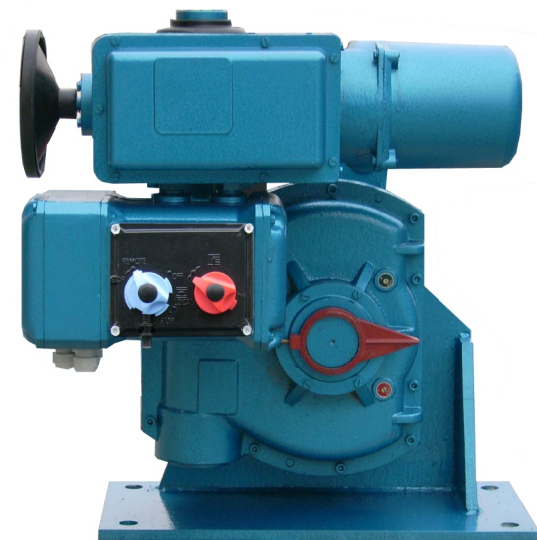


SMD系列安装维护手册
SMD Range
Installation and Maintenance Instruction

电动执行机构
ELECTRIC ACTUATOR



天津市宝恒控制阀门有限公司
BAOHNEG VALVE-CONTROL Co., Ltd



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1: 相关安全事项

电动执行机构装备于大电流工作条件下的工业场所，在使用过程中，设备内部带有危险的、未经过绝缘的、裸露的电器零件，同时具有运动或旋转的机械部件。所有不经过授权的打开机壳、不恰当的使用、不正确的操作或维修都有可能伤害到人身安全或者造成财产的损失。

产品使用工厂的安全负责人员应该确保遵守以下内容

- 只有具备资质的工程师可以进行设备的安装调试
- 应该向经常操作使用设备的相关人员提供正确的操作手册及其它的相关设备文件，以确保他们在所有时间内都能遵循设备手册或文件的指导内容进行操作使用。
- 不具备相关资质的人员不允许操作设备或接近设备
- 注意设备可以使用范围的技术数据和技术参数（安装、连接、环境及使用条件），以上数据应该包括在产品样本、订货合同、操作手册中。用户应该在产品文件中保留产品铭牌的详细内容。

如果用户对产品有疑问，特别是对产品技术参数的疑问，可以通过我公司的销售部门进行确认。确认时请提供使用产品的铭牌数据及系列号。

1: Terms concerned with safety

The electric actuators are equipment which is intended for use in heavy current industrial plants. During operation, this equipment has dangerous, uninsulated live parts and moving or rotating parts. Serious damage to health or property can therefore result from unauthorized removal of the necessary covers, improper use, incorrect operation or inadequate maintenance.

Those persons responsible for plant safety must therefore ensure that

- Only qualified persons are instructed to perform work on the equipment
- These persons have constant access to the operating instructions supplied and all other product documentation that is applicable to the work being carried out and that they are instructed to observe this documentation at all times
- Unqualified persons are not permitted to work on the machines or in the vicinity of the machines
- The technical data and specification concerning the permitted use (installation, connection, ambient and operating conditions) which are included in the catalogue, order documentation, operating instructions, the details on the name and rating plate and the remaining product documentation

In the event of doubt, especially in cases of a lack of product-specific details, clarification must be obtained via our sales department. Please quote the product type and serial number in any correspondence.

2: 运输与存储

- 使用坚固的包装将电动执行机构运输到安装地点
- 不允许使用设备的手轮作为吊装位置
- 电动执行机构应该存储在干燥、通风良好的房间里
- 电动执行机构在一年中应该至少接通电源一次，以保证电容器充满电（防止电解液干枯）
- 设备要避免放置于潮湿地面，应置于货架托盘之上
- 应当保证电器密封盖密封紧密，即使电缆出口也要严格密闭

3: 产品安装

- 在安装电动执行机构之前应检查其外形及安装尺寸，安装时执行机构周围要留出足够的空间以便调试、操作及检修。同时要避免执行机构受到强烈震动。
 - 虽然执行机构本身具有防水外壳，但是不能侵入水中使用，如果安装位置可能长期受水冲刷，用户应考虑额外的防水措施。
 - 对于直连式法兰安装的设备，电动执行机构可以水平、垂直或倾斜安装。法兰尺寸符合ISO5216的设计标准。如果需要非标准的安装尺寸请及时于我公司联系。
 - 对于底座型安装的设备，电动执行机构通常建议水平安装。安装平面应平整。使用球形铰链或其它连接形式应该注意以下几个问题。
- ① 连接阀门的输出臂尺寸应该与电动执行机构的输出臂尺寸长度相同。
- ② 两个输出臂在安装时应保持平行并且在一个平面上。执行机构的机械零位应于阀门零位保持一致。

2: Transport and storage

- Transport equipment to the installation location in rigid packaging
- Do not attach lifting gear to the hand-wheel
- Store in a dry, well-ventilated room
- The actuators are to be connected the main supply at least once per year to fully regenerate the capacitor
- Protect against damp floors by storing on a shelf or palette
- Keep covers of the electrical control unit closed as well as the through-holes for cables

3: Installation

- Before installation, checked the configuration and dimensions of actuator. When the actuator is mounted, it should have enough space to manual operation, adjustment and inspection.
 - For flange mounted equipment, the actuator may be installed vertically, horizontally or inclined, the dimension of flange is keeping with the ISO 5216 standard. If it is non-standerd, please consult with us.
 - For foot-plate mounted equipment, the actuator recommend be installed horizontally. The installation plane should be smooth. The connection of actuator with valve can be realized by means of link lever or ball-joints. To pay attention to the following notes:
- ① The valve connective size of output arm in keeping with actuator`s.
- ② The two output arms should be mounted to keep parallel and keep in the same plane.

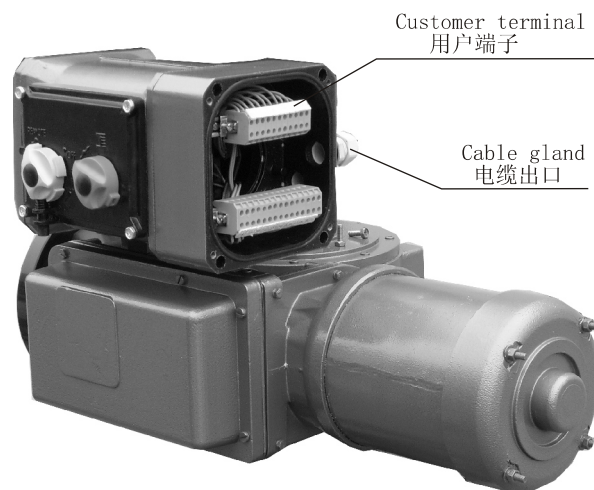


③ 两个球形铰链的张力作用点应在一个平面上，两个输出臂保持在平行平面以避免附加力矩。

④ 出于防锈及维修考虑所有与阀门的安装配合面应涂抹润滑脂，并且定期检查加油。

4: 电器连接

- 电动执行机构一旦正确接线，在所有接线端子上会带有危险的电压，请勿直接触摸端子区域，防止触电。
- 所有的电动执行机构控制元件均连接到接线端子排上，打开接线端子外盖，通过电缆接线孔将电缆引入执行机构并接到端子排上。在接线前请检查电源电压是否与产品的铭牌相符合，按照接线图的正确接线。接线后，通过手轮将执行机构旋转到中间位置，通电检查执行机构的旋转方向是否正确。

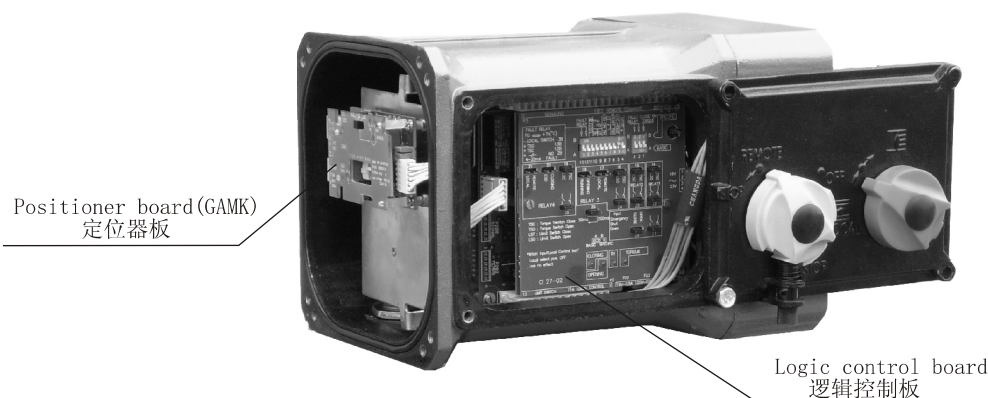


③ The tension point of two ball-joints is keeping same plane, it is necessary to keep parallel with the plane of two output arms, to avoid the additional torque.

④ For the rust proof and convenient maintenance to coat the grease on the mounted plane when the actuator connected with valve.

4: Electric connection

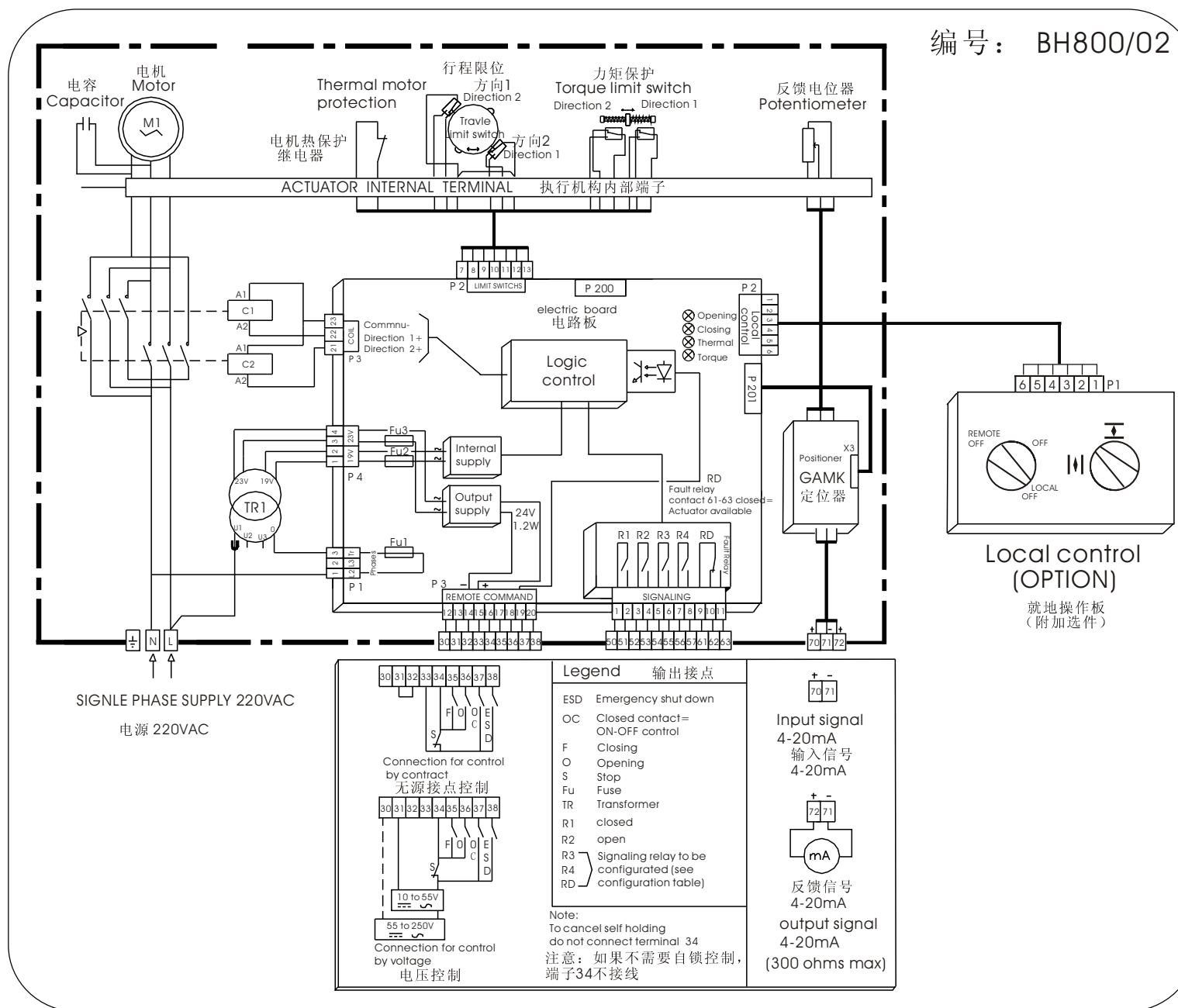
- DANGER: The component are designed such that once correctly connected, uninsulated, live parts cannot be touched directly in the terminal area. Protection against electric shock is provide.
- All actuator control elements are wire to a terminal strip in the switch compartment. Remove the cover and insert the cables through the cable glands in order to reach the terminal strip. The connections are made in accordance with the diagram. Before beginning this procedure, make sure that power supply voltage is in accordance with the actuator nameplate. After the terminal connections have been made, move the valve manually to the half-open position and verify proper rotation electrically.



● SMD 系列相关的接线图

● Wiring diagram of SMD range

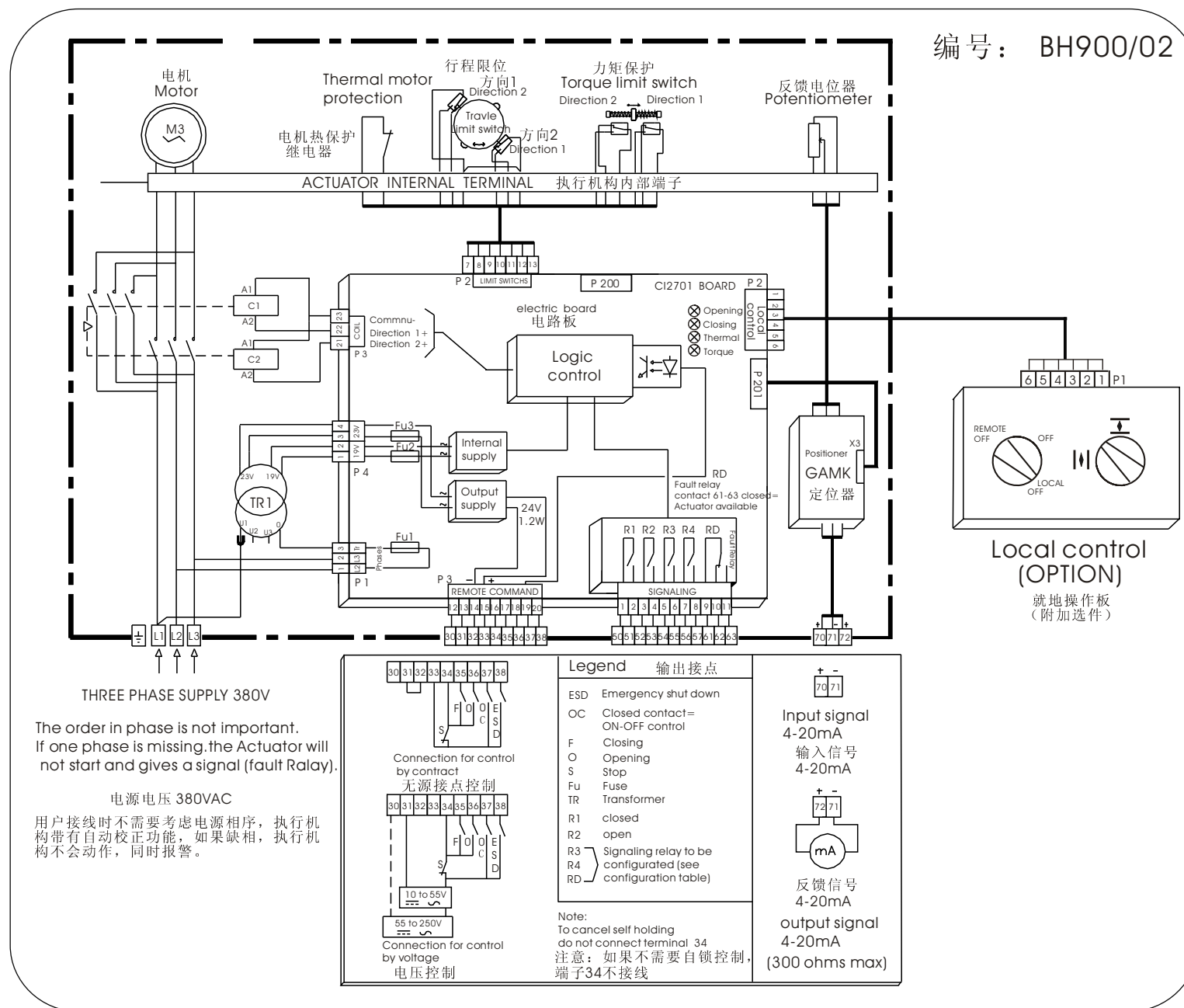
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● SMD 系列相关的接线图

● Wiring diagram for SMD range

编号: BH900/02



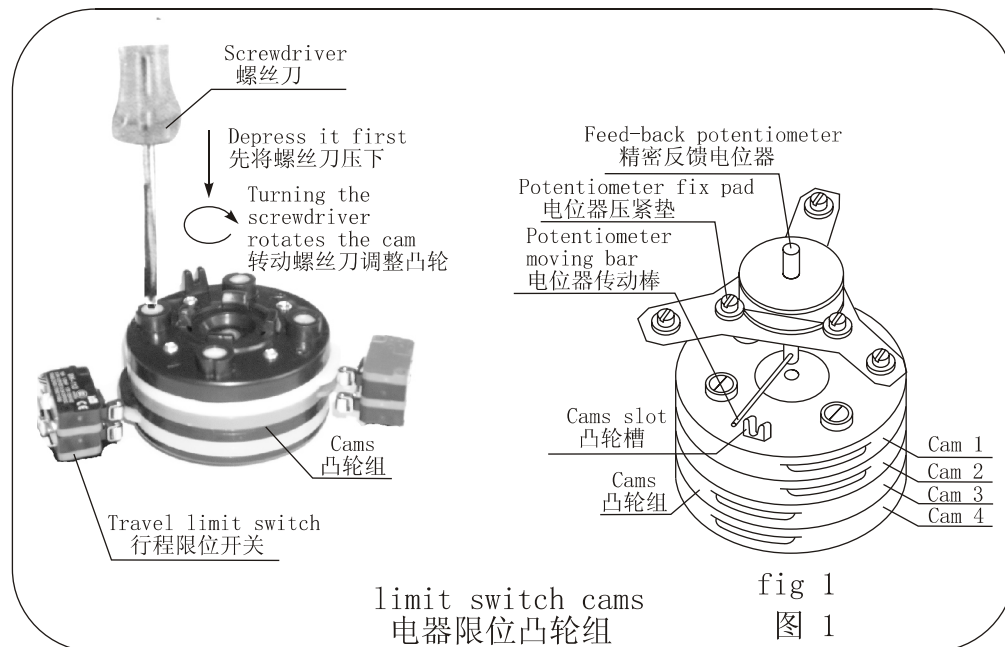
5: 执行机构调整

SMD调节型执行机构的调整

- 电动执行机构在出厂前已经调试完毕，一般情况，不需要用户重新调整。
- 如果执行机构输出臂的位置与阀门位置不对应，请拆下输出臂，改变位置重新装配。

重新调整电动执行机构

- 更换反馈电位器应该重新设定 0%。
- 更换电路板应该重新设定 100% 和灵敏度。
- 更换电动机后应该检查执行机构的旋转方向。



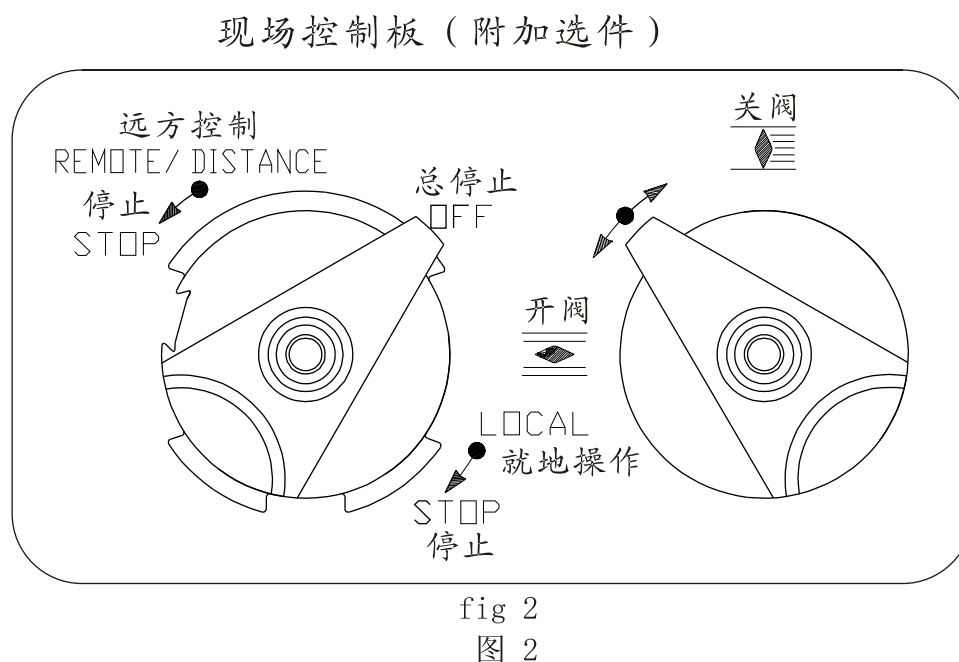
5: Adjustment of actuator

Adjustment of integral -type modulating SMD range

- The adjustment of integral-type actuators have been done in our factory. Generally, It is not necessary to re-adjust.
- If the arm of actuator is not a good position with the valve, please taking the arm apart from actuator, changing the position and re-assembly it.

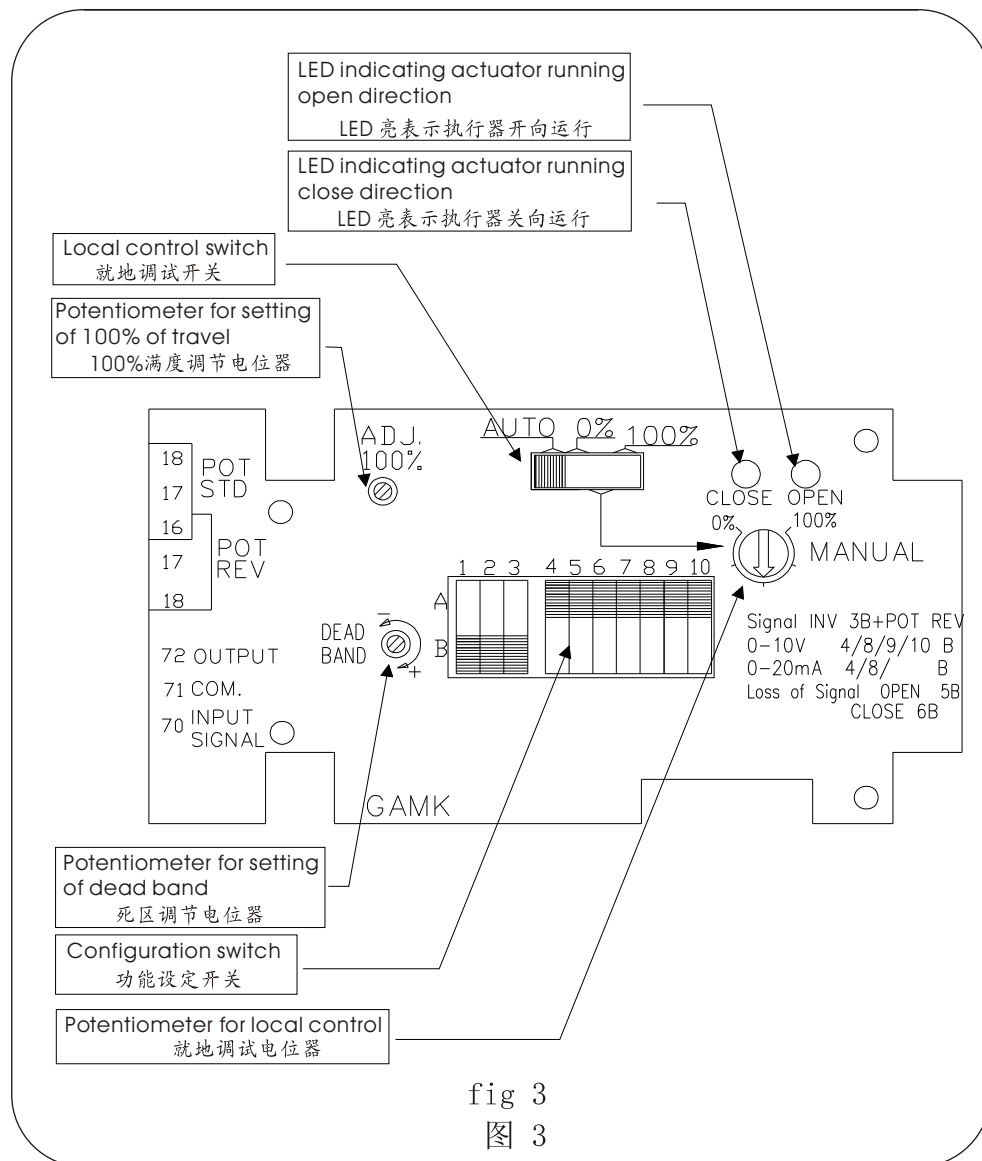
Re-adjustment of actuator

- Changing the potentiometer should re-setting 0%
- Changing the electric board should re-setting 100% and dead band.
- Changing the motor should check rotation of actuator.



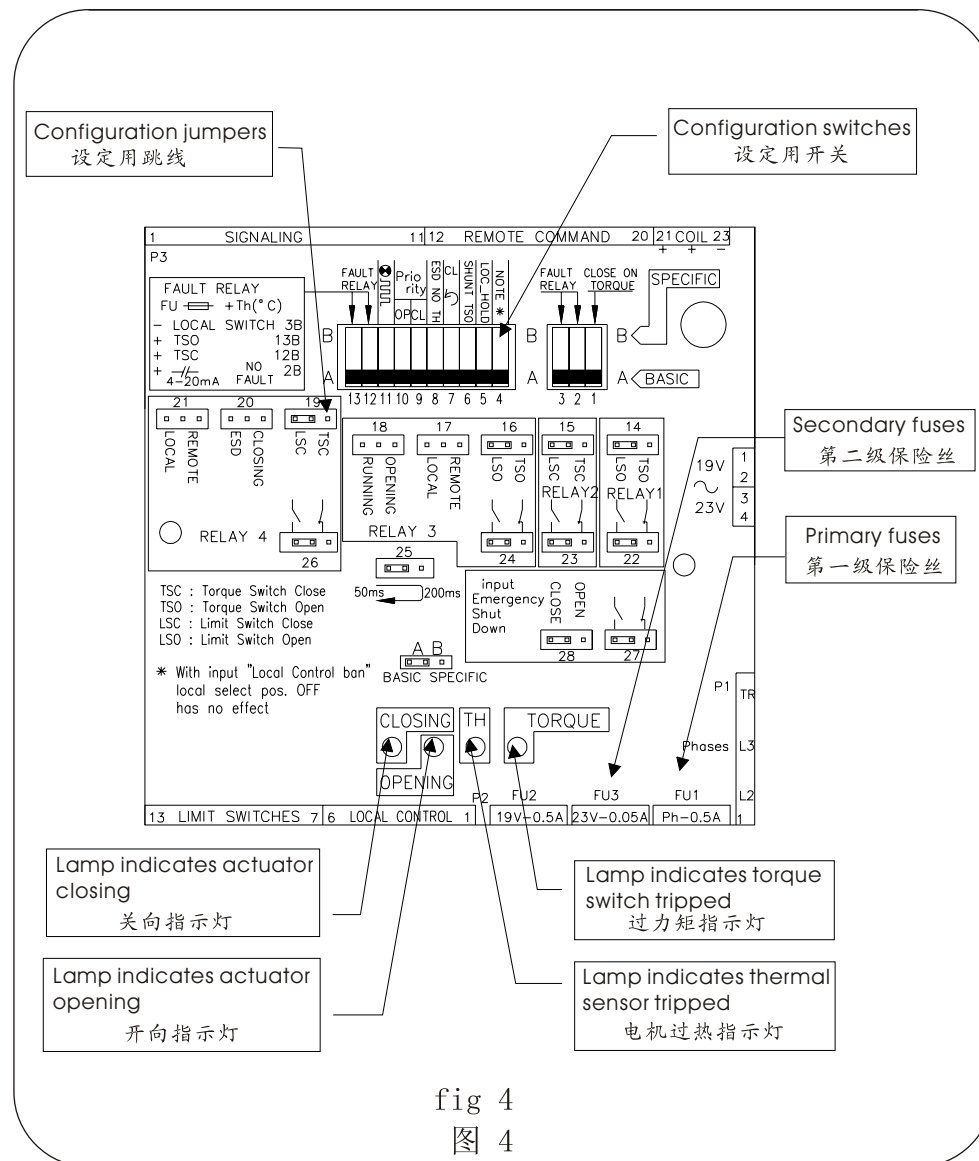
The Configuration of positioner (GAMK)

位置定位板的功能说明



The Configuration of logic control board

逻辑控制板的功能说明



- 功能的设定可以简单的拨动开关或通过跳线套进行跳线。

- Configuration is easily accomplished by moving switch and jumpers.



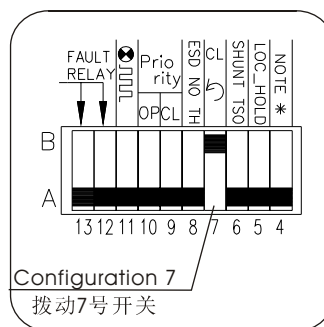
- 反作用设定

在标准设定中，执行机构顺时针关闭，但是根据使用阀门的不同类型，有时需要逆时针关闭阀门。

逆时针关阀（反作用）⇨

拨动开关 7 以后，改变了以下状态：

- 电动机的旋转方向
- 执行机构行程限位开关方向
- 执行机构力矩限位开关方向



- Counter-clockwise

In standard, the actuator closes clockwise, according to the type of vale, one must sometimes close counter-clockwise.

⇨ closing counter-clockwise.

- The motor direction of rotation
- The limit switches
- The torque switches

- 远方控制

电动执行机构装有逻辑控制板，可以通过外部电压或内部电压控制执行机构的动作，输入的信号通过光电耦合器绝缘。

- 无源接点控制可以参考图5接线

在使用无源接点控制时，在用户端子 31-32 之间应添加短路线。

- 外部电压控制可以参考图6接线

特别注意：在端子31上所加电压不能超过55V

- Remote control

Remote control of an actuator equipped with the electric logic board can be done from an external voltage supply or internal voltage supply. Inputs on the board are completely isolated by opto-isolators.

- Dry contacts control refer Fig5

In case of dry contact control, a jumper must be put on customer terminals 31-32.

- Voltage control refer Fig6

Caution: never connect voltage higher than 55V on common terminal 31.

Pulse remote command
(self-holding)
远方接点控制
(自锁型)

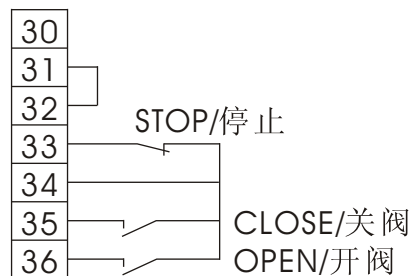
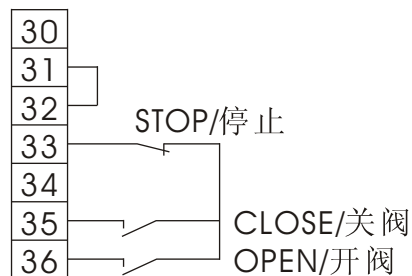


fig 5
图 5

Pulse remote command
(without self-holding)
远方接点控制
(非自锁型)



● 就地控制

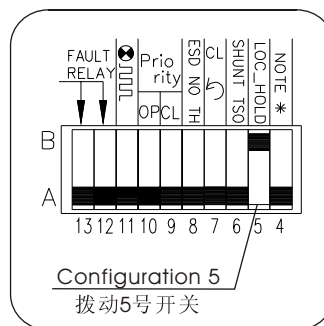
操作面板上的选择旋钮可以在“就地”及“远控”之间切换。面板上的操作旋钮可以操作执行机构朝开或关的方向动作。如果旋转一下停止旋钮则可以停住在远控或就地状态下动作的执行机构。

● 就地控制的自锁

在标准设定时，就地操作为自锁型的（即操作一下旋钮，执行机构就能全开或者全关）。

将逻辑控制板上的5号设定开关拨到B位就取消了就地控制的自锁（开或关的操作过程中必须始终拨动旋钮）。

取消就地控制的自锁 ➡



For lower voltages
10-55VAC OR DC
低电压控制
10-55V直流或交流

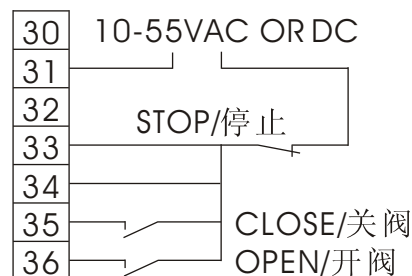
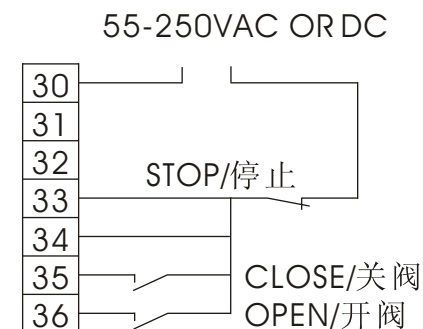


fig 6
图 6

For high voltages
55-250VAC OR DC
高电压控制
55-250V直流或交流



● Local control

A local selector allows choosing between remote and local control. The button for local control open or close allows operating the actuator in the direction. Local stop is done by a momentary rotation of the local/remote selector switch. Refer Fig2

● Self-holding local control

In standard, local controls are self-holding. (One pulse is enough to send close or open command)

Move switch 5 to position B to cancel the self-holding. (Open or close command must be maintained during this operation)

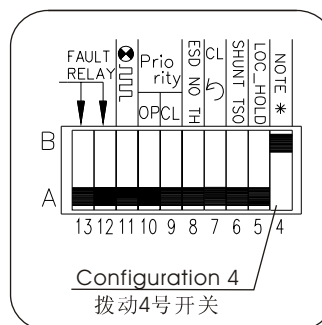
➡ Local control without self-holding

● 总停止

在标准设定中，可以使用总停止操作。将“就地—远控”旋钮拨到总停止（OFF）位置，所有的电器操作全部无效（可以使用手轮操作）。

将逻辑控制板的4号设定开关拨到B位可以屏蔽就地总停止，同时其它就地停止操作也无效。

取消就地控制的总停止 →



● General stop

In standard, it is possible to do a general stop of the actuator. Move the selector local/remote switch to position OFF. No electrical control in local or remote is therefore possible.

Move switch 4 to position B in order to prohibit local stop and OFF position when in local control inhibition.

← Local stops are impossible if in local control inhibition.

● 远方状态指示

远方状态指示由5只继电器完成。

—4只单刀单掷继电器用于指示。接点状态可以设定为常开或常闭。

—1只单刀双掷继电器用于故障状态监视。

继电器的设定选择：（加深部分为出厂的标准设定）

继电器	反馈信息	就地跳线	用户端子
继电器1	全开限位开关动作	14-LSO	50 - 51
	开向力矩开关动作	14-TSO	
继电器2	全关限位开关动作	15-LSC	52 - 53
	关向力矩开关动作	15-TSC	
继电器3	全开限位开关动作	16-LSO	54 - 55
	开向力矩开关动作	16-TSO	
	就地—远控旋钮在就地位置	17-LOCAL	
	就地—远控旋钮在远控位置	17-REMOTE	
	执行机构正在电动运转	18-RUNNING	
	执行机构正在电动开阀	18-OPENING	
继电器4	全关限位开关动作	19-LSC	56 - 57
	关向力矩开关动作	19-TSC	
	执行机构接受到紧急关断命令（ESD）	20-ESD	
	执行机构正在电动关阀	20-closing	
	就地—远控旋钮在就地位置	21-LOCAL	
	就地—远控旋钮在远控位置	21-REMOTE	

● Remote indications

Remote indication is accomplished through 5 relays:

-Four `single contact` relays available for operation indications. Contacts can be normally open or normally closed.

-One reversing relay for fault monitoring.

Relay options: (grey: standard configuration)

Relay	Information to be transmitted	Location of jumper	Customer terminals
Relay1	Limit switch open	14-LSO	50 - 51
	Torque switch open	14-TSO	
Relay2	Limit switch close	15-LSC	52 - 53
	Torque switch close	15-TSC	
Relay3	Limit switch open	16-LSO	54 - 55
	Torque switch open	16-TSO	
	Local/remote selector on local	17-LOCAL	
	Local/remote selector on remote	17-REMOTE	
	Actuator moving electrically	18-RUNNING	
	Actuator opening electrically	18-OPENING	
Relay4	Limit switch close	19-LSC	56 - 57
	Torque switch close	19-TSC	
	Actuator is receiving an emergency command (ESD)	20-ESD	
	Actuator closing electrically	20-closing	
	Local/remote selector on local	21-LOCAL	
	Local/remote selector on remote	21-REMOTE	

● 故障监视继电器

故障监视继电器指示出执行机构的不正常操作或故障状态。通常它是吸合状态，故障状态时释放。

故障监视继电器释放时有以下几种情况可能产生：

- 电源断电或保险丝烧毁
- 电源丢失一相（在使用三相电源执行机构时）
- 电机热保护开关动作
- 4-20mA控制信号丢失
- 就地远控旋钮置于总停止（OFF）位置

● 位置定位器的选项（请参考图3）

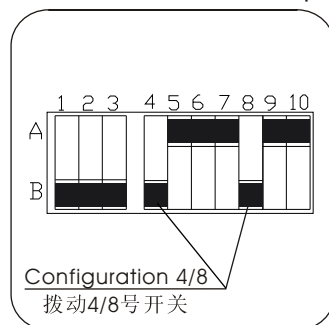
选择位置定位器板通过线排连接到电源板上，使得执行机构可以根据输入的控制信号按比例的动作，设定位置定位器方法如下：

- 可以就地操作执行机构
- 可以适用于不同的输入信号
- 可以设定执行机构在输入信号丢失时停止的位置

● 使用 0-20mA 的控制信号

用户使用 0-20mA 输入信号 →

将位置定位器上的4及8设定开关拨到 B 位，执行机构可以接受0-20mA控制信号，输出信号（执行机构的位置反馈）同时变为0-20mA。



● Fault monitoring relay

The fault-monitoring relay indicates a non-availability of the actuator or an abnormal operation. The fault-monitoring relay is normally energized, and is de-energized in case of fault.

The relay is de-energized upon the following events:

- Loss of main power supply, control voltage, or fuse
- Loss of one phase (in case of three phase supply)
- Tripping of motor thermal protection
- Loss of input signal 4-20mA (with option positioner)
- Local/remote selector in position local or off

● POSITIONER OPTION (refer Fig3)

The optional positioner is connected to the basic electric board. The positioner allows the actuator to reach position proportionally to a command-input signal. The configuration panel of the positioner allows:

- To give local positioning command
- To adapt the actuator to the different types of input signals
- To configure the reaction of the actuator in case of loss of input signal

● Operation with signal 0-20mA.

← Operation with signal 0-20mA.

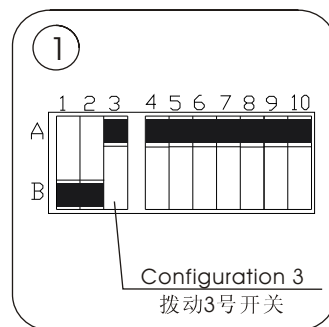
Move switch 4 and 8 to position B for operation with an input signal of 0-20mA. The output signal(position indication feedback) is also 0-20mA.

- 改变旋转方向（反作用设定）

在标准设定中 4mA 阀门关闭，20mA 阀门打开。

将位置定位器板上的3号设定开关拨到 A 位，同时将反馈电位器的插头从“POT STD” 移动到“POT REV” 位置，既可以实现反作用设定。

逆时针关阀（反作用）⇒

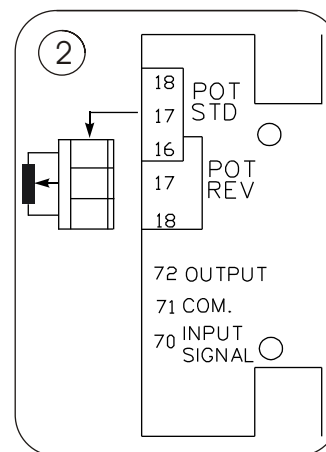


positioner (GAMK)
定位器板(GAMK)

- Operation direction connection (anti-clockwise action)

The standard is 4mA valve closed and 20mA valve open.

Move switch 3 to position A, and move actuator potentiometer connection from position `POT STD` to POT REV` to obtain 4mA valve open, 20mA valve closed.



positioner (GAMK)
定位器板(GAMK)

← closing counter-clockwise.

- 灵敏度调节

灵敏度在执行机构出厂前已经调节完毕，如果要减小死区范围，请逆时针调节死区电位器。

特别注意：如果死区范围太小会引起执行机构振荡。



- Dead band adjustment

This adjustment is factory set, but can be adjusted with the potentiometer `DEAD BAND`. To reduce the dead band, turn it counter-clockwise.

Caution: reducing the dead band too much will provoke `hunting` of the actuator.

- 就地操作

使用位置定位器可以模拟输入的4-20mA控制信号，用于操作或检查执行机构，此时，现场操作面板上的选择旋钮应该放在“远控”位置。

- LOCAL OPERATION

It is possible to simulate an input signal of 4-20mA locally to check the operation of the actuator. The local/remote selector must be in the remote position.

AUT: 使用外部控制信号操作



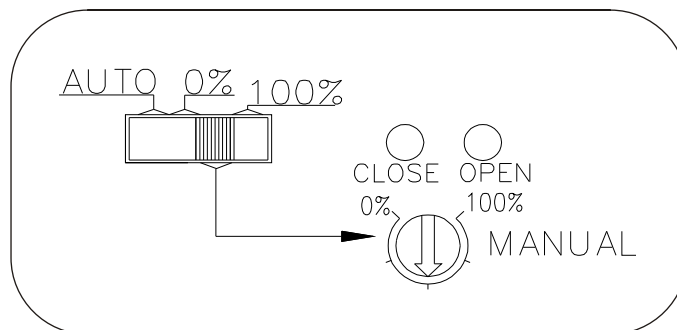
0%: 内部 0% (相当于输入4mA)



MAN: 内部电位器控制从 0% 到 100%



100%: 内部 100% (相当于输入20mA)



← AUT: operation by external signal

← 0%: internal signal 0% (4mA in standard)

← MAN: internal signal adjustable from 0% to 100%

← 100%: internal signal 100% (20mA in standard)

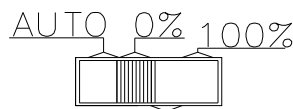
定位器板上的控制开关可以置于 0%、MAN、或 100% 的位置，当置于“MAN”位置时转动“MANUAL”电位器既可以模拟输入的。4-20mA 信号

Move local control switch to position 0%,MAN, or 100%. Turn potentiometer `MAN` to simulate an input signal from 4-20mA.

● 调整 0%

就地—远控旋钮必须在远控位置。移动控制开关到 0% 位置，相当于执行机构接受到关命令（4mA）。

● Adjustment of 0%



The local/remote selector must be in remote position. Move local control switch to position 0% for the actuator to receive a closing command (4mA).

情况1：执行机构停在行程全关限位开关之前。

慢慢转动执行机构的反馈电位器使凸轮碰到关限位，此时LED仍然点亮。再反向慢慢转动电位器使LED熄灭。

Case 1: actuator starts closing and stops before the close limit switch.

Turn actuator feedback potentiometer slowly to bring the actuator to the close limit switch, LED on. Turn potentiometer slowly in opposite direction until the red LED goes off.

情况2：执行机构朝关向转动，碰到全关限位开关后停止，但是关向指示LED仍然点亮。

慢慢转动电位器使LED熄灭。

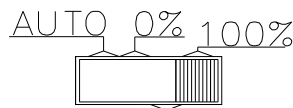
Case 2: actuator starts closing, stops on the close limit switch, and the LED indicating closing is still on.

Turn actuator feedback potentiometer slowly until the LED goes off.

● 调整 100%

就地—远控旋钮必须在远控位置。移动控制开关到 100% 位置，相当于执行机构接受到开命令（20mA）。

● Adjustment of 100%



The local/remote selector must be in remote position. Move local control switch to position 100% for the actuator to receive a opening command (20mA).

情况1: 执行机构停在行程全开限位开关之前。

仔细调节定位器板上的“ADJ 100%”电位器, 使凸轮碰到开向限位开关, 再慢慢地反向调节电位器使绿色LED指示灯熄灭。

情况2: 执行机构朝开向转动, 碰到开向限位开关后停止, 但是开向指示LED仍然点亮。

慢慢逆时针转动定位器板上的“ADJ 100%”电位器使LED熄灭。

● 调整执行机构的限位凸轮

使用手轮将电动执行机构转动到全关0%位置(距离机械限位大约2°的距离)。调整凸轮4使其碰到关向行程限位开关(听到开关动作声)松开反馈电位器压板, 仔细调整电位器使输出指示电流在4mA。(压紧反馈电位器。用手轮将执行机构转动到全开100%位置(距离机械限位大约2°距离), 调整凸轮3使其碰到开向行程限位开关(听到开关动作声)。

● 行程限位的设定

行程限位在出厂前已经设定完毕。
首先, 关闭电源, 打开控制箱的盖子, 可以看见反馈电位器及凸轮组件(参考图1)。

松开电位器固定板的螺丝, 可以看到下面的凸轮组件, 上面装有4只凸轮, 使用不同颜色区分, 下面的两只凸轮4及凸轮3(绿色及黑色)用于行程限位。

Case 1: actuator starts opening and stops before the open limit switch.

Turn potentiometer `ADJ 100%` (adjustment of 100%) slowly clockwise to bring the actuator to the open limit switch. Turn slowly this potentiometer in the opposite direction until the green LED goes off.

Case 2: actuator starts opening, stops on the open limit switch, and the green LED remains on.

Turn potentiometer `ADJ 100%` (adjustment of 100%) slowly counter-clockwise to turn off the green LED.

● Adjustment limit switch of actuator

Turn the actuator to closed position by handwheel(about 2° to the mechanical limit). Adjust the cam item 4 close direction until it can trip the closed travel limit switch. Loosen the fixing pad of potentiometer, carefully turn the potentiometer to make the indication of the milliammeter 4mA . Re-tighten the pad. Turn the actuator rotated to 100% position by handwheel(about 2° to the mechanical). Adjust the cam item 3 to open direction until it can trip the open travel limit switch.

● End of travel setting

This setting has been done in our factory.
First at all, switch off the power supply. To take the cover of the control box, then it can be seen that the cams and potentiometer mechanism.(refer to Fig 1)

Loosen the potentiometer fixing pad, the cams is below. The cams is equipped with 4 cams. Having different colours. The under-cam 4 and 3 (blue and black) for controlling the beginning and the end of travel limits.

转动手轮使电动执行机构动作到全关位置，使用螺丝刀压下凸轮4，并旋转凸轮直到关限位开关动作，抬起螺丝刀，限位凸轮被锁定在此位置。使用同样的方法设定全开位置。

在完成以上调整后，使用手轮将执行机构转动到中间位置：固定电位器压板时请注意将电位器的驱动棒放入凸轮槽内。

凸轮1 及凸轮2 用于用户的中途限位，可以根据用户的要求调整到所需位置。

6：产品维护及故障处理

问 题	原 因	应对措施
执行机构不动作	电源	检查电源，并且与铭牌参数核对
	电机热保护动作	检查电机是否过热，如果电机过热后经过冷却，电路会恢复正常。
	接线松动	检查所有接线端子上的接线是否松动，检查电路板上的连线是否有脱落。
	保险丝烧毁	更换同型号保险丝
执行机构不跟随控制信号动作	红色LED点亮：过力矩开关动作	如果执行机构已经碰到其机械限位，使用手轮调整执行机构的机械限位，并且重新调整电器限位。
	接线错误	检查端子 70 及 71 上的输入信号。
	执行机构在远方接点控制方式	执行机构在远方接点控制方式时 4-20mA 控制信号无效。
	执行机构在就地控制方式	检查电路板上的切换开关是否切换到远方控制方式。

Turn the handwheel to operate the actuator until in the full close position, by means of a screw-driver press and rotate the cam 4 to the position in which it can trip the limit switch for close position, lift the screw-driver, the cams are locked in this position at once. Proceed on the same way for the open position.

After adjustment has completed, operate the actuator by handwheel to mid-travel: fix the potentiometer plate. Now we should put the driving rod of potentiometer into the slot of the cams.

The cams 1 and 2 for half way of limits, it is can adjusted according, to the need of the users.

6: Maintenance and troubleshooting

PROBLEM	CAUSE	CORRECTIVE ACTION
No operation	power	Check the power supply voltage, compare with nameplate.
	Tripping of motor thermal protective device	Check if the motor is hot. The actuator will again be available after the motor has cooled off.
	the wire is loosen	Check the wiring in the terminal and electric board
	Fuse blown	Check the fuse replace as required.
The actuator dose not follow the commands	The red LED is lit: torque limit switch tripped	If the actuator is on mechanical stop, disengage it with the handwheel and again set the stroke.
	Bad wiring	Check input signal connection between the terminals 70 and 71.
	Remote pulsed control mode	In this mode input signal(4-20mA) can not control the actuator.
	Local control mode	Check the electric board change-over switch should put on remote position.



问 题	原 因	应对措施
执行机构没有停在正确位置或振荡。	灵敏度设定不正确	重新调整灵敏度
执行机构没有停在关向限位开关前面 (控制信号4mA)	关向限位开关设定不正确	重新调整关限位开关，执行机构的限位开关必须与阀门的全关位置对应。
	位置0% 调整不正确 电机经过重新接线，旋转方向与出厂时相反，（用户更换了电机）	重新调整执行器的反馈电位器 用户更换电机时，应该注意电机的线号，如果与出厂方向不一致，请将电机端子的2和3线互换。
执行机构没有停在开向限位开关前面 (控制信号20mA)	开向限位开关设定不正确	重新调整开限位开关，执行机构的限位开关必须与阀门的全开位置对应。
	位置100% 调整不正确 电机经过重新接线，旋转方向与出厂时相反，（用户更换了电机）	重新调整电路板上的100%调节电位器 用户更换电机时，应该注意电机的线号，如果与出厂方向不一致，请将电机端子的2和3线互换。

PROBLEM	CAUSE	CORRECTIVE ACTION
The actuator does not stop on the right position and is hunting.	The dead band setting is not correct.	Re-setting the dead band.
The actuator does not stop on the closing limit switch (input 4mA)	Closing limit switch is misadjusted	Adjust the closing limit switch. The closing limit switch must be actuated with the valve closed.
	Position 0% is misadjusted	Adjust actuator potentiometer.
	Motor has been unwired and rotates in the reverse direction (motor replacement)	When replacing a motor, wire markings must be observed. In case of doubt, check rotational direction, change over wires 2 and 3 of the motor terminal strip.
The actuator does not stop on the opening limit switch (input 20mA)	opening limit switch is misadjusted	Adjust the opening limit switch. The opening limit switch must be actuated with the valve open.
	Position 100% is misadjusted	Adjust 100% potentiometer on the electric board.
	Motor has been unwired and rotates in the reverse direction (motor replacement)	When replacing a motor, wire markings must be observed. In case of doubt, check rotational direction, change over wires 2 and 3 of the motor terminal strip.



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