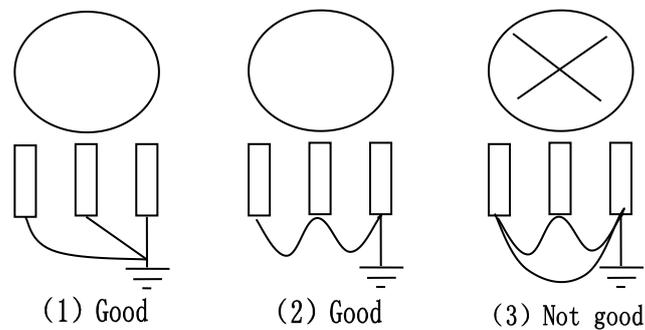
- Please lower the carrier frequency when there is a longer distance between the inverter and the motor Because the higher the carrier frequency is the bigger the leakage current of high-order harmonics in the cables will be. The leakage current will have unfavorable effect on the inverter and other equipment.

## ② For control circuit wiring(signal line)

- The signal line should be separately laid in a different conduit with the main circuit wire to avoid any possible interference.
- Please use the shielded cable with the size of 0.52mm for signal lines.
- Use the control terminals on the control panel correctly according to your needs.

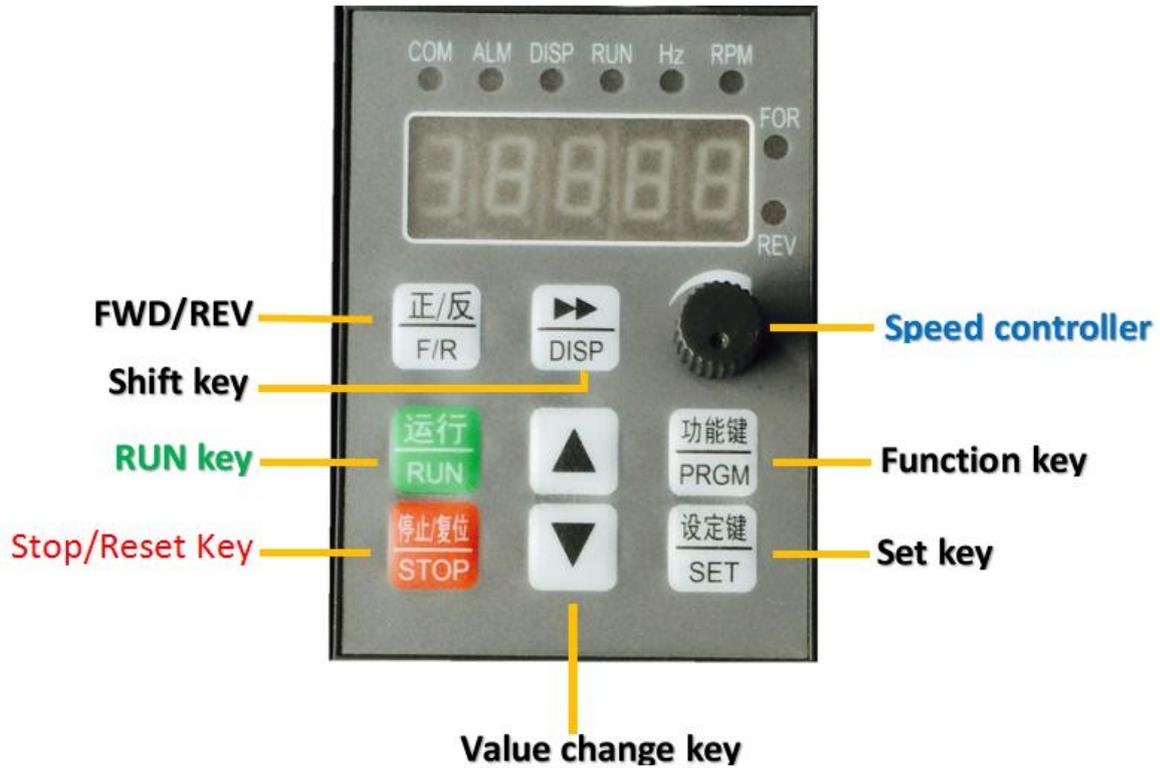
## ③ Grounding

- Grounding terminal E. Be sure to make correct grounding
  - 220V class: The third grounding method(Grounding resistance should be  $100\Omega$  or lower)
  - 380V class: The special third grounding method(Grounding resistance should be  $10\Omega$  or lower)
- Choose grounding wires according to the basic length and size of the technical requirements of the electric equipment
- Do avoid sharing grounding wire with other large power equipment such as electric welder, power machine, etc. The grounding wire should be kept away from the power supply wires for large power equipment.
- The grounding method for several inverters together should be done as the first and second diagrams below. Avoid the third loop.
- The grounding wire must be as shorter as possible.



## VI. Instruction of the Digital Operator

### 1. Description of the Digital Operator



### 2. Description of Indicator Lamp Status

Indicator Lamp	Status	Description
FOR	on	The motor is in forward rotation
REV	on	The motor is in reverse rotation
COM	on	
ALM	on	Displaying fault
DISP	on	
RUN	on	The motor is in Work rotation
Hz	on	Displaying counting value
RPM	on	

### 3. Description of Operation Examples

Procedures	Display	Indicator Lamp	Explanation
Power up, Operation of power	F400.0		Self detect when power-up,display version no.(Flashing)and finally set frequency.
PRGM	P00.00		Enter programming Back from programming
DISP  	P01.00--P00.00		Monitor screen switching
 			changed value
SET			Confirm changed value
F/R		FOR-REV	Switch of For Rev.rotation,display the status of Rev rotation
knob	Adjust frequency	setting	Adjust running speed
STOP	Stop reset key		Stop

## VII.Commissioning

### 1.Important Checks before the Commissioning

If there is any wrong connected wires? Pay special attention to the terminal of U.V.W; Make sure the power supply wires are connected to R.S.T, not U.V.W.

If there is any metal powder or wires left on the base plate of the inverter or the terminal block, which may cause short circuit

If screws are tightly locked and if the connecting parts are loose.

If there is any short circuit or earth fault at outputs

### 2. Commissioning Methods

The procedure of the operator is factory set up for the control mode of YL series The commissioning can be carried out through the digital operator Generally, the commissioning can be conducted at 5.00Hz.

## VIII.Function List

### 1.Parameters Function List1

Code	Function	Set Range & Function Explanation	Factory Setting	User Set Value
P00.00	Main Frequency	0-120HZ(400HZ)	50.0H Z	400
P00.01	Start / stop command source	0: Operator board	0	
		1: From external end control Electric machinery,operation panel STOP key effective		
		2: From external end son control Electric machinery,operation panel STOP key invalid		
		3: from (Modbus Rs485) control Electric machinery		
		4: By user application program control Electric		

		machinery		
P00.02	Reserved		0	
P00.03	Stopping Mode	0: Decelerating stop	0	
		1: Coasting stop		
		2: DC brake stop		
P00.04	VF:Highest output frequency	1.0-120.0HZ(400HZ)	50.0H Z	400
P00.05	VF:Maximum Voltage Output Frequency	5.0-120.0HZ(400HZ)	50.0H Z	400
P00.06	VF:Highest output Voltage	10.0%-150.0%	100.0 %	140
P00.07	VF:Middle Frequency	1.0-120.0HZ(400HZ)	10.0H Z	3.5
P00.08	VF:Middle Voltage	10.0%-100.0%	25%	10
P00.09	VF:Min Frequency	0-120.0HZ(400HZ)	0.2H Z	0.2
P00.10	VF:Min Voltage	0%-100.0%	20%	5
P00.11	Analog Input quantity 1 Regulation Multistage velocity	0%-100%	100	100
P00.12	VF :Curve Setting	0-4	0	
P00.13	Parameter Lock	0: Invalid	0	
		1: Valid		
		10: Restore the factory setting No other function		
P00.14	Reserved		0	
P00.15	Power on Time prohibit External end son Start-up	0: Power on time,allow External end son input effective level,start-up Electric machinery .	0	
		1: Power on time,Not allow External end son input effective level,start-up Electric machinery .		
P00.16		0: FWD(X5)yes,Positive run the command ,REV(X6)yes,reverse run the command	0	
		1: REV(X6)Determine direction:Open Yes FWD,Shut Yes REV;FWD(X5)Start command:FWD Stop,REV Boot		
		2:X_EF=EF,X_REV(X5)_DIR=DIR,FWD(X6)=RUN.Three wire control motor operation		
		3: Stop, FWD(X5) turn off Instantaneous , positive start motor;run, REV(X6) shut down immediately Stop Stop, REV(X6)Turn off the reverse start motor; run, FWD(X5)Closing action, Stop		
		4: FWD(X5) turn off Instantaneous , positive start motor;; REV(X6)Closing		

		action, Stop 5: FWD(X5) turn off Instantaneous , positive start motor;; REV(X6) shut down immediately Stop 6: Stop, FWD(X5) turn off Instantaneous , positive start motor;; run, FWD(X5) shut down immediately Stop.run REV(X6)turn off the motor immediately, Reversing 7: REV(X6)When open, FWD(X5)Start-up instant, Positive direction start motor; REV(X6)When closed, the motor is not allowed to start; Runtime REV(X6) Closing action Instantaneous stop		
P00.17	Many function input X1 function Choice	#####	1	
P00.18	Many function input X2 function Choice			
P00.19	Many function input X3 function Choice			
P00.20	Many function input X4 function Choice			
P00.21	External Terminal rise/Slow down increment	0-120HZ(400HZ)	1.0H Z	
P00.22	External Terminal rise/Slow down time interval			0.2
P00.23	Physics amount display Proportion constant	0-999.9%	100.0 %	
P00.24	After power supply, display project Choice	0: Display current target frequency	0	
		1:Display Electric machinery run frequency.		
		2:Display Electric machinery run current.		
		3:Display input AC voltage		
		4:Display mother Line voltage		
		5:Display output voltage		
		6:Display speed paragraph Number SP x		
		7:Display inverter temperature t xx		
		8:Display input signal X1-X3/output signal		
		9:Display user variable		

		10:Display user Count value		
		11:Display temporary debugging variable		
		12:Display automatic multi segment run step and time		
P00.25	Display project automatic Return delayed time(10/S)	0: No, Automatic return; 1-6delayed 10-60S Back Return.	1	
P01.00	REV Rotation Select	0:Rev Run Enable	0	
		1:Rev Run forbidden		
P01.01	Electric machinery Reversing wait for time			
P01.02	Deceleration Prevention overvoltage setting(%)			130
P01.03	Accelerated Prevention overcurrent setting(%)			130
P01.04	Overcurrent Set up(%)			200
P01.05	Overload protection Set up(%)			130
P01.06	Overload protection time Set up(s)			120
P01.07	Undervoltage protection Set up(%)			80
P01.08	Overvoltage protection Set up(%)			150
P01.09	After shutdown, start DC Brake voltage Set up (%)			15
P01.10	After shutdown, End DC Brake voltage Set up (%)			0
P01.11	After shutdown, DC Braking Time Set up			2.0
P01.12	After shutdown, DC Braking Initial Frequency Set up			0.6
P01.13	Before start, input DC brake voltage set up (%)			20
P01.14	Before start, End DC Brake voltage Set up (%)			15
P01.15	Before start, DC Braking Time Set up			3.0
P01.16	Direct start Initial frequency(Improve starting torque)			100
P01.17	Direct start Initial frequency Hold time			0
P01.18	power failure frequency decline			80
P01.19	The power down frequency decline rate			5.0
P01.20	Restart No load time			10
P01.21	Restart voltage rise time			200
P02.00	When speed up torque will increased			100
P02.01	Deceleration time - Torque Boost			100
P02.02	Accelerate curve Choice			0
P02.03	Deceleration curve Choice			0

P02.04	Avoid the frequency 1			20
P02.05	Avoid the frequency 2			30
P02.06	Avoid the frequency 3			40
P02.07	Avoid the frequency Width			0
P02.08	Window frequency 1			45
P02.09	Window frequency 2			50
P03.00	RS485 Communication Baud Rate	0: 1200Bps	5	
		1: 2400Bps		
		2: 4800Bps		
		3: 9600Bps		
		4: 19200Bps		
		5: 38400Bps		
		6: 57600Bps		
P03.01	RS485 Communication Addresses	1-254	10	
P03.02	RS485 Data Transfer Format Options	0: 8 bit data, 1 stop bits, odd parity	2	
		1: 8 bit data, 1 stop bits, parity check		
		2: 8 bit data, 1 stop bit, no parity		
		3: 8 bit data, 2 stop bits, odd parity		
		4: 8 bit data, 2 stop bits, parity check		
		5: 8 bit data, 2 stop bit, no parity		
P03.03	Communication error handling			0
P03.04	Communication error tolerance time			20
P03.05	4-20mA Break detection time			0
P03.06	Panel potentiometer,Lower limit of AD norm	0-1023	3	
P03.07	Panel potentiometer,Upper limit of AD specification	0-1023	1020	1015
P03.08	Panel potentiometer, frequency given of lower limit.	0-120HZ(400HZ)	0.0H Z	0
P03.09	Panel potentiometer, frequency given of Upper limit	0-120HZ(400HZ)	60.0H Z	400
P03.10	Analog Input 1 AD lower limit	0-1023	3	
P03.11	Analog Input 1 AD Upper limit	0-1023	1020	1010
P03.12	Analog Input 1 frequency given lower limit	0-120HZ(400HZ)	0.0H Z	
P03.13	Analog Input 1 frequency given Upper limit	0-120HZ(400HZ)	60.0H Z	400
P03.14	Analog Input 2 AD lower limit	0-1023	3	
P03.15	Analog Input 2 AD Upper limit	0-1023	1020	1010
P03.16	Analog Input 2 frequency given lower limit	0-120HZ(400HZ)	0.0H Z	
P03.17	Analog Input 2 frequency given Upper limit	0-120HZ(400HZ)	60.0H Z	
P03.18	Analog output correlation	0: The analog output is proportional to the output frequency	0	

		1: The analog output is proportional to the output current		
		2:The analog output is proportional to the output voltage		
P03.19	Analog output gain setting			100
P04.00	Mo analog multiplier output frequency multiplier			10
P04.01	Mo1 Function Options			0
P04.02	Mo2 Function Options			1
P04.03	Multi-function Relay 1 Function selection	0: fault Yes Electric , otherwise power failure		2
P04.04	Multi-function Relay 2 Function selection	1: Running Yes Electric ,otherwise power failure		
		2: Reserved		
		3: Arbitrary frequency arrival Time, have Electric, Related to P02-10 settings		
		4:,The power down Time, have Electric		
		5: ,low voltage Time, have Electric		
		6: ,Overvoltage Time, have Electric		
		7: Overcurrent Time, have Electric		
		8: Nonzero velocity Time, have Electric		
		9: ,DC brake Time, have Electric		
		10: Over torque Time, have Electric		
		11: External interrupt fault Time, have Electric		
		12: Forward Time, have Electric	0	
		13: Reversal Time, have Electric		
		14: Move Time, have Electric		
		15: Accelerate Time, have Electric		
		16: Deceleration Time, have Electric		
		17: Constant speed Time, have Electric		
		18: X1 close Time, have Electric		
		19: X2 close Time, have Electric		
		20: X3 close Time, have Electric		
		21: X4 close Time, have Electric		
		22: X5 close Time, have Electric		
		23: X6 close Time, have Electric		
		24: Forward and bus voltage greater than 400V Time, have Electric		
		25: Reverse and bus voltage greater than 400V Time, have Electric		
P04.05	Multi-function Relay 1 Action close Delayed	0-65.5 S		0
P04.06	Multi-function Relay 1 disconnect delay action	0-65.5 S		0

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P04.07	Multi-function Relay 1 Action close Delayed	0-65.5 S	0	
P04.08	Multi-function Relay 1 disconnect delay action	0-65.5 S	0	
P04.09	Stall rotor detection time	0-65.5 S	1.0	
P04.10	Switch amount (Di) sampling time	0-1000mS	8	24
P04.11	Stopping Mode	0: Decelerating stop	0	
		1: Coasting stop		
P05.00	PID Output Upper limit frequency			50
P05.01	PID Output lower limit frequency			25
P05.02	PID Given Source			0
P05.03	PID Values Given			0.2
P05.04	PID Output characteristic(FOR/REV)			0
P05.05	PID Output characteristic(FOR/REV)			0
P05.06	PID Proportional Gain Kp	0-100.0		50
P05.07	PID Integration Time Ti	0-100.0		50
P05.08	PID Derivative Time Td	0-100.0		50
P05.09	PID Deviation Limit	0-50.0		5.0
P05.10	PID Integral upper limit			50
P05.11	PID Given Change Time	0-600.0		1.0
P05.12	PID Feedback Filter Time			0
P06.00	Acceleration Time			0
P06.01	Accel. Time 1	0.1-6553.5	2.0	9
P06.02	Decel. Time 1	0.1-6553.5	2.0	8.6
P06.03	Accel. Time 2	0.1-6553.5	2.0	2
P06.04	Decel. Time 2	0.1-6553.5	2.0	2
P06.05	Accel. Time 3	0.1-6553.5	2.0	2
P06.06	Decel. Time 3	0.1-6553.5	2.0	2
P06.07	Accel. Time 4	0.1-6553.5	2.0	2
P06.08	Decel. Time 4	0.1-6553.5	2.0	2
P06.09	Accel. Time 5	0.1-6553.5	2.0	2
P06.10	Decel. Time 5	0.1-6553.5	2.0	2
P06.11	Accel. Time 6	0.1-6553.5	2.0	2
P06.12	Decel. Time 6	0.1-6553.5	2.0	2
P06.13	Accel. Time 7	0.1-6553.5	2.0	2
P06.14	Decel. Time 7	0.1-6553.5	2.0	2
P06.15	Accel. Time 8	0.1-6553.5	2.0	2
P06.16	Decel. Time 8	0.1-6553.5	2.0	2
P06.17	Jog Acceleration Time	0.1-6553.5	2.0	2
P06.18	Jog Deceleration Time	0.1-6553.5	2.0	2
P07.00	Frequency 1	0-120HZ(400HZ)	50HZ	50
P07.01	Frequency 2		50HZ	45
P07.02	Frequency 3		50HZ	40
P07.03	Frequency 4		50HZ	35
P07.04	Frequency 5		50HZ	30

P07.05	Frequency 6		50HZ	25
P07.06	Frequency 7		50HZ	20
P07.07	Frequency 8		50HZ	15
P07.08	Frequency source selection 1	0: Operator board(parameter:	0	
P07.09	Frequency source selection 2	P03.06~P03.09)	2	
P07.10	Frequency source selection 3	1: Pre~set Frequency, P00.00 Set	2	
P07.11	Frequency source selection 4	frequency value, Operation panel keyboard,Can	2	
P07.12	Frequency source selection 5	be set directly	2	
P07.13	Frequency source selection 6	2: No. X paragraph frequency P07.00~P07.07	2	
P07.14	Frequency source selection 7	3: Analog Input.: P03.10~P03.13)	2	
		4: external simulation amount 2 (V12)	2	
P07.15	Frequency source selection 8	(parameter: P03.14~P03.17)		
		5: (Modbus Rs485)Given frequency	2	
		6: User application program, given frequency		
		7: ( Pid) Output frequency		
		Other: Reserved		
Note:three control methods (P07.08)		1.The motor speed is controlled by the operating panel 2.Motor speed control by external terminals (Potentiometer 10K). P00.01 set to 1, P07.08 set to 3 3.Motor speed control by external terminals. P00.01 set to 1, P07.08 set to 1.		
P07.16	Jogging Frequency FOR	0-120HZ(400HZ)	15.0HZ	
P07.17	Jogging Frequency REV	0-120HZ(400HZ)	15.0HZ	13
P08.00	Automatic many paragraph Running:Running direction	Binary data format to set the direction of operation, see 《the automatic multi segment operation, the operation of the direction set table》		0
P08.01	Automatic many paragraph Running:mode Choice	0: Automatic multi segment operation is invalid; 1: After execution complete,Stop; 2: After execution complete,Keep the last running state,Continued running; 3: After execution complete, Repeated execution.	0	
P08.02	Automatic many paragraph Running time Units:S/M	0: S;1: M	0	
P08.03	Automatic many paragraph Running No.1 paragraph Running time	Automatic multi -section run time, Set up Section speed run time。 Time units are determined by P08.02 Decision。 Set run time is 0, Indicates that this section is not executed.	10	1.0
P08.04	Automatic many paragraph Running No.2 paragraph Running time		10	1.5
P08.05	Automatic many paragraph Running No.3 paragraph Running time		10	1
P08.06	Automatic many paragraph Running No.4 paragraph Running time		10	1.5
P08.07	Automatic many paragraph Running		10	1

	No.5 paragraph Running time			
P08.08	Automatic many paragraph Running No.6 paragraph Running time		10	1.5
P08.09	Automatic many paragraph Running No.7 paragraph Running time		10	1
P08.10	Automatic many paragraph Running No.8 paragraph Running time		10	1.5
P09.00	frequency Range(%)	0-200%	0	
P09.01	frequency wave Range(%)	0-400%	200	30
P09.02	frequency Rise time (S)	0.1-999.9 S	6.0 S	
P09.03	frequency decline time (S)	0.1-999.9 S	5.0 S	
P10.00	Counter reload,value			1000
P10.01	Counter current value			0
P10.02	Timer reload,value			1000
P10.03	Timer current value			0
P11.00	Output Status			1
P11.01	Output Voltage (V)			0
P11.02	Output Current (A)			5
P11.03	Output Frequency (Hz)			50
P11.04	Current Heatsink Temperature			25
P12.00	Rated Motor Current			5
P12.01	Rated Motor Voltage			220
P12.02	Motor Pole number	2-100	2	
P12.03	Motor no-load current			10
P12.04	Motor no-load current detection time(S)			10
P12.05	Converter rated current(A)			5
P12.06	Converter rated Voltage(V)			220
P12.07	DC bus output voltage%			140
P12.08	Heat sink over temperature protection point			70
P12.09	Radiating fin temperature sensor configuration			1
P12.10	Abnormal reset implement wait time			120
P12.11	Fan Function Pattern	0:Motor running time, start fan;	1	
		1:When the fan operating temperature (P12.12) is exceeded,Instant start fan; When the temperature is lower than the fan temperature point, Delay about 1 minutes to close the fan;		
		2:Unconditional forced start fan;		
		3:Fan Inoperation;		
P12.12	Cooling fan operating temperature		55	45
P12.13	Fan Testing			0
P12.14	Bypass relay closed detection			0

P12.15	Bypass Relay delay time			1.5
P12.16	Power on delay timer initial value (S)			50
P12.17	Electric current sensor To configure			1
P12.18	Automatic stable pressure function Choice			1
P12.19	PWM Frequency	2.0-15.0KHZ	8.0KHZ	
P12.20	SVPWM Pattern	0:Three-phase asynchronous motor, 1:Two-phase asynchronous motor (Single-phase motor, 90 degree phase difference, Starting capacitor)	0	
P13.05	This machine Cumulative Function time (hours)			0

## LX. Care & Maintenance, Fault Information and Troubleshooting

Periodical maintenances and inspections will keep your inverter in its normal state for long time.

### 1. Precautions about Inspection and Maintenance

- Be sure to turn off the power supply to the inverter ( R.S.T) first before the inspection and maintenance.
- After confirming the main circuit power supply has been turned off and the display has disappeared, wait until the internal indicator lamp for high voltage goes out before performing the inspection and maintenance.
- During the inspection, do not pull out or wrongly distribute the internal power supply, wires and cables. Otherwise it will cause malfunction or damage to the inverter.
- Do not leave any screw or other part inside the inverter during the installation, or it will result in the short circuit of circuit board.
- Keep the inverter clean, free from dust, oil mist and moisture after the installation.

### 2. Periodical Inspection and Maintenance Items

- Check whether the power supply voltage conforms to the rated voltage of the inverter.  
(Pay special attention to that whether there is any damage on the power supply wires and the motor.)
- Check whether the wiring terminals and the connectors are tight  
(Check whether the power supply wires and terminal connection wires have any broken strand).
- Check whether there is dust, iron filings or corrosive fluid in the inverter.  
Measuring the insulation impedance of the inverter is forbidden.
- Examine the output voltage, output current and output frequency of the inverter.  
(The measuring results should not have too big difference.)
- Check whether the ambient temperature of the inverter is between -5°C and 40°C and whether the installation environment has good ventilation.
- Check whether the humidity is kept below 90% (without condensation).
- Check whether the motor makes unusual noises or abnormal vibration in running.  
(The inverter should not be installed in a place with high vibration.)
- Please make periodical cleaning of vent holes.

### 3.Fault Indication and Troubleshooting

The inverter of YL series is relatively perfective with the protection functions of overload, inter phase short circuit, earth

short circuit, under-voltage, overheating and over-current, etc. When a protection function happens with the inverter please check the reasons of faults according to the information listed in the table below. The inverter can be restarted after the disposal. If the fault cannot be disposed please contact the local distributor.

Fault Display	Fault Contents& Description	Disposal methods
Er 00	Low voltage	1:Check whether the input voltage is normal 2:Check whether there is sudden changes in load 3:Check whether there is any phase missing
Er 01	Over-voltage at stop Over-voltage at accel Over-voltage at constant speed Over-voltage at decel	1:Improve the mains supply voltage and check whether there is any sudden change in the voltage. 2:Extend the Ramp-down Time.
Er 02	Over-current at constant speed Over-current at decel Over-current at stop	1:Check whether the motor has got short circuit and whether the insulation of the output wires is good. 2:Check whether the motor is blocked and whether there is a sudden change of mechanical load. 3:Check whether there is a sudden change in the power supply voltage. 4:Check whether the insulation of the output wires is good and whether the motor has got short circuit. 5:Extend the Ramp-down Time. 6:Replace it with an inverter of larger capacity. 7:DC braking is too high.Decrease DC braking. 8:The inverter has failure.Please send it to the factory for repair.
Er 03	Output short circuit	1:Check whether the connection wire of the motor has got short circuit 2:Check whether the insulation of the output wires is good. 3:Please send it for repair.
Er 04	IPM,fault	Please send it for repair
Er 05	External interferences	Isolate the interference source
Er 06	Setting error	1、 restore factory settings, electrical parameter not included 2、 Reset operation。
Er 07	Overheat of inverter	1:Check whether the fan is blocked and whether there is any foreign matter stuck in the cooling fins. 2:Check whether the ambient temperature is normal. 3:Check whether there is enough space for ventilation and good air convection.
Er 08	NTC Thermocouple error	Please send it for repair
Er 09	Motor over-torque	1:Check whether there is any fluctuation in the mechanical load 2:Check whether the equipped motor is smaller
Er 10	Power failure	NO Input Voltage.
Er 11	CPU Low voltage	Please send it for repair
Er 12	Setting error	Please send it for repair
Er 13	SVPWM,Setting error	restore factory settings, electrical parameter not included
Er 14	Display board communication error	1:The connection of the connecting parts is abnormal. Check communication cable then reset operation. 2、 Please contact the factory

Er 15	Motor overload 150% Per minute	1:Check whether there is any sudden change in the mechanical load . 2:The equipped motor is too small. 3:The motor is hot and the insulation becomes bad. 4:Check whether the voltage has big fluctuation. 5:Check whether there is any phase missing. 6:The mechanical load is increased.
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## X.Selection of Peripheral Devices and Disposition

### 1.Options

Description	Functions
NFB or Ground fault interrupter for wire connection	Protect the wiring of the inverter. Be sure to install a breaker at the power. Please select a ground fault circuit interrupter against high-order harmonics.
Electromagnetic contactor	In order to prevent the braking resistor from burning out,please add an electromagnetic contactor and connect a surge absorber to the coil when using it.
Surge absorber	Absorb the switching surge current from the electromagnetic contactor and control relays.
Isolating transformer	Its function of isolating the input and output of the inverter is effective to reduce the interference to other electric devices.
DC reactor	Improve the input power factor of the inverter.
AC reactor	Improve the input power factor of the inverter and prevent the shock of surge voltage. .
Braking resistor, braking unit	Consume the regenerating energy of the motor and shorten the ramp-down time.

#### (1) Leakage switch

There is earth static capacity inside of the inverter and the motor as well as the input and output leads. Due to higher carrier frequency of the inverter the inverter has higher earth leakage current, especially for the inverters of large capacity series. When using a leakage switch it may sometimes result in the error action of the protective circuit. So when using a leakage switch attention should be paid to its selection and the proper reduction of carrier frequency and shortening the leads, etc.

#### (2) AC reactors

An AC reactor can constrict the high-order harmonic of input current of the inverter to improve its input power factor and prevent the shock of surge. It is recommended to use an input AC reactor under the following circumstances:

- a: Three-phase power supply is in unbalance.
- b: Any equipment with thyristor or power factor compensation unit with switching control is connected to the same power supply.

#### (3) DC reactors

It is necessary to install a DC reactor when the capacity of power supply is more than 1000 KVA or the mains power capacity is higher than the rated capacity of the inverter. A DC reactor is also needed for the case with higher demand on the improvement of power factor of power supply. This DC reactor can be used together with an AC reactor to achieve the obvious effect of decreasing high

order harmonic at input. If it is necessary to install a DC reactor please contact the local distributor.

## 2.Disposition of Braking Resistor

Inverter Model	Braking resistor Specification		Special Motor KW
	W	$\Omega$	
YL620-1.5KW-220V	100W	100 $\Omega$	1.5KW
YL620-2.2KW-220V	100W	70 $\Omega$	2.2KW
YL620-3.0KW-220V	300W	65 $\Omega$	3.0KW
YL620-4.0KW-220V	400W	45 $\Omega$	4.0KW
YL620-5.5KW-220V	800W	22 $\Omega$	5.5KW
YL620-1.5KW-380V	150W	220 $\Omega$	1.5KW
YL620-2.2KW-380V	250W	200 $\Omega$	2.2KW
YL620-3.0KW-380V	250W	180 $\Omega$	3.0KW
YL620-4.0KW-380V	300W	130 $\Omega$	4.0KW
YL620-5.5KW-380V	400W	90 $\Omega$	5.5KW

For the inverter of above 11KW to realize quick brake a braking unit must be added .

### Note:

- 1: Please select the resistor value and operating frequency given by our company.
- 2: If it causes any damage to the inverter and other devices due to the use of any braking Resistor and braking model group not supplied by our company, we will take no responsibility.
- 3: Be sure to consider the safety and ignitability of the environment when installing a braking resistor.The distance to the inverter should be at least 100 mm.
- 4: If it is necessary to change the resistor value and power value, please contact the local distributor.
- 5: In need of a braking resistor a separate order must be placed. Please contact the local distributor for details.

## XI.Customer feedback proposal