LM-YHD-4T
Control box of non-heat regeneration adsorption dryer
an instruction manual

Please no that!

1、 During installation or maintenance, please read the instructions carefully and wire according to the requirements, and avoid external short circuit to avoid damage to internal devices;

2、 In order to be safe, the maintenance personnel must cut off the power supply before checking the output line, because the output terminal is live;

3、 After the sensor is installed, please do not conduct electric and gas welding on the dryer to avoid damaging the sensor

careful..... Remind of possible problems and mistakes, and how to avoid them.

s..... Tips can be found in the chapter.

ave a try..... Just follow suit and try.

Installation diagram..... Installation considerations.

Chapter I Technical Conditions

1、 Function overview

The control box of LM-YHD series adsorption non-heat dryer adopts PLC+LCD or touch screen display, which is more reliable and simple than the single-chip microcomputer control on the market. The whole machine has advanced technology, reliable performance, complete functions, beautiful appearance, more convenient operation, installation and maintenance, and adopts an independent power processing module. The overall performance of the machine is more reliable, and it has dew point and air inlet temperature display output, including dew point energy-saving control function.

2、 Technical indicators

(1) Power input: AC voltage 220v ± 5%, 50HZ/60HZ.

(2) Power consumption: 24W.

(3) Switch output: 6-point relay contact, voltage AC220V or DC24V, inductive current load 0.8A

Resistive load: 2A

(4) Switch input: 8-point input, GND is public input.

(5) Working environment: temperature 0~50 ℃, humidity no more than 85%, vibration no more than 0.5g.

There is no obvious dust, acid, corrosive gas or substance in the surrounding air.

3、 Functions and measurement and control contents

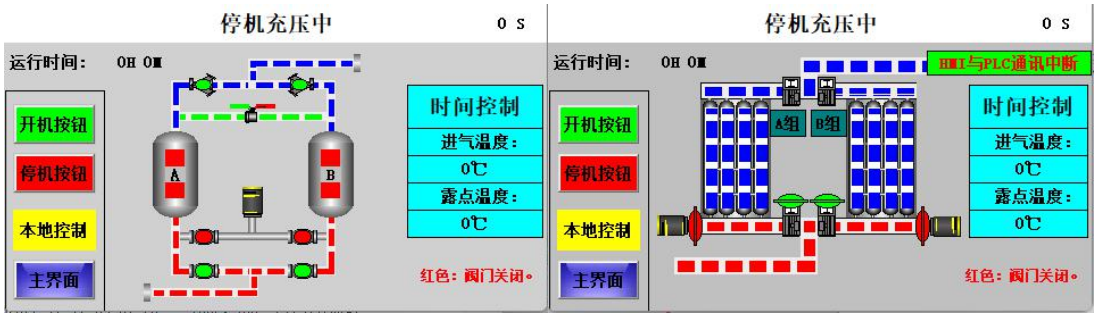
function	model	
Temperature acquisition/monitoring	passageway	probe
Inlet temperature	have	have
Dew point temperature	have	nothing
Switching value input	passageway	remarks
chain	have	Standard configuration
Local/remote boot	have	Standard configuration
Time control/dew point control	nothing	Standard configuration
Positive valve/anti-valve	have	Standard configuration
Switching output	passageway	remarks
call the police	have	Standard configuration
Operation indication	have	Standard configuration
Group A inlet and outlet solenoid valves	have	Standard configuration
Group B inlet and outlet solenoid valves	have	Standard configuration
Fault indication	nothing	Standard configuration

Chapter II Operation and Maintenance

2、Boot screen

The user shall connect the wire according to the attached figure 3 and check it correctly before powering on. After power-on, the screen is shown as follows:

No heat 4 drying machine picture No heat module drying machine picture



Key	Function and (authority)	purpose
Start button	Shortcut function key (pressed) has no permission	Power on
Stop button	Shortcut function key (pressed) has no permission	Shutdown
Local remote control	Shortcut function key (pressed) has permission	Local or remote switch button. Note: under remote control, the touch screen can also be switched on and off.
main interface	Shortcut function key (pressed) has no permission	Switch to the main screen

Work status table:

display output	function	purpose
Stopping and charging	working condition	During the shutdown delay, it is the charging stage
Ready	working condition	The system is ready for work
Unit buffer delay	working condition	Just start the machine and buffer until the two groups of pressure balance
Group A adsorption, group B to be	working condition	Enter the adsorption state of group A and the regeneration state of

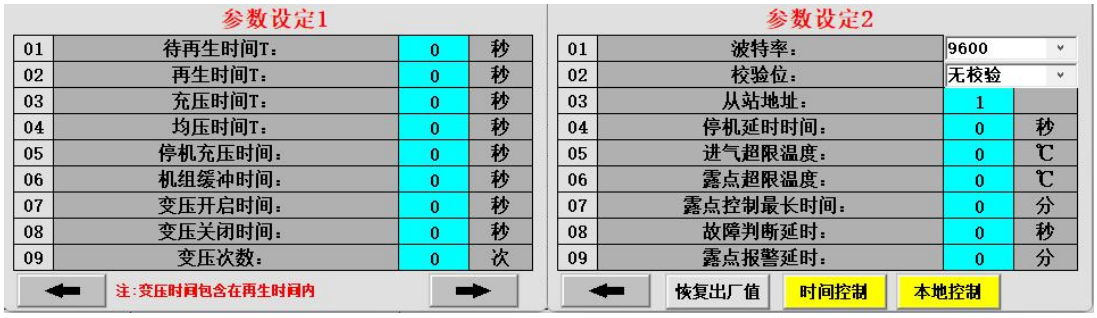
regenerated		**group B**
Group A adsorption, group B regeneration	**working condition**	**Enter group A adsorption and group B regeneration state**
Group A adsorption, group B pressurization	**working condition**	**Enter group A adsorption and group B pressurization state**
Group A adsorption, group B pressure equalization	**working condition**	**Enter group A adsorption and group B pressure equalizing state**
Group B adsorption, group A to be regenerated	**working condition**	**Enter the adsorption of group B, and group A is waiting for regeneration**
Group B adsorption, group A regeneration	**working condition**	**Enter the adsorption state of Group B and the regeneration state of Group A**
Group B adsorption, group A pressurization	**working condition**	**Enter group B adsorption and group A pressurization state**
Group B adsorption, group A pressure equalization	**working condition**	**Enter group B adsorption, group A pressure equalizing state**

3、 Main screen

Key	Function and (authority)	purpose
User login	**Function key (pressed) has no authority**	Switch to this screen.
Exit login	**Function key (pressed) has no authority**	Switch to this screen.
System diagram	**Function keys (pressed) are limited to manufacturers, technicians and operators**	Switch to this screen.
Alarm screen	**Function key (pressed) has no authority**	Switch to this screen.
Parameter setting	**Function key (press) (limited to technician and manufacturer)**	Switch to this screen.

Password setting	**Function key (pressed) has no authority**	Switch to this screen.
Trend chart	**Function key (pressed) has permission**	**Switch to this screen.**

4、 Parameter setting screen 1



name	Set value or function description	Setting range
Shutdown charging time	30 seconds	3~999 seconds
Time to be regenerated T	5 seconds	1~3600 seconds
Regeneration time T	272 seconds	1~3600 seconds
Charging time T	30 seconds	1~3600 seconds
Equalizing time T	5 seconds	1~3600 seconds
Transformer opening time	10 seconds	0~999 seconds
Transformer closing time	10 seconds	0~999 seconds
Transformation times	5 times	0-999 times
Unit buffer time	60 seconds	3~999 seconds
postal address	2 stations	1-255 stations
Inlet air overrun temperature	**45 ℃ (without permission)**	**0～300℃**
Dew point exceeding limit temperature	**-10 ℃ (no authority)**	**-500℃～500℃**
Intake air temperature compensation	**0 ℃ (no permission)**	**-500℃～500℃**
Dew point temperature compensation	**0 ℃ (no permission)**	**-500℃～500℃**
Maximum dew point control	**60 points**	**1~999 points**
Working dew point temperature	**-30℃**	**-100℃～30℃**

Time/dew point control	**Time/dew point control mode switching**	
Local/remote control	**Local/remote control mode switching**	

The user can adjust the corresponding parameters according to the work needs. (To be regenerated time T+regeneration time T+charging time T+equalizing time T, the four stages are accumulated to half a working cycle.)

Note: Since the transformation time is included in the regeneration time: (transformation opening time+transformation closing time) × Transformation times ＜ regeneration time T

Factory parameter setting screen 2

Dew point lower range limit	**20℃**	
Dew point lower range limit	**-80℃**	
Dew point temperature compensation	**0℃**	**-500℃～500℃**
Silencer replacement time	**0H**	**0-30000（H） When it is set to 0, the operation time is not limited. When it is not set to 0, the equipment alarm will not stop when the operation time is greater than the set time.**

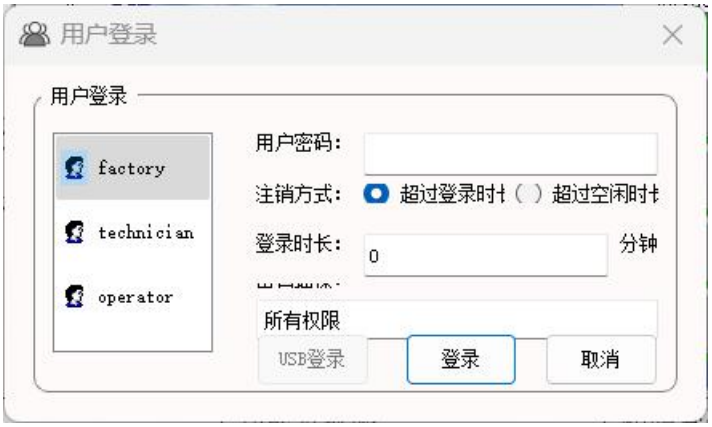
Maintenance time setting	**0H**	**0-30000（H） When it is set to 0, the operation time is not limited. When it is not set to 0, the operation time is greater than the set time, and the equipment alarms and stops.**
Positive and negative valve selection button	**Function key (pressed)**	**Positive valve: intake normally open: Anti-valve: inlet normally closed:**
Main screen	**Function key (pressed)**	Switch to the main screen.
Run time reset	**Function key (pressed)**	**Zeroing running time**
Inlet air temperature channel on/off	**Function key (pressed)**	**The intake air temperature channel is open or closed.**
Dew point temperature channel on/off	**Function key (pressed)**	**Dew point temperature channel open or closed**
Power-on non-start/power-on self-start	**Function key (pressed)**	**Set whether the equipment is powered on automatically**
Y5=故障指示/A 进气阀/B 进气阀/A 再生阀/B 再生阀	**Function key (pressed)**	**Set the current function of PLC multi-function output point Y5**

伍、 Alarm screen and alarm record screen.

Press the function key under the main menu to alarm the screen or automatically switch to this screen when the alarm occurs.

六、 User login and password setting screen.

Press the function key under the main menu to automatically switch to this screen when the **user logs in.**



Button table:

user name	Function and authority	Initial password
factory	Maximum authority	one thousand one hundred and eleven
technician	Partial permissions	two thousand two hundred and twenty-two
operator	Minimum permissions	three thousand three hundred and thirty-three

Users can operate the device according to their own permissions, and modify their own password in the password setting screen. When there is no need to operate the device, users can enter the exit login screen to exit, which can protect the operation security of the device.

Modbus communication

1、 Connect PC and controller

1. Communication protocol

This machine adopts standard MODBUS communication protocol with a baud rate of 9600. The transmission mode adopts RTU mode, and the bits of each byte are: one start bit, eight data bits, one parity bit, one stop bit and CRC cyclic redundancy detection.

2、 Details of mailing address:

- **RTU**模式的报文格式如下表所示：

地址	功能码	数据 1	...	数据 n	CRC 高字节	CRC 低字节

1. **The slave address of this device: 2 (configurable). Baud rate: 9600 (settable), parity check: none (settable).**

2. **Mailing address list:**

Parameter name	Modbus address	data type	Available function codes	Reading and writing	Company	explain
Intake air temperature	forty thousand and one	16-bit signed integer	0x03	read-only	℃	
Dew point temperature	forty thousand and two	16-bit signed integer	0x03	read-only	℃	
Inlet solenoid valve of tower A	forty thousand and four	Bit	0x03	read-only		
Inlet solenoid valve of tower B	forty thousand and four point one	Bit	0x03	read-only		
Regeneration solenoid valve of tower A	forty thousand and four point two	Bit	0x03	read-only		
Tower B regeneration solenoid valve	forty thousand and four point	Bit	0x03	read-only		

	three					
Operation indication	forty thousand and four point four	Bit	0x03	read-only		
Fault indication	forty thousand and four point five	Bit	0x03	read-only		
Remote control indication	forty thousand and four point six	Bit	0x03	read-only		
Remote startup of tower A	forty thousand and five	Bit	0x03,0x06	Reading and writing		
Remote startup of tower B	forty thousand and five point one	Bit	0x03,0x06	Reading and writing		
Remote shutdown	forty thousand and five point two	Bit	0x03,0x06	Reading and writing		
System running time_ H	forty thousand and six	16-bit unsigned integer	0x03	read-only	Hour	
System running time_ M	forty thousand and seven	16-bit unsigned integer	0x03	read-only	branch	
Cumulative system running time	forty thousand and eight	16-bit unsigned integer	0x03	read-only	Hour	
Work phase countdown	forty thousand and nine	16-bit unsigned integer	0x03	read-only	second	

Working stage	forty thousand and ten	16-bit unsigned integer	0x03	read-only		0: During shutdown and charging, 1 : absorption of tower B, waiting for regeneration of tower A 2: absorption of tower B, regeneration of tower A 3: adsorption of tower A 4 : adsorption of tower B, charging of tower A 5: adsorption of tower B, equalizing of tower A 6: adsorption of tower A, waiting for regeneration of tower B 7 : adsorption of tower A, regeneration of tower B 8: adsorption of tower A 9: adsorption of tower A, charging of tower B 10 : adsorption of tower A, equalizing of tower B 11 : preparation 12 : unit buffer time 13 : adsorption of tower B, dew point energy saving of tower A 14 : adsorption of tower A, dew point energy saving of tower A 15: shutdown delay