

KZQ13-L 型电动三通阀门使用说明书

KZQ13-L electric three-way valve user guide

一、主要技术指标:

Main Specifications:

- 1、控制精度: 0.1%~3.0% (出厂默认 0.4%)
control accuracy 0.1%~3.0% (Factory default 0.4%).
- 2、电动执行机构电位器: 1K Ω
Electric actuators potentiometer 1K Ω .
- 3、出厂默认工作方式: AA 模式 (可通过参数设置为 BB 模式);
Factory default work mode: AA mode (can set to BB mode through settings).
- 4、使用电压范围: 170~245VAC
Work voltage range: 170~245VAC
- 5、控制电路设置有密码锁保护, 防止非法操作
Control circuit protected by coded lock to prevent illegal operation.
- 6、使用环境温度: -40℃~80℃ (-104~176°F), 相对湿度: $\leq 90RH\%$
Work environment temperature: -40℃~80℃ (-104~176°F), relative humidity.
- 7、超温保护功能: 当机内温度 $\geq 80^{\circ}\text{C}$ (176°F) (可设置) 时, 电路发出超温报警;
Over temperature protect function: When internal temperature over 80℃ (176°F) (threshold can be set), the circuit will raise over temperature alarm.
- 8、控制电路设置有防堵转保护: 检测到堵转自动报警输出, 并关闭电机运行
The control circuit has anti-block design: when the blocking is detected will automatically raise the alarm and cut off the motor.
- 9、控制电路采用独特自适应算法, 大大提高一次定位的成功率
The control circuit use unique self-adaptation algorithm which greatly increase the success rate of first fix.
- 10、具备自动/手动操作功能
Support automatic/manual operation function.

二、阀门的接线:

Connection of the valve:

1、参见下图进行接线。

Refer below pictures to connect the module.

按照接线端子和仪表外壳上的接线图, 连接好上位机和电源连线。

Connect the power and the upper computer according to below picture 1 and picture 2.

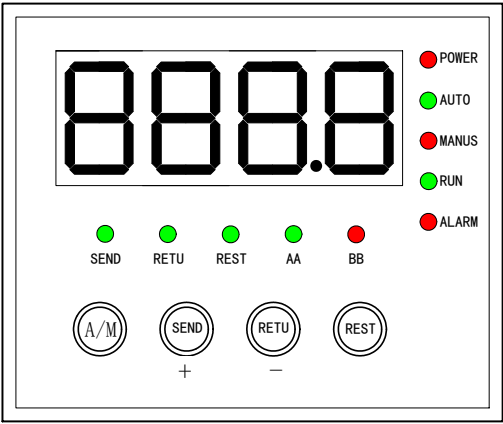
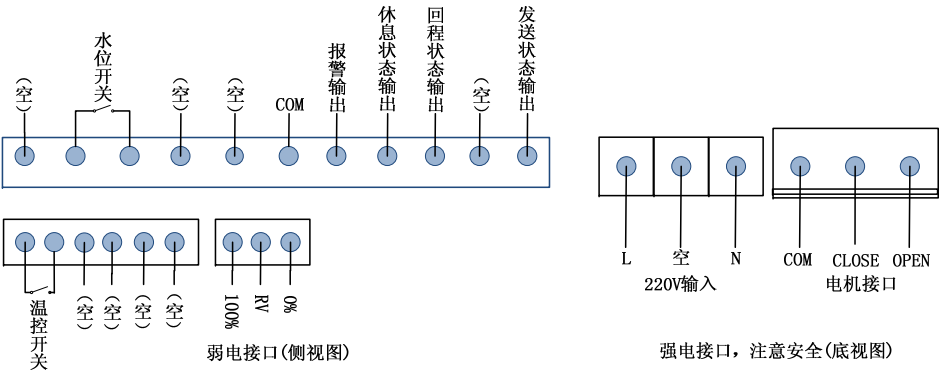
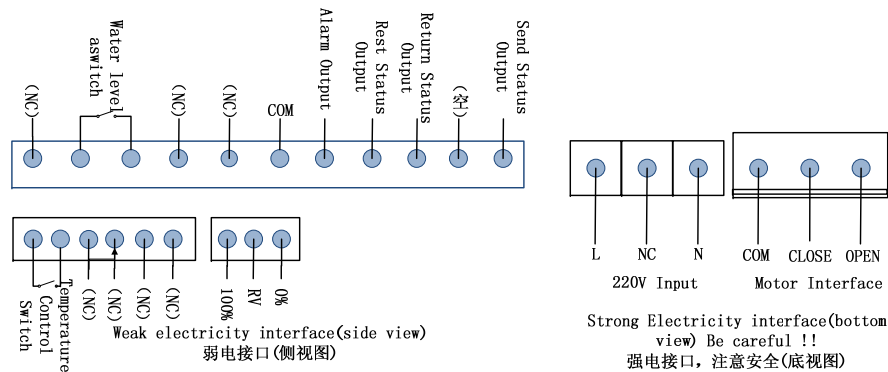


图 1 电动阀门控制电路 (KZQ13-L 型) 操作面板

Picture 1 operation panel of the KZQ13-L





三通电动阀门接线图控制器
Three-way valve controller wiring diagram

图2 三通电动阀门接线图控制器

Picture 2 three-way valve controller wiring diagram

1、按请下表颜色正确连接三通阀门的外部电源进线:

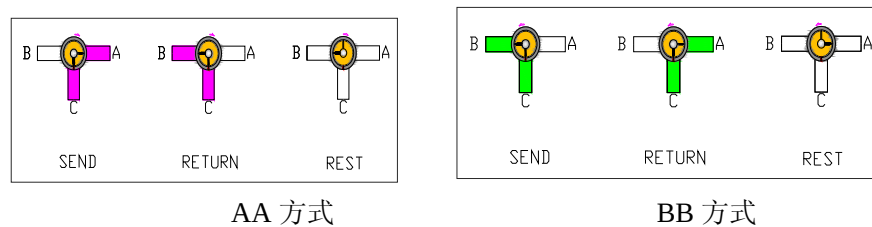
Please connect the external power supply line of the three-way valve correctly refer to below table.

EARTH:	AC_220V_L:	AC_220V_N:
GREEN/YELLOW	BROWN	BLUE

2、接线时请注意强电接口，请认真复核接线的正确性，确保使用安全。

When do the wire job, please pay attention to the strong electricity interface, make sure safely used.

三、三通阀门四种状态示意图



- 图中①位置其阀位值 0.0%，②位置其阀位值 33.3%，③位置其阀位值 66.6%，④位置其阀位值 100.0%。

In the picture the valve position of ① is 0.0% the valve position of ② is 33.3%, the valve position of ③ is 66.6%, the valve position of ④ is 100.0%

2、AA 方式：③位置=发送状态、②位置=回程状态、①位置=休息状态

AA mode: position ③= send state, position ②=return state 、 position ①=rest state

BB 方式：②位置=发送状态、③位置=回程状态、④位置=休息状态

BB mode: position ②= send state, position ③=return state 、 position ④=rest state

四、控制流程

按 A/M 键可切换自动模式或手动模块，相关指示灯点亮

Press the “A/M” key can switch to automatic mode or manual mode and light the indicator LED.

(一) 自动模式流程:

The automatic mode work flow

首次通电，三通阀门执行器内部的控制器默认为自动模式，LED 数码窗显示其所走循环次数，在水流开关闭合条件下，其运行流程如下(T 值时间可自由设定，T1-T2-T3 为一循环周期):

After the first time power on, the internal controller of the three-way valve is under automatic mode, the LED screen show the cycle index. When the flow switch is on, the flow of valve works as below (value of T can set, T1-T2-T3 is a cycle time)

1、运行到发送位置，停留时间 T1

Stay T1 period after run to the SEND position

2、T1 时间到达，电机运行到回程位置，停留时间 T2

After T1 time up, the motor run to RETURN position, stay for T2 period.

3、T2 时间到达，电机运行到休息位置，停留时间 T3

After T2 time up, the motor run to REST position, stay for T3 period.

4、T3 时间到达，LED 显示计数值自增，回到第一步，如此反复

After T3 time up, on the LED screen the counter auto-increasing, return to step 1, thus repeatedly

水流开关闭合：从原断点继续流程循环

If flow switch is on: resume from the breakpoint and move on the work

cycle.

水流开关断开：停止循环周期

If flow switch is off: stop the work cycle.

(二) 手动模式流程:

按 A/M 键可切换为手动模式，在手动模式下：LED 数码窗显示电机的实际阀位值，其运行流程如下：

Press “A/M” button can switch to manual mode, under manual mode: LED screen will display the real valve position location, the running flow is as below:

- 1、按动发送按键，电机运行到发送位置

Press “SEND” button, motor run to SEND position.

- 2、按动回程按键，电机运行到回程位置

Press “RETURN” button, motor run to RETURN position.

- 3、按动休息按键，电机运行到休息位置

Press “REST” button, motor run to the rest position

五、三通阀门的模式设置:

AA 模式与 BB 模式设定方法如下:

The way to set AA mode and BB mode:

- 1、进入参数设置界面层，需按“A/M”键持续2秒以上，进入密码输入状态

Long press “A/M” button over 2 second will enter the parameter setting mode, wait for the password input.

- 2、输入四位正确密码(初始值为: 0000)

Enter 4-bit digit password (initial value: 0000)

- 3、按 A/M 键确认，跳过参数 Eb

Press “A/M” button to confirm, ignore parameter “Eb”.

- 4、此时数码交替显示 PT=0 或 PT=1，按+（发送）或-（回程）键调整所需要的 PT 值，（AA 模式为 PT=0；BB 模式为 PT=1）

LED alternate display “PT=0” or “PT=1”, press “+”(send) or “-”(return) button adjust the PT value,(AA mode PT is 0,BB mode PT is 1)

- 5、按 A/M 键跳过 T1, T2, T3, d 参数，此时数码交替显示 P=5.0。

Press “A/M” to ignore parameter T1,T2,T3,d, the LED alternate display “P=5.0”.

- 6、按 A/M 键确认，保存设定参数，退出设置界面层

Press “A/M” to confirm, save the setting parameter and exit the setting state.

六、三通阀门位置状态时间设定方法

Setting method of the three-way valve position state stay period

发送位置停留时间 T1 、 回程位置停留时间 T2 、 休息位置停留 T3 可以自由设定，数码窗数值显示以分钟为单位，最高显示四位数(9999 分钟)。

SEND position stay period T1, RETURN position stay period T2, REST position stay period T3 can manual set, the value display in LED in minutes, the maximum value is 4-digital(9999 minutes).

- 1、进入参数设置界面层，需按“A/M”键持续2秒以上，进入密码输入状态

Long press “A/M” button over 2 second will enter the parameter setting mode, wait for the password input.

- 2、输入四位正确密码(初始值为: 0000)

Enter 4-digital password (initial value: 0000)

- 3、按 A/M 键确认，跳过参数 Eb, PT 参数。此时数管显示 T1=30，按+（发送）或-（回程）键，调整所需要的 T1 值

Press “A/M” key to confirm, ignore parameter Eb, PT. ‘T1=30’ displays on the LED screen, press “+” (send) or “-” (return) button can adjust T1 value.

- 4、按 A/M 键确认，此时数管显示 T2=30，按+（发送）或-（回程）键，调整所需要的 T2 值

Press “A/M” button to confirm, “T2=30” display on the LED screen, press “+” (send) or “-” (return) button to adjust T2 value.

- 5、按 A/M 键确认，此时数管显示 T3=30，按+（发送）或-（回程）键，调整所需要的 T3 值

Press “A/M” button to confirm, “T3=30” display on the LED screen, press “+” (send) or “-” (return) button to adjust T3 value.

- 6、按 A/M 键跳过 d 参数，此时数码窗交替显示 P=5.0。

Press “A/M” button to ignore parameter d, then “P=5.0” displays on the LED.

- 7、按 A/M 键确认，保存设定参数，退出设置界面层

Press “A/M” button to confirm, save the setting, return to setting mode.

七、三通阀门的零位、满位标定方法

Three-way valve's zero and full position mark method

方法一（自动标定）: Method one:

- 1、在手动或自动测控状态，同时按动按“+” (发送)或“-” (回程)键 1 秒，即启动自动标定程序。此时控制电路开始自动标定零位和满位，标定过程不需人为干预。标定完后，控制电路回到启动标定前的状态。在标定期间，电动执行器可能会有停顿，进行数值计算。标定后的参数，控制电路会自动储存。

Under automatic or manual observe and control state, press “+” (send) or “-” (return) button for 1 second to start automatic demarcate program. Then the control circuit start automatic demarcate zero and full position no need human intervention. After demarcation finish, the control circuit will return to the state before demarcation start. During the demarcation, the motor may pause and calculate the value. The control circuit will automatic save the parameter after demarcate.

- 2、注意：在控制电路测控过程中，可能由于外界电磁干扰等，执行器会出现振荡而导致发热，为避免执行器震荡，可以增加“d”参数值，或采取相应措施。

Note: During control circuit observe and control process, the electromagnetic interference of the external environment may cause the actuator oscillate and heated up, user can increase parameter “d” or take some proper actions.

方法二（手动标定法）: Method two(manual demarcate method):

- 1、按 A/M 键 2 秒以上，进入参数，调整参数到零位 P= “uL” 参数设定：进入到 P 参数，按“+” (发送) 或“-” (回程)，使 P=3.1，按“A/M”键确定后，显示闭位“uL”值，通过按“+” (发送)或“-” (回程)，执行器相应朝“开”或“闭”方向运作，同时显示的阀位实际开度值也相应逐渐变大或变小，当到达零位时（一般设在全闭位置），按“A/M”键，确认零位“uL”参数值。
Long press “A/M” key over 2 second, enter parameter setting mode, adjust parameter “P”, press “+” (send) or “-” (return) key to adjust P to 3.1, then press “A/M” key, the LED display “uL” indicate off, press “+” (SEND) or “-” (RETURN) key, motor will move to “ON” or “OFF”, the actual position value of the valve display on LED also increase or decrease, when move to zero position, press “A/M” key to confirm zero “uL” parameter value.
- 2、满位“uH”参数设定：接着进入开位“uH”参数设定。按“+” (发送)或“-” (回

程)到满位（一般设在全开位置），按“A/M”键，确认满位“uH”参数，再次按“A/M”键，使 P 参数=5.0，控制电路自动退出参数设置状态，并保存设定的参数值，返回自动测控状态。

Full position parameter “uH” setting: then enter “uH” parameter setting, press “+” (SEND) or “-” (RETURN) key to full position (set to full position) ,press “A/M” key ,adjust parameter P to 5.0, control circuit automatic save the setting value and exit parameter setting mode and return to automatic observe and control state.

退出方式 exit method

- 1、标定完毕需要按“+” (发送)或“-” (回程)键修改“P”的数值=5.0，按“A/M”键确认，控制电路自动退出设置状态，并保存设置的参数。

When demarcate finish, user need to press “+” (SEND) or “-” (RETURN) key to modify “P” value to 5.0, then press “A/M” key to confirm, the control circuit will automatic save the settings and exit setting mode.

- 2、上述设置过程中，无按键操作等待时间不要超过 30 秒，否则，控制电路自动返回自动控制状态，本次设置的参数不保存。

During the parameter setting process, no key operation time can not last long over 30 seconds, otherwise the control circuit will automatic return to automatic control mode without saving settings.

附录：错误代码表及解决办法：

序号 No	错误代码 Error Code	含义 Description	解决方案 Resolution
1	Errr	电机未接或上下行同时堵转 输入密码错误 Motor not connected or downlink and uplink blocked, password input wrong	检查电机是否接线 check motor connection
3	Err2	机内超温报警 Overtemperature alarm	设备或机内温度过高，采取降温措施。 Temperature in Device too high, take action to fall down the temperature
4	Err3	开向运行电机堵转 On direction motor blocked	检查阀门或执行器机械部分 Check the valve or the mechanical part of the motor
5	Err4	闭向运行电机堵转 Off direction motor blocked	检查阀门或执行器机械部分 Check the valve or the mechanical part of the motor

注：1) 参数修改过程中，请尽量使连续两次按键操作的时间间隔不超过 30 秒钟，否则，控制电路会自动退出参数设定状态，当前设置不保存，需要重新设置。

During the parameter setting process, no key operation time can not last long over 30 seconds, otherwise the control circuit will automatic return to automatic control mode without saving settings.

2) 当用户出现参数设置不当或有错误操作致执行机构不能正常工作时，可以启动恢复出厂设置的程序，长按 A/M 键 2 秒以上，进入参数 P=5.0，按 “+” (发送)或

“-” (回程)键使 P=20.1，再按 A/M 键盘确认，执行机构重新进行自动标定，恢复出厂参数设置。

When user find the module not work correctly can start the factory reset process, long press “A/M” button over 2 seconds, the LED displays “P=5.0”, press “+” (SEND) or “-” (return) key set P to 20.1, then press “A/M” key to confirm will let module parameter reset to the factory.

3) 三通阀门的控制器有手动（本地）与自动（远程）控制转换功能，按 A/M 键可在手/自动之前进行转换，“手动/自动”状态指示灯相应点亮

The control module of the three-way valve can switch between manual(local) and auto(remote) control by press “A/M” key, simultaneously the MANUS and AUTO indicator led also will be lighted up.

4) 配线进口处必须按使用说明书要求作好防水电缆接头处的密封处理

Wiring inlet must be processed according to the user guide's instructions, make sure seal the waterproof cable junction.

八、参数设置（在工程师指导下操作）

Parameter setting (please operate under engineer's guide)

