Controller of heatless regenerative adsorption dryer

1、 Introduction

The controller of heatless regenerative adsorption dryer adopts a special timing controller developed by single chip microcomputer, which can control the adsorption and regeneration of tower a and Tower B of adsorption dryer according to the delay time set by the user. The controller of heatless regenerative adsorption dryer is a newly developed controller of our company, which is suitable for the controller of 4-Valve structure.

2、 Main functions

1. Setting function: in the setting state, various parameters can be set through two buttons.
2. The four relays control the adsorption and regeneration of tower a and Tower B of the adsorption dryer according to the set working time value.
3. Display function: three digit nixie tube display.
4. Preset function: half cycle = T1 + T2 + T3 + T4.
5. Delay function: in the running state, the four relays can be delayed on and off according to the specified sequence according to the set delay time.
6. Positive and negative valve function: you can choose whether the tower adsorption relay is a positive valve (open when powered on) or a negative valve (closed when powered on).
7. Automatic reversing function: alternate startup function.
8. Remote control function: if remote control is selected, the switch of the system can only be controlled through the remote switch. When the remote switch is closed, the system enters the startup state, and when the remote switch is turned off, the system is in the non working state.

3、 Technical parameters

1. Power supply voltage: 220V (+ 10% ～ - 15%) 50 \ 60Hz.
2. Output capacity: 4-way valve, power supply AC220V.
3. Delay accuracy: ± 3% of the working cycle.
4. Service conditions:

a) Altitude ≤ 2000m.
b) Working environment temperature: - 25 ℃ ~ 55 ℃.
c) Ambient humidity ≤ 95%, no condensation.
d) There is no obvious dust, acid, corrosive gas or substance in the surrounding air.

4、 Parameter setting

The controller has two states:

1. Setting status

Interface part

1) Primary interface: time display.
2) Secondary interface: parameter code display, i.e. FXX.
3) Three level interface: parameter value display, specific setting value.

B. Interface part

1) From primary interface to secondary interface: long press set.
2) From level 2 interface to level 3 interface: press run to save parameters,

and then automatically return to level 2.
3) From secondary interface to primary interface: press set.
4) Secondary interface adjustment parameters: press "▲" and "▼" to adjust the FXX value.
5) Three level interface adjustment parameters: Press "▲" and "▼" to adjust the parameter value.
6) Switch from standby to operation in the primary interface: press the run key, and the operation indicator light turns on. Switch from operation to standby, and press the run key, and the operation indicator light turns off.

● parameter description

User parameter menu

Code name meaning Parameter range Factory settings

F1 Voltage equalizing time T1 The inlet valve is opened at the same time, and the pressure equalizing time is executed 1 ~ 30 seconds 3 seconds

F2 Delay to be regenerated T2 Close one air inlet valve, regeneration delay time 1 ~ 60 seconds 5 seconds

F3 Regeneration time T3 For the duration of each regeneration, open one exhaust valve 1 ~ 999 seconds 262 seconds

F4 Charging time T4 Regeneration tower charging time, exhaust valve closed 1 ~ 600 seconds 30 seconds

Half cycle = T1 + T2 + T3 + T4

Manager parameters menu

F11 Remote switch enable Is a remote switch used 1: Enable
0: not enabled 0

F12 Selection of positive and negative valves Adsorption valve is normally open and normally closed. Positive valve: inlet is closed, and reverse valve: inlet is open. 1: Anti valve
0: positive valve one

F13 Shutdown voltage equalizing time During power on operation, if the regeneration valve has been opened, press the "start / stop" key to stop working. Stop working. At this time, other valves are closed, and the adsorption valve is closed after delaying the setting value of this parameter. 0 ~ 200 seconds 30 seconds

F14 Power on self start After power on, the system will automatically enter the startup state 1: Enable
0: not enabled 0

F15 Start delay time Startup delay time 0 - 180 seconds ten

F21 Transformation Times Times of voltage transformation after regeneration delay 0 - 10 times 0

F22 Pressure relief time Time of exhaust valve opening after regeneration delay 0-999 seconds 0

F23 Charging time Time for closing exhaust valve after regeneration delay 0-999 seconds 0

Note: the cumulative time of voltage transformation times is automatically limited to the regeneration time.

● power on

When powered on (AC220V), the nixie tube and indicator light of the controller are fully on for 1 second to enter the self detection mode, and then enter the standby state. The nixie tube displays half a cycle. At this time, if you press the "on / off" button, the controller will enter the working state.

● start up

In the standby mode, press the "on / off" button, the "run" indication flashes, the four relays act successively, the corresponding LED indicates the working state, and the nixie tube countdown displays the time.