Changzhou Xionghua Tongtai Automation Equipment Co., Ltd

User's Guide
Programmable Timer Switch
XHST-10A/B

1.Features

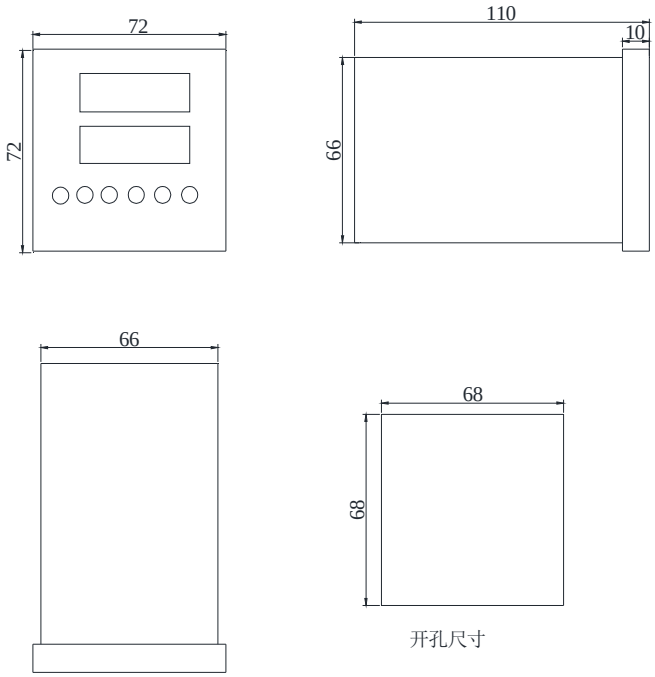
- Intelligent and digital LED timer
- 1-4 channels ,programmable and arbitrary combination and arbitrary output
- Memory storage (10years) / mechanical life
- Time accuracy (0.1s-0.001s), time maximum (999 minutes)
- Power supply (220V AC 50/60Hz)
- Power off memory function
- 100 groups of programme/time periods
- Optional communication function,international standard protocol(MODBUS-RTU),communication mode (RS485)
- (10D) jumping function and cycle times are settable

It is widely used in programmable fountain, programmable lights, sewerage, water supply, irrigation, bag pulse dust, electric boiler heating, street lights, neon light, water purifier, electric valve (solenoid valve)timing mud, grit removal control and so on.

2.Selection table

Mode	XHST-10A	XHST-10B	XHST-10C	XHST-10D
Output Point	（AC250V2A） 2 NO	（AC250V2A） 4 NO 2NC	（AC250V2A） 2 NO	（AC250V2A） 4 NO 2NC
Input Signal	1 ON/OFF	1 ON/OFF 1 pause	1ON/OFF	2-4 input points
	dry contact or NPN open-collector control			
Function	Time control Sequence control Infinite loop	Time control Sequence control Infinite loop	Clock Control Accumulative control	Combine time control and clock control
Group	100	100	60	100
Time Accuracy	0.1s			0.001s
Memory Storage	At least 10 years			
Withstand Voltage	2000VAC 50/60Hz 1 minute			
Ambient Operation Temperature	-10～+55℃			
Anti-interference	Analog ±2000V square wave signal from interference unit (pulse width ：1us）			
Power Supply	AC220V 50/60Hz 3W			
Weight	400g			
Dimension	72×72×110(Perforate dimension 68×68)			

3. Dimension



4.Terminal

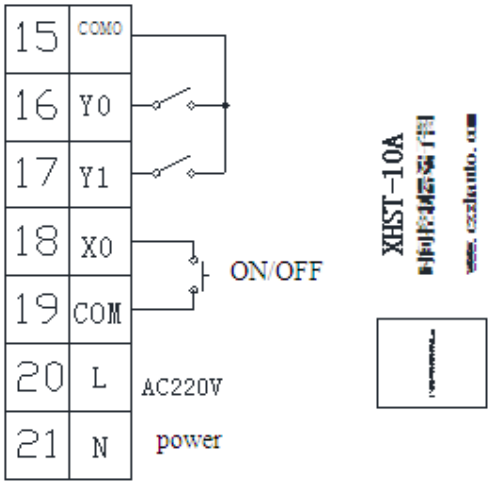
1) Terminal function

COM:input common

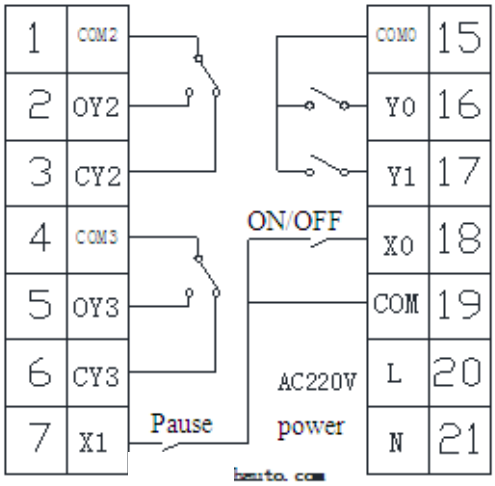
X0, X1, X2, X3 :4 input signals (user-defined function)

COM0, Y0, Y1, Y2, Y3: 4 output points(relay output/2A)

L、N：AC220V，50Hz input terminal



XHST-10A Terminal



XHST-10B Terminal

2) Panel

① Two line display(8 digits):

upper digits show the function code,lower digits show the time and output point.

② Y0~Y3：output indicators

③ PRG: a. display the present working , b.select the programming mode

Press and hold for 3s: enter or exit programming mode

Press short: switch function code(‘tXXX’ or ‘dXXX’)

④ ∧/∨: increase/decrease, set the parameter up/down ‘1’, if press and hold, the parameter continuous increase/decrease.

⑤ SET: move the setting cursor/ confirm the parameter

Press and hold for 1.5s: set the parameter ,confirm the parameter or exit the programming mode.

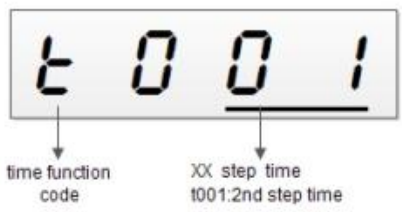
Press short: move the setting cursor.

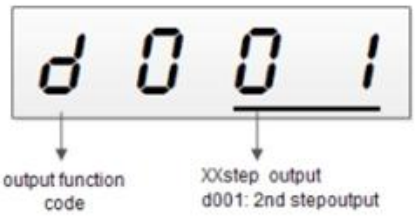
⑥ M1, M2: press M1, switch time/date，press M2 and hold, set time/date

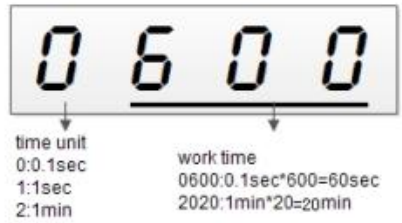
5. Description of instructions.

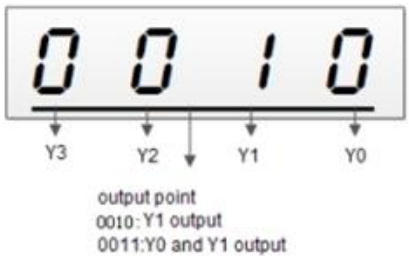
Time relay:

Upper Line Function Code	Description	Lower Line Parameter	Description	Remark
t 0XX	XX Step(time setting) (range 00-99)	0359	0.1s*359=35.9s	‘0’:time setting (unit 0.1sec) Range: 0-99.9sec
		1359	1s*359=359s	‘1’:time setting(unit 1sec) Range:0-999sec
		2359	1min*359=359min	‘2’:time setting(unit 1min) Range:0-999min
		3000	Jump to 00 step and cycle	‘3’:jump instruction ‘01’: cycle from 01 step
		4XXX	End instruction	The program will stop when execute this command
		5XXX	Hold instruction	The program will keep on the present state
d0XX	XX step(output)	0001	Y0 output	Output points (Y0~Y3), ‘1’:output，‘0’:without output Range :0000-1111 (refer to the output table)
T100	Switch between time relay and clock relay	0000	Time relay has no power-off memory	0001 ： the controller will switch to clock relay from time relay
		0002	Time relay has power-off memory	









Clock relay：

Upper Line Function Code	Description	Lower Line Parameter	Description	Remark
P000	control mode selection	0000	24-hour system	hour and minute can be set
		0001	Week cycle system	week,hour,minute and second can be set
P66t	swith between time relay and clock relay	0001	clock relay	time relay(power off memory)

Control Mode	Display	Remark
24-hour system (hour and minute can be set)	PXXH/0000 (upper display / lower display)	XX step time setting (range 00-99) 0000 : “ 00” = hour “00”=minute
	PXXd/0000 PXXH/3000	XX step output (range 00-99) 0000= output point ‘3’ = cycle instruction
	Example : step1:P00H/0830 P00d/0001 step2:P01H/0930 P01d/0000 step3:P02H/1230 P02d/0011	1.the first circuit is open at 08:30 2.the first circuit is closed at 09:30 3.the first and second circuits are both open at 12:30
Week system (week, hour , minute and second can be set)	PXXH/0000	XX step time setting (range 00-99) 0000 : “ 00” = hour “00”=minute
	PXXt/0000	XX step time (range 00-99) 0000 : “ 00” = week “00”=second Example ; “1700” or “0000” = from Mon. to Sun. “2500” =from Tues. to Fri. “1100” = only set Mon. “2530”=from Tues. to Fri. “30”=30s
	PXXd/0000	XX step output (range 00-99) 0000= output point
	Example step1:P00H/0830 P00t/0030 P00d/0001 step2:P01H/0930 P01t/0050 P01d/0000 step3:P02H/1230 P02t/0030 P02d/0010	From Mon. To Fri., 1.the first circuit is open at eight thirty and thirty seconds, 2.the circuit is closed at nine thirty and thirty seconds, 3.the second circuit is open at twelve thirty and thirty seconds

6. Setting process

Programmable time relay setting:

A. 

1.Parameter setting: Don't release 

until the last digit of the upper display blink.

2.Function code switching : Press 

so that the function code can be changed,

for example ,

'dXXX' ⟹ "tXXX" (the blinking digit can be changed)

After all the setting , press 

for a while to exit the set mode.

B.Increment  and decrement 

The two buttons is used to change the parameter value .

C. 

1. After setting the blinking digit ,press 

so that the next digit the user want to set will blink.

2. After the setting of the upper display ,press 

and don't release it until the last digit of the lower display blink.Now the digit of the display can be changed.

3. After all the setting,press 

and don't release it to save the date until the last digit of the upper display blink.

Programmable clock relay setting:

1. Press 

and hold for 3s to enter function code selection, after 

setting ,press 

for 3s to save and exit. (switch to clock relay function, and the display is the working state at present)

2. 

switch time/date: press 

, the setting mode(hour,minute and second) switch to the setting mode(year,month and day)

3. 

set time/date: set year,month,day,hour,minute and second. Press 

for 3s to enter the setting

state of time or date, press  ,  and  to set the time/date, press  and don't release until the last digit blink of the lower line, then press  for 3s to exit the setting state. （Time Calibration Setting）

4.Press  for 3s to enter function mode selection. The upper line displays the function code(P000), and press  and don't release until the last digit bink of the lower line, the set the parameter 0000（24-hour system）or 0001（week system). Press  and don't release until the last digit blink of the upper line to save the parameter.

5. When the digit is blinking of the upper line, press  ,  and  to select the function code（P00H/P00t/P00d/P01H/P01t/P01d…), after the setting of upper line,press  and don't release until the last digit blink of lower line, then set the parameters of lower line.( can move the cursor).

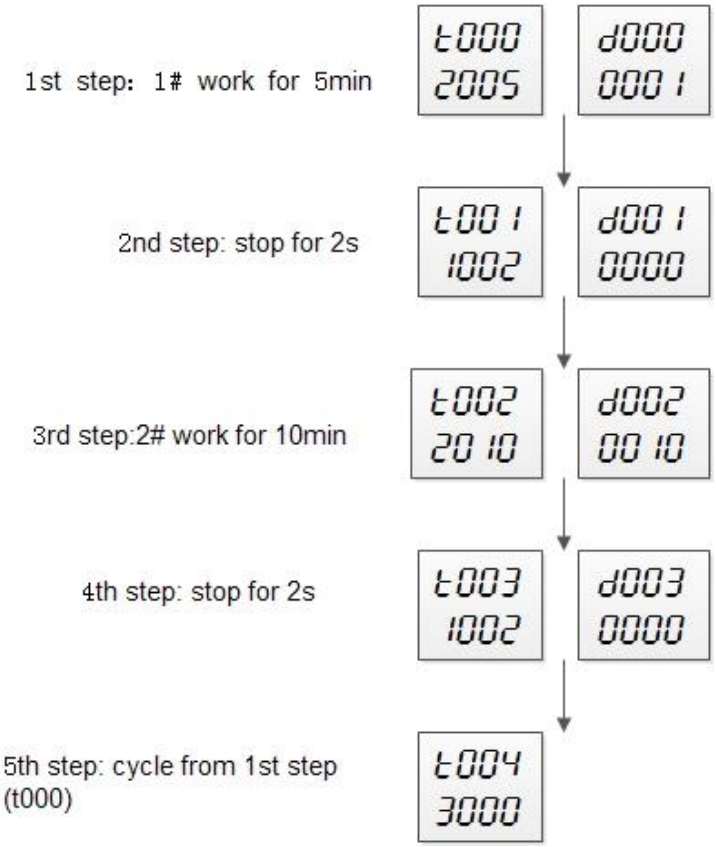
6.After all the setting, press  for 3s to save all the program and the display will show the present working state.

7. When the controller shows  or  , press  and hold to save and switch to time relay

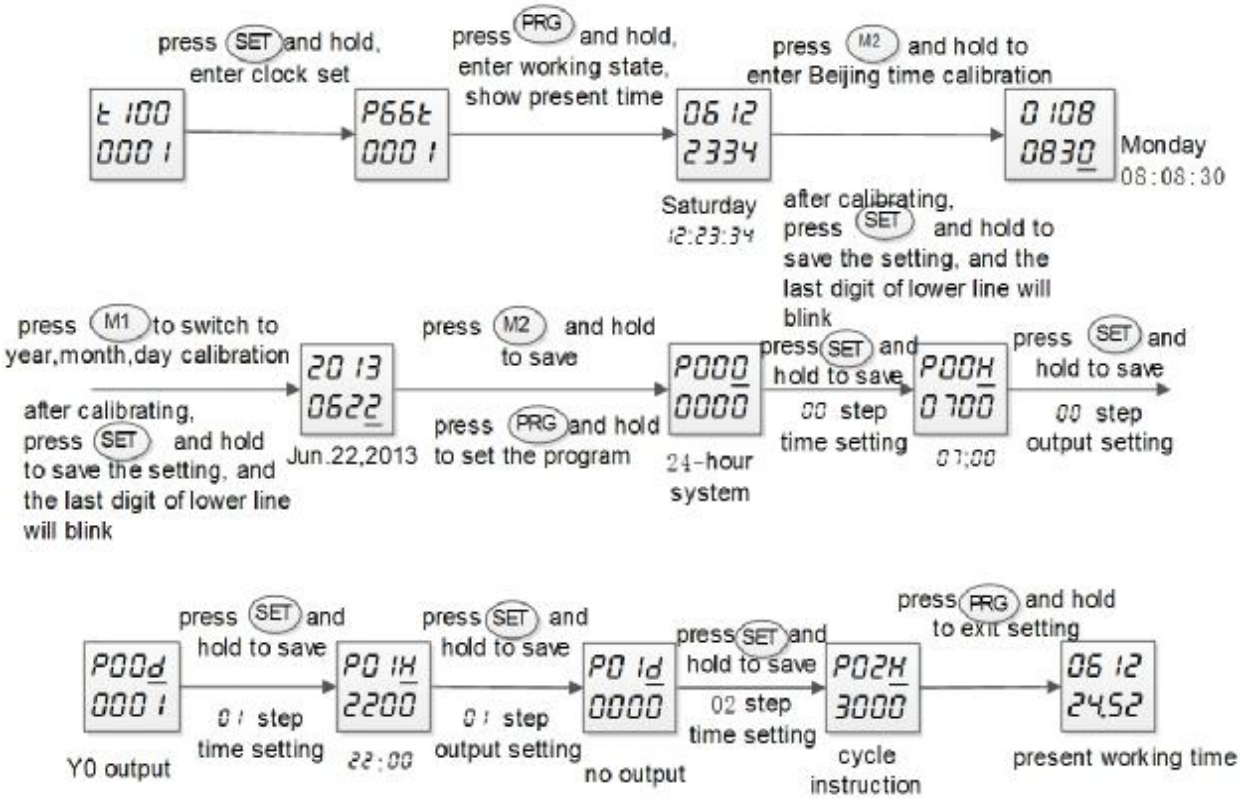
7 .Application examples

a: 1#,2# motors

>>>1# works for 5min,then stops for 2sec,
>>>after that 2# works for 10min,then stops for 2sec
>>>cycle above instructions

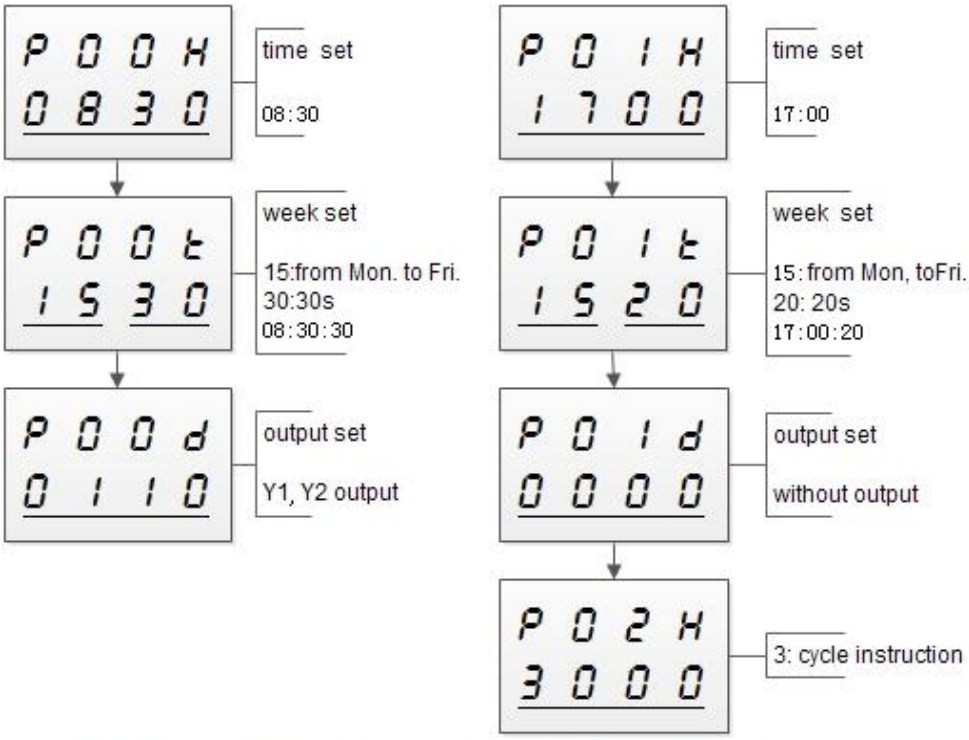


b. 24-hour system setting example



(In 24-hour system) Y0 opens on 07:00 and closes on 22:00 every day.

c. week system



In every week, Y1 and Y2 output on 08:30:30 a.m from Mon. to Fri,
and until 17;00:20 pm,Y1 and Y2 close.

8.Output table

○--without output ●--output

	Y3	Y2	Y1	Y0
0000	○	○	○	○
0001	○	○	○	●
0010	○	○	●	○
0011	○	○	●	●
0100	○	●	○	○
0101	○	●	○	●
0110	○	●	●	○
0111	○	●	●	●
1000	●	○	○	○
1001	●	○	○	●
1010	●	○	●	○
1011	●	○	●	●
1100	●	●	○	○
1101	●	●	○	●
1110	●	●	●	○
1111	●	●	●	●