

Inverter

Special for Constant pressure water supply

使用说明书

Operating Instructions

V1.7

HY1--Single-phase to three-phase

■ HY2--Single-phase to single-phase

HY3--Three-phase to three-phase

HY4--Single-phase to three-phase(Step Up)

Mini AC motor driver
High performance low noise

1. Fast debugging

1.1 Connect power supply, motor, pressure sensor/remote pressure gauge(Refer to the wiring diagram on pages 2, 3 and 4 for wiring).

(1.11) Remote pressure gauge or 0-5V pressure sensor can be used directly without setting parameters. .

(1.12) The pressure sensor(24V 4-20mA) needs to set parameters p25=2, p098=13000.

1.2 Power on, then press the jog button to confirm whether the water pump operates and whether the value on the right side of the panel increases.

(The three-phase motor needs to confirm the direction of pump rotation. If the direction of rotation needs to be changed, power off and exchange any two-phase wires in U, V and W.)

1.3 Use the up and down keys (▲▼) to modify the target pressure on the left side of the display, press the up keys to pressurize, press the down keys to relieve the pressure and press the run keys to start.

The default range of inverter is 1MPa. Display unit is 0.1MPa(1 kg). for example,9.9 is 0.99MPa(9.9 Kg).



The value on the left side of the display is the setting pressure(Target pressure). The setting pressure can be changed by pressing up and down (▲▼)key. The value on the right side of the display is the pressure value measured by the Sensor/Pressure gauge, which changes with the water pressure. After starting, the output pressure will eventually stabilize around the pressure value on the left.

1.4 Common problem:

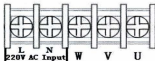
(1.41) If the value of the sensor/pressure gauge needs to be calibrated, please set parameters p097 and p098.

(1.42) Power-on self-starting for P054.

(1.43) If the water pressure is unstable,please set parameters p114 and p115.

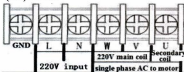
2. Wiring and function description of main loop terminal

(2.1) HY1



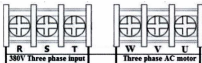
Terminal label	Function description
L, N	Single phase AC 220V input terminal
U, V, W	Output terminal connect to Three phase (220V-AT1) (380V-AT4) AC motor
GND	Grounding terminal

(2.2). HY2



Terminal label	Function description
L, N	Single phase AC 220V input terminal
U, V, W	Output terminal connect to Single phase 220V AC motor
GND	Grounding terminal

(2.3) HY3/HY4



Terminal label	Function description
R,S,T	Three phase AC 380V input terminal
U, V, W	Output terminal connect to Three phase 380V AC motor
GND	Grounding terminal

3. Terminal description

Port Name	functional description	instructions
COM	Common GND	COM for weak current
E_VI	VIA input	Sensor/Pressure gauge signal input
5V	Power output	Remote pressure gauge power supply
24V	Power output	Pressure sensor supply
TH	Reserved	Reserved for Temperature sensor
X1	Multi-function input port1	X1 is short-circuited with COM, and the input signal is valid
X2	Multi-function input port2	X2 is short-circuited with COM, and the input signal is valid
TA	Relay output (Optional)	250V/AC 5A/30VDC 3A TA and TB Normal Close ,TA and TC Normal Open
TB/TC		

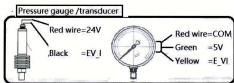
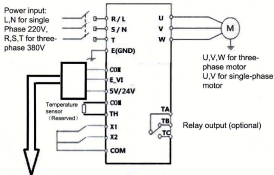
4. Basic operation wiring diagram

HY1: 220V input, three-phase 220V Motor(380V motor needs to change the triangle connection)

HY2: 220V input, single-phase 220V Motor(A few single-phase motors cannot be matched)

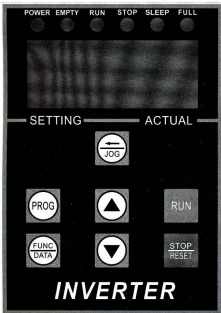
HY3: three-phase 380V input, three-phase 380V Motor

HY4: 220V input, three-phase 380V Motor



Pressure sensor signal wire color is for reference only, different vendors sensor color may be different

5. Operation panel



6. Keys instructions:

	Icon	Function description	
1	(Programming)	For selecting mode or Programming mode (it is available not mater the Inverter start or stop), press this key for modifying parameters.	
2	(Function / Save)	Function data setting key. Normal mode: press this key to display the information of the Inverter, such as target frequency, output frequency and current, temperature;	
3	Key (▲)	Parameter number or parameter value increase	Short press this key, then the numerical value will change gradually. Long press this key, then the numerical value will change 4 rapidly
4	Key (▼)	Parameter number or parameter value decrease	
5	← JOG	Shift in programming mode, jog in normal	
6	(run)	Start Inverter	
7	(stop/reset)	Stop operation, fault reset	
备注	When you adjust a parameter, you must modify the parameter in the stopped state, otherwise the changed parameter cannot be saved.		

7. Parameter setting mode and parameter table

(7.1) Parameter Setting Procedure :

Parameters must be modified in the stopped state

- (1) Press the PROG key to enter into the programming state;
- (2) Use the (▲▼) keys and (←/JOG) key to find the parameters that need to be modified;
- (3) Press (FUNC /DATA) key to enter into the parameter;
- (4) Use the (▲▼) keys and (←/JOG) key to modify the parameter values;
- (5) Press (FUNC /DATA) key to save parameters,
If you need to modify other parameters, repeat step(2)(3)(4)(5);
if the modification is completed, continue with step(6);
- (6) Press the PROG key to exit the programming state.

(7.2) Sensor Description:

The default parameters of the inverter support 5V 0-1.0MPa remote pressure gauge / pressure sensor. It also supports 4-20mA and 0-10V signal input (P25=1 is 0-10V ,P25=2&P098=13000 is 20mA.)

The supply voltage of the sensor is 5V and 24V.

(7.3) Pressure calibration (please use JOG key test first):

Please confirm that the sensor voltage and signal have been set correctly according to 7.2. Due to different pressure gauges, if the pressure display is inaccurate, you can modify the following parameters:

- ① Connect the pressure gauge/sensor, confirm that there is no water in the water pipe and no pressure at the pressure gauge/sensor, then press the FUNC/DATA key 6 times, and record the 5 bits parameter values.
- ② Set P98 to the 5-bits value recorded in step 1.
- ③ Start up the Inverter and observe the error between the Inverter pressure value and the pressure gauge reading. Adjust the value of P97 according to the error multiple relationship.

(For example, pressure gauge shows 0.2mpa(2kg), Inverter shows 1.0kg; Pressure gauge shows 0.3mpa(3 kg), frequency converter shows 1.5 kg; Then the value of P97 is halved.)

8. Parameter specification

Parameter	Parameter specification	Parameter range	Default	Unit
P00	Maximum voltage	0---220.0	220/380	V
P01	Reference frequency	0---400.0	50	Hz
P02	Intermediate voltage	0---220.0	110/190	V
P03	Intermediate frequency	0---400.0	25	Hz
P04	Min voltage	0---220.0	0	V
P05	Min frequency	0---400.0	0	Hz
P06	Max operating Freq.	0---400.0	50	Hz
P07	Min operating Freq.	0---400.0	20	Hz
P10	Dormancy options	0: Turn off water shortage and water full sleep; 1: No water full sleep; 2: No water shortage sleep; 3: Turn on two sleep functions	3	
P11	Start stop control source	0: Panel keyboard; 2: External port.	0	
P12	Stopping Modes	0: Inertial stop; 1: Deceleration stop; 2: Brake stop; 3: Emergency brake.	1	
P13	Braking time	0---2.5	0.5	S
P14	Braked Voltage	0---140.0	20	V

P22	Carrier set	1—20	10	KHz
P25	Analog input options	0: 5V; 1: 10V; 2: 20mA.	0	
P26	Working Frequency	0—400.0	50	Hz
P27	Accelerated Speed	1—1000	15	Hz/S
P28	Deceleration speed	1—1000	10	Hz/S
P29	Input stabilization time	0—65535	60	mS
P30	Voltage coefficient	0—65535	By model	
P31	Undervoltage setting	0—220.0	60/180	V
P32	Overvoltage setting	220.0—400.0	360/600	V
P38	Restore factory settings	0—65535 (Restore factory settings at 54321)	0	
P39	Overload current	0-65535	By model	mA
P40	Single-phase/three-phase output	0:three-phase; 2:Single-phase three-wire;	0	
P43	Relay output	0: invalid, no output; 1: operating instructions; 2: set arrival instructions 3: fault indication;	0	
P44	Display options	0: Setting - Actual pressure; 1: operating frequency; 2: revolution; 3: temperature;	0	

P49	Motor direction selection	1: Forced forward run; 2: Forced reverse run; 3: Save forward run; 4: Save reverse run.	0	
P54	Power on options	0: normal power on; 1: Report error with start signal when power on; 2: Power on forward; 3: Power on reverse.	0	
P56	Freq. of Anti-freezing function	0---100.0	5	Hz
P57	Operation time of Anti-freezing	0---10000	0	S
P58	Interval time of Anti-freezing	0---10000	0	S
P60	Pressure stability range (absolute value)	If the difference between actual and set pressure is less than P60, the pressure is stable. P60=9.90 invalid	9.9	kg
P61	Deceleration at Stable timing arrival	1-1000	50	0.1Hz /S
P62	Pressure stabilization time	0-65535	10000	mS
P97	Internal adjustment value for maximum pressure	0---65535	65535	
P98	Internal adjustment value for minimum pressure	0---65535	5800	4~20mA Input ~13000

P99	Maximum pressure	0---10	10	0.1mP
P100	Minimum pressure	0---10	0	0.1mP
P101	Wake-up value of Water shortage	0---10	0.6	0.1mP
P103	Running time of water shortage Wake-up	0-65535	5000	mS
P105	Pressure set upper limit	0---10	10	Mp
P106	Pressure set lower limit	0---10	0	Mp
P107	Pressure set point	0---10	1	Mp
P108	Pressure greater than P108 indicates the presence of water ,Wake-up	0---10	0.1	Mp
P109	Pressure less than P109 for P111 times indicates no water,Sleep	0---10	0.1	Mp
P110	Actual pressure+P110 is still less than the Setting pressure when sleeping, It determines that someone is using water, Wake-up	0---10	0.1	Mp
P111	The time of P109	0-65535	60	S
P112	If the lowest speed running time exceeds this value, it determines no one uses water,Sleep.	0-65535	15	S
P113	If the actual pressure minus the set pressure is greater than P113, sleep	0---10	0.1	Mpa

P114	PID-P	0-65535	5000	
P115	PID-I	0-65535	500	
P116	PID-D	0-65535	0	
P117	Interval time of water shortage Wake-up	0-65535	10	minute
P127	Running time countdown	0-65535	65535	

9. Fault Code

Fault Code Display	Fault Code Description
Err 1	Short Circuit/Current overload/Power Module protection
Err 2	Undervoltage protection
Err 3	Overvoltage protection
Err 4	Driving Circuit Failure
Err 6	Over current protection
Err 7	Overtime
Err 8	Excessive temperatures for radiator