

Changzhou Xionghua Tongtai Automation Equipment Co., Ltd



User's Guide

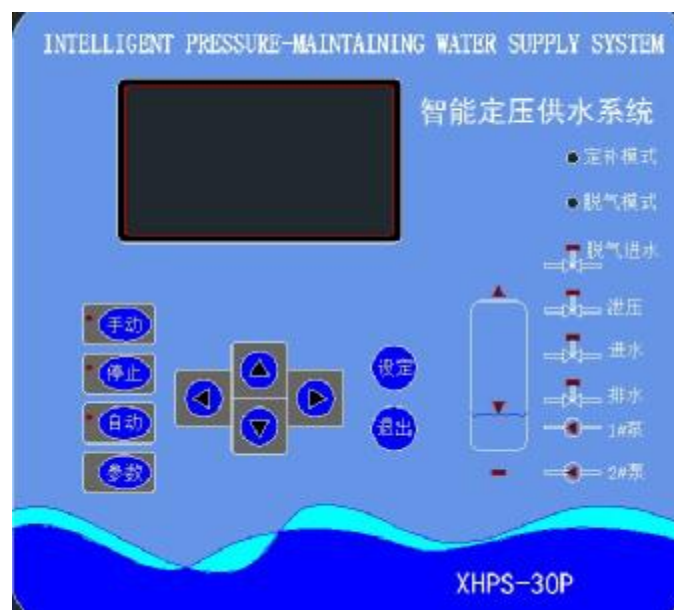
Constant-pressure Water Supply Controller

XHPS-30P

Feature

- l It has liquid crystal display panel to show the work status.
- l After turning on for 5s, the display will show the customer company name and telephone number.
- l The user can set the parameters and operate the equipment on the panel.
- l Through the level transducer, control degassing valve and water supply valve to realize the level control. Through the pressure transducer, control 1-2 pumps, and pressure relief valve to realize the pressure control.
- l Three work modes is manual control, automatic control , and remote control.
- l The controller has fault signal input/output.
- l With 485 COM port and standard MODBUS communication protocol, it can realize remote communication function.
- l Built-in timing halt function, need enter password to turn the function off.

Panel drawing



Panel

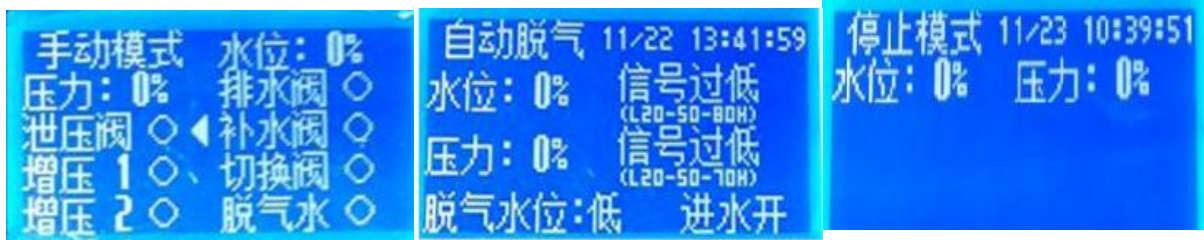
1. The panel has running indicator,
2. The LCD show the two work status (level control and pressure control)
3. Manual mode : directly operate on the panel to control ON/OFF of the 'valve' and 'pump'.
Automatic mode : according to the set value, it can automatically run or remotely control ON/OFF of the equipments.
4. 'value' : enter the value setting screen, and modify the value through the 4 direction keys
5. 'set' : confirm and save the setting
6. 'exit' ; exit the setting mode

Operation picture

I the boost screen



● the current work screen



● panel operation

★ Manual (press 'Manual' button to enter the manual mode, then press $\wedge/\vee$ to select the control objects and press 'SET' to start the object and press 'Exit' to end the object)



★ Stop (press 'Stop' button to stop all the objects working)

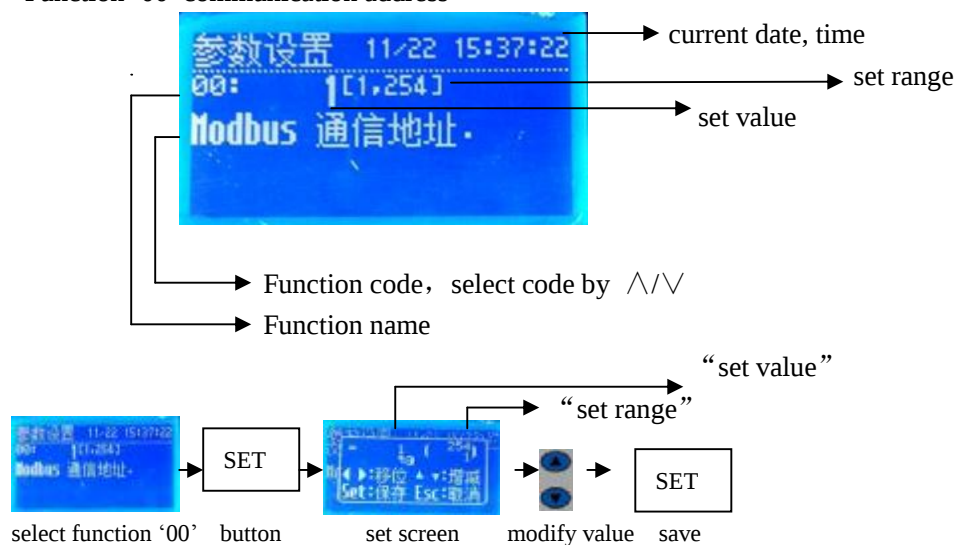
★ Automatic (press 'Automatic' to enter the automatic mode, the equipment will automatically work according to the set values)

★ Value (press 'Value' to enter the value set in automatic mode)

Step : 'Function Table', press $\wedge/\vee$ to select the function code and enter the function screen, and press 'SET' to enter the value setting, then press $\wedge/\vee, </>$ to modify the value, at last, press 'SET' to save the set and return to modified new screen.

Example of value set

Function '00' communication address

**Function Table**

Function code	Name	Range	Description	Remark
00	Modbus communication address	1-254		
01	Work mode	0-2	0: time period switch 1: constant -pressure water supply mode 2: vacuum degassing mode	‘0’,the function codes are all useful ‘1’, function 02-13 are useless ‘2’,function 15-20 are useless
02	degas time 1 start time	0:00-23: 59	the first period of vacuum degassing mode	Note: during the periods, it will vacuum degas according to the set value of function 10,11,12 at vacuum degassing mode; out of the periods, it will be the constant-pressure water supply mode.
03	degas time 1 end time	0:00-23: 59		
04	degas time 2 start time	0:00-23: 59	the second period of vacuum degas mode	
05	degas time 2 end time	0:00-23: 59		
06	degas time 3 start time	0:00-23: 59	the third period of vacuum degas mode	
07	degas time 3 end time	0:00-23: 59		
08	degas time 4 start time	0:00-23: 59	the forth period of vacuum degas mode	
09	degas time 4 end time	0:00-23: 59		
10	vacuum degassing mode	0-1	0:level control 1:time control	‘0’, the function 11,12 are useless
11	vacuum degassing time control mode water inflow time	1-65535（s）	water inflow time	Function 11 and function 12 work in turn

12	vacuum degassing time control mode pressurization time	1-65535 (s)	pressurization time	
13	vacuum degassing level control mode When the level is higher than the high level, delay to open the pump	0-65535 (s)	When the level is higher than the high level, delay to open the pump	
14	turn on into the control mode	0-2	0: manul 1: automatic 2: stop	
15	constant-pressure water supply mode, level upper limit	0-100 (%)		When the level is higher than the high level, open the drainage valve; when the level is lower than the high level, open the water-supply valve.
16	constant-pressure water supply mode, level middle value	0-100 (%)		
17	constant-pressure water supply mode, level lower limit	0-100 (%)		
18	constant-pressure water supply mode, pressure upper limit	0-100 (%)		When the level is higher than the high level, open the pressure relief valve; when the level is lower than the median level, open pressure booster pump.
19	constant-pressure water supply mode, pressure middle value	0-100 (%)		
20	constant-pressure water supply mode, pressure lower limit	0-100 (%)		
21	input point NO/NC	00000000-11 111111	0: NC 1: NO 8-digit From right to right XO-X7	
22	Select the alarm (buzzer)	00000000-11 111111	0: disable 1: enable 8-digit From right to right YO-Y7	
23	pump	0-3	0:both open 1: one master pump and two auxiliary pumps 2:one master pump and two auxiliary pumps 3 : pumps work in turn	
24	the work time of pump in turn	1-65535 (min)	Only when the the value of Function 23 is '3', the function 24 is useful.	

25	Protective level, when the level is lower than the value, close the booster pump	0-100 (%)		
26	the display unit of pressure	0-2	0: % 1: bar Standard pressure 2: MPa	
27	the maximum range of the pressure gauge	0-65535	Select the unit in function 26	
28	the automatic closing time of display backlight	s	The function is cancel	
29	Time set : year	2012-2099	Calibrate the current time (date, time) of the controller	
30	Time set : month	1-12		
31	Time set : day	1-31		
32	Time set : hour	0-23		
33	Time set : minute	0-59		
34	Time set : second	0-59		
35	Clock calibration: the seconds of error in 10 days + : quick - : slow	-999-999		
36	Reman position		Factory right	When the set value is the same as the factory, the factory fight will be removed.

Factory function table

Function code	Function name	range	Description	remark
00	The top 4-digit of password	0000-FFFF		
01	The after 4-digit of password	0000-FFFF		
02	The probative time, when the time has expired, it will shout down	0-65535	Time unit : 10 minutes	
03	Activation code	0000-FFFF	After user entering the code, the probation will be removed	Default date is 1234
04	The filtering frequency every ADC sampling	0-65535		

05	Level signal The 4mA corresponding to ADC date	0-65535		
06	Level signal The 20mA corresponding to ADC date	0-65535		
07	The lower limit of level signal, When the input is lower than the limit, it will be useless	0-65535		
08	The upper limit of level signal, When the input is higher than the limit, it will be useless	0-65535		
09	Pressure signal 4mA corresponding to ADC date	0-65535		
10	Pressure signal 4mA corresponding to ADC date	0-65535		
11	The lower limit of pressure signal, when the input is lower the limit, it will be useless	0-65535		
12	The upper limit of pressure signal, when the input is higher the limit, it will be useless	0-65535		
13	The mode of measuring level '0': level transmission '1':weighting mode	0-1		
14	Weighting transducer, The weight corresponding to 20mA	1-65535	Unit :Kg	
15	The weight of empty tank	1-65535	Unit: Kg	
16	The weight proportion assigned to the transducer	1-100	Unit: %	
17	The net water content of the water tank	1-65535	Unit: Kg	
18	display panel	1-2	(no modifying)	



Login interface of factory set

In normal screen, press 'SET'+ 'EXIT' for 3s to enter the password screen then enter the correct password ; </> move the cursor to the modifying digit; ^/∨ enter the factory value set screen.

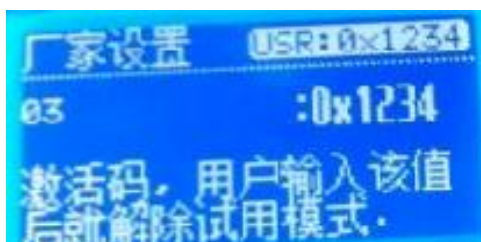


Value setting screen (factory value)

The operations are as same as the operations of user value



Set the work time



Set the activation code, for the user, only when the value of Function 36 is the same as the factory value, the factory right can be removed.

Function description

Control objects

Control objects: 2 pumps (or 1 pump), 4 solenoid valves, and electric valve

Input signal: 1 pressure transducer, 1 liquid level transducer (weighting transducer)

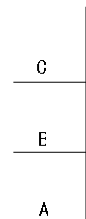
The two pumps can be one used and one prepared or used both.

The level transducer (the weighting transducer show the water content of the tank),and the pressure transducer display the pressure.

4 solenoid valves

- ① drainage valve
- ② supply water valve
- ③ pressure relief valve
- ④ degassing and supplying water valve

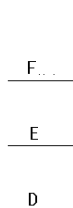
(2) constant-pressure supply water control mode



Level Height

Level control

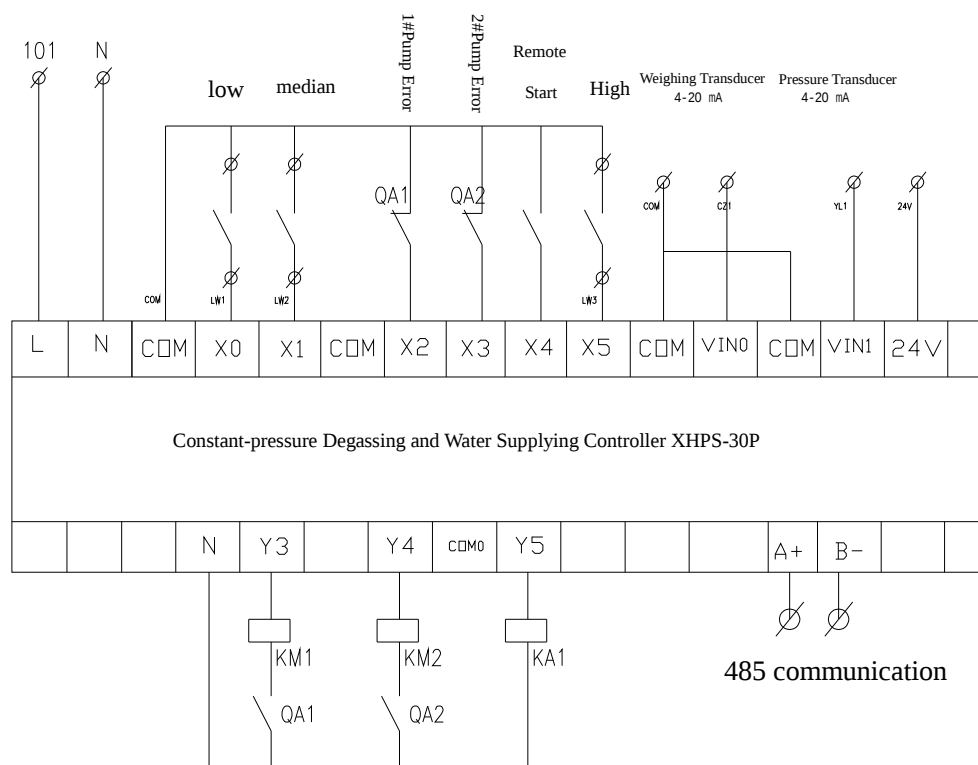
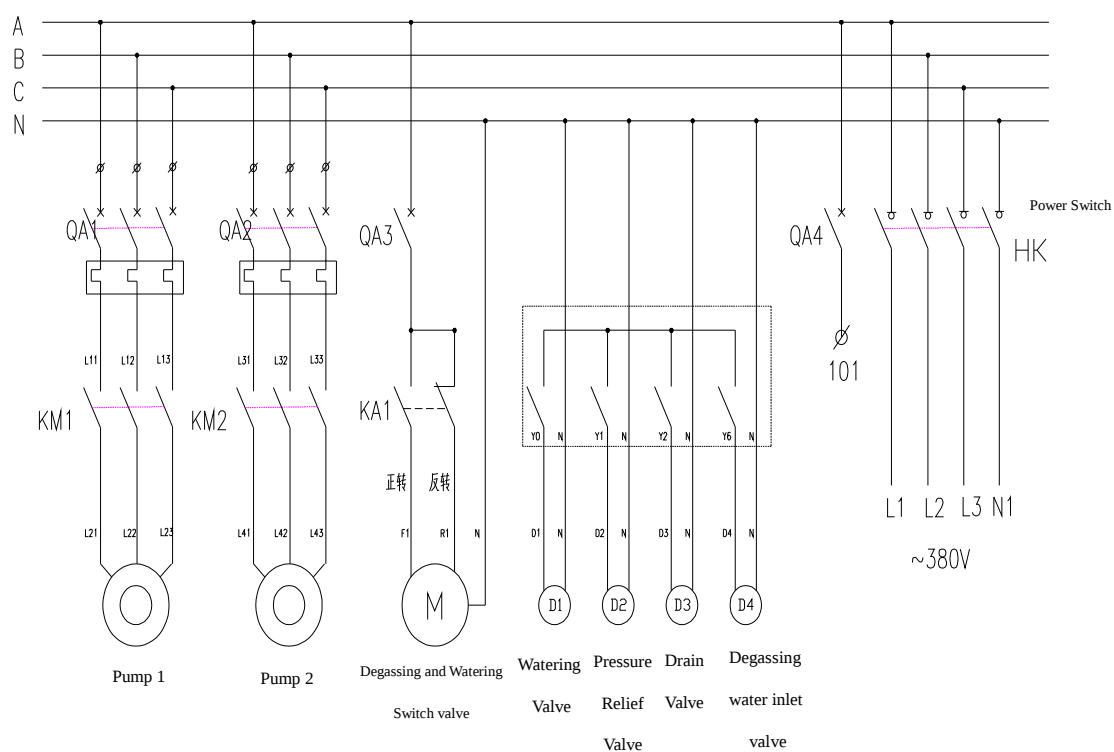
When the level reaches the A point(as left picture shown), the supply water valve will be open then the level will rise. When the level reaches B point, the supply water valve will be closed then when the level rise to C points



Pressure

Pressure control

When the pressure transducer measures the pressure range (as the picture shown D-E), the pump will be close. When the pressure is lower D, open the pump and when the pressure reaches E, close the pump. When the pressure reaches F, open the pressure relief valve and when the pressure is lower E,close the pressure relief valve.



If the controller detects the error information, it will alarm as following:

- 1.The red alarm indicator on the panel
- 2.The alarm indicator on the display screen
- 3.Alarm signal output (Y5)
- 4.Buzzer alarm

The informations of buzzer alarm

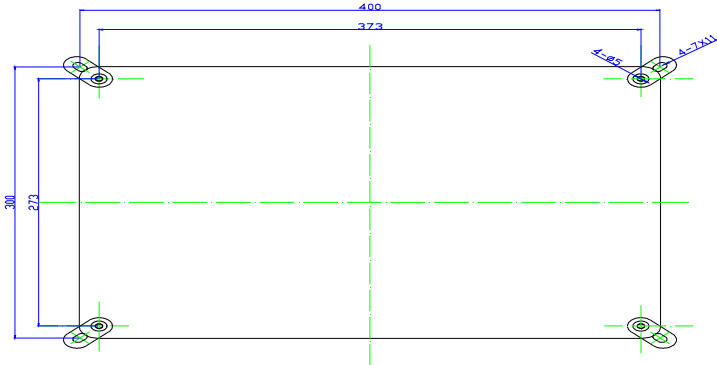
Buzzer alarm	Remark	Suggestion
Three short drops	The saving value is error (value loss or loss corruption).	Reset the value and restart the controller. If it still alarm, please contact factory
One long drop and one short drop	1# pressure booster pump breakdown	Check 1# pressure booster pump and the switch
One long drop and two short drops	2# pressure booster pump breakdown	Check 2# pressure booster pump and the switch
One long drop and three short drops	The level input signal error	Check the transducer of the level signal or the connection
One long drop and four short drops	Pressure input signal error	Check the transducer of the pressure signal or the connection

Input and output signal table

Item	Input		Output		
	Pressure, liquid level, remote control	Power supply	Solenoid valve	Drain pump	error
Rated voltage/frequency	DC12V	AC220V (±10%) 50Hz/60Hz Machine will continue working if the momentary power failure is within 200 ms.			
Power protection	(5Φ×20mm glass pipe fuse)	250V/2A			250V/1A
Input/output signal voltage	—	220V±10%			
Input/output signal current	10mA/DC12V	2A	1A	1A	1A
Input/output response time	200ms	1S	200ms		200ms
Input/output signal pattern	4-20ma、on/off signal	--	Relay output		Relay output
Input/output points	5 points	1 point	3 points	3 points	

mounting size

Length*width*height: 395*295*165 (mm)



Terminal drawing

JX	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	L1	L2	L3	N	L21	L22	L23	L41	L42	L43	F1	R1	N	D1	N	D2	N	D3	N	D4	N	24V	CZ1	COM	24V	YL1	COM	LW1	LW2	LW3	COM
	power				1#Pump	2#Pump		Degassing	Watering	Watering	Pressure	Drain	Degassing	Watering	Pressure	Drain	Degassing	Watering	Pressure	Drain	Degassing	Watering	Pressure	Drain	Degassing	Watering	Pressure	Drain	Degassing	Watering	Pressure
	incoming							Switch	Solenoid	Solenoid	Relief	Solenoid	Solenoid	Solenoid	Solenoid	Solenoid	Solenoid	Solenoid	Solenoid	Solenoid	Solenoid	Solenoid	Solenoid	Solenoid	Solenoid	Solenoid	Solenoid	Solenoid	Solenoid	Solenoid	Solenoid
	line							Valve	Valve	Valve	Valve	Valve	Valve	Valve	Valve	Valve	Valve	Valve	Valve	Valve	Valve	Valve	Valve	Valve	Valve	Valve	Valve	Valve	Valve	Valve	Valve