

TANA



OHQ防爆电动执行器系列
OHQ Series Explosion-proof Electric Actuator

概述 Summary

OHQ系列电动执行器用于控制0° ~270° 旋转的阀门及其他同类产品，如蝶阀、球阀、风门、挡板阀、旋塞阀、百叶阀等，可以广泛应用于石油、化工、水处理、船舶、造纸、电站、供热、楼宇自控、轻工等各行各业中。它以380V/220V/110V交流电源为驱动电源，以4~20mA电流信号或0~10V DC电压信号为控制信号，可使阀门运动到所需位置，实现其自动化控制，最大输出扭矩达4000N·M。(该产品已获得CE防爆认证证书，产品质量具有保障)

"OHQ" series electric actuator is used for controlling 0° ~270° rotation of the valves and other similar products, such as butterfly valve, ball valve, damper, flapper valve, cock valve etc. It widely applies to petroleum, chemical, water treatment, shipping, paper making, power plant, heating, light industry and other industries. Driven by 380V/220V/110V AC power or 24V/110V DC power, inputs 4~20mA current signal or 0~10V DC voltage signal as control signal, moves the valve to the right position, and achieves to automatic control, maximum output torque is 5000N·M. (OHQ series products have got CE and explosion-proof certificate)

性能特点 performance Features

- 1.壳体--壳体为硬质铝合金，经阳极氧化处理和聚酯粉末涂层，耐腐蚀性强，防护等级为IP67，NEMA4和6，并有IP68和防爆型供选择。
1. Shell--The shell is made of horniness aluminium alloy, with anodic oxidation treatment and polyester coating. It is strong corrosion-resistant enclosure Ip67, NEMA 4 and 6, Ip68 and explosion-proof is optional.
- 2.电机--全封闭式鼠笼式电机，体积小，扭矩大，惯性力小，绝缘等级为F级，内置过热保护开关，可防止过热损坏电机。
2. Electric Machinery--Fully enclosed Squirrel-cage electric machinery, small, large torque, and small inertia force, F-class insulation rating, place hot protection switch internal to avoid damaging the electric machinery.
- 3.手动结构--手轮的设计保证安全可靠、省力、体积小。不通电时，扳动离合器手柄可进行手动操作。通电时，离合器自动复位。(注：在电机不通电的情况下，电动执行器将保持永久手动状态)
3. Manual Structure--The design of handle is safe, reliable, labor-saving, small. If without powre, it can be operated by handle. With power, the clutch will reset automatically.
- 4.指示器--指示器安装在中心轴上，可以观察阀门位置。透镜采用凸透镜设计，不积水，观察更方便。
4. Indicator--Installs indicator in the center axis and adopts convex mirror design, no cumulate water, more convenient to observe.
- 5.干燥器--用来控制温度，防止由于温度和天气变化导致执行器内部水份凝结，保持内部电气元件的干燥。
5. Space heater --It is used for controlling temperature, avoiding internal moisture of electric actuator condensed because of the changing of temperature and weather, keep inner electric device dry.
- 6.限位开关--机械，电子双重限位。机械限位螺钉可调，安全可靠；电子限位开关由凸轮机构来控制，简单的调整机构能精确并方便地设定位置，无需电池支持。(微动开关触点均为银质触点)
6. Limit switch--Mechanical, electronic double limit. Mechanical limit screw is adjustable, safe and reliable; electronic limit switch is controlled by the cam. Set position accurately and conveniently by simple adjustment, no need buttery. (microswitch contactors are silver contactors)
- 7.扭矩开关--可提供过载保护(OHQ-005/008/010除外)，在阀门卡涩，有异物时，自动断开电机电源，更有效的保护阀门和电动执行器不受损坏。(出厂前已设定好，请用户不要随意更改设置)
7. Torque Switch--(Except OHQ-005/008/010) Providing overload protection, avoid to damage the valve and electric actuator when jammed, it can cut the power automatically. (Pls don't change mounting arbitrary)
- 8.自锁--紧密的双蜗轮蜗杆机构可高效传输大扭矩，效率高，噪音低(最大50分贝)，寿命长有自锁功能，防止反转，传动部分稳定可靠，出厂已经加满高效润滑脂，使用无需再加油。
8. Self-locking--Accurate worm and worm gear transfer large torque efficiently, high efficiency, low noise (max. 50 dB), long life, with self-locking function, prevent inversion, as stable and reliable transmission parts. no need to refuel.
- 9.防脱螺栓--拆除外壳时，螺栓附在壳体上，不会脱落。外部螺栓均采用不锈钢材质。
9. Anti-off bolt--The bolt will attach to the shell and not be off and when remove the shell. The outside of the bolt is stainless steel.
- 10.安装--底部安装尺寸符合ISO5211国际标准，驱动套可拆下根据需要进行加工，适应性强。可以垂直安装，也可以水平安装。
10. Installation--The installation size of the bottom meets international standard ISO5211, the drive sleeve can be removed to process as required. It can be installed vertically, and also can be installed levelly.

11. 线路--控制线路符合单相或三相电源标准，线路布置紧凑合理，接线端子可有效满足各种附加功能的要求。阀开关到位均有无源接点输出(可根据客户要求另行加工。)

11. Circuit--Controlling circuit meet the single-phase or three-phase power supply standard, circuit layout is reasonable and compact, terminals meet various of additional functional requirements effectively(It can be processed separately if customers require).

12. 智能模块--采用集成度高，功耗很低的单片机与模拟电路混合的控制板，更采用全金属外挂式安装，使执行器电机热源与控制板有效隔离，很大程度上提高了软件及硬件的抗干扰性能及耐温性。

12. Intelligent modul--It adopts control plate mixed by MCU and analog circuit, hight integration, low consumption, and metallic out-mount, to separate electric actuator heat producer and control plate effectively, and improve the anti-interference and heat resistance of software and hardware widely.

13. 阀位数字显示--执行器在打开或关闭的过程中，阀位的变化在液晶屏上以大数字方式实时显示。

13. The display of valve position--During the opening or closing of actuator, the change of valve position on LCD is displayed with large numbers.

14. 相序自动化调整--智能型执行器自动检测接入的三相电源相序，无需用户考虑三相电源的相序问题。

14. Adjust the phase sequence automatically--Intelligent actuator connect to 3 phases power supply phase sequence automatically, no need to consider about the phase sequence of 3 phases power supply for users.

性能参数 Performance Parameter

1.OHQ 系列电动执行器技术参数 OHQ series electric actuator performance parameter

型号 Model	最大输出 扭矩 Max output torque	动作时间 60/50HZ Operating time 60/50Hz	最大轴径 Max bore size	电机F级 F-class Motor	额定电流(A)50HZ Rated Current(A)50HZ				手轮转速 Handwheel revolution	重量 Weight
					单相 single phase		三相 three phases			
					110V	220V	380V	440V		
OHQ-005	50	18/22	Φ20	20	1.10/0.95	0.55/0.54	0.3/0.3	N/A	10	7.5
OHQ-008	80	18/22	Φ20	20	1.10/0.95	0.55/0.54	0.3/0.3	N/A	10	7.5
OHQ-010	100	18/22	Φ20	20	1.10/0.95	0.55/0.54	0.3/0.3	N/A	10	7.5
OHQ-015	150	21/25	Φ22	40	1.65/1.67	0.88/0.84	0.31/0.31	0.30/0.31	11	17.3
OHQ-020	200	21/25	Φ22	40	1.67/1.67	0.89/0.85	0.31/0.31	0.30/0.31	11	17.3
OHQ-030	300	26/31	Φ35	90	1.85/1.86	0.92/0.92	0.35/0.35	0.34/0.34	13.5	22
OHQ-050	500	26/31	Φ35	90	3.60/3.62	1.55/1.58	0.59/0.59	0.58/0.58	13.5	23
OHQ-060	600	26/31	Φ35	120	3.65/3.62	1.60/2.20	0.60/0.59	0.59/0.58	13.5	23
OHQ-080	800	31/37	Φ45	180	4.10/4.10	2.15/2.20	0.85/0.85	0.79/0.79	16.5	29
OHQ-120	1200	31/37	Φ45	180	4.20/4.10	2.35/2.30	0.87/0.87	0.81/0.81	16.5	29
OHQ-200	2000	93/112	Φ65	180	4.10/4.10	2.15/2.20	0.85/0.85	0.79/0.79	49.5	75
OHQ-300	3000	93/112	Φ65	180	4.20/4.10	2.35/2.30	0.85/0.85	0.81/0.81	49.5	75

2. 标准规格 Standard technical parameter

外壳 Shell	防水级别IP67, NEMA4 and 6 Enclosure:IP68,NEMA4 and 6	
电机电源 Power	标准: 220V AC 单相 可选: 110V AC 单相, 380、440V AC 3相, 50/60Hz, ±10% 24V DC/110V DC/220V DC Standard:220V/AC single-phase Optional:110V AC single-phase,380V/440V 3phase,50/60HZ, ±10% 24V DC/110V DC/220V DC	
电机 Motor	鼠笼式异步电机 Squirrel-cage Asynchronous Motor	
限位开关 Limit Switch	开/关, 各1个, SPDT,250V AC 10A Close/Open,each 1, SPDT,50V AC 10A	
辅助限位开关 Auxiliary Limit Switch	开/关, 各1个, SPDT,250V AC 10A Close/Open,each 1, SPDT,50V AC 10A	
扭矩开关 Torque switch	开/关, 各1个, SPDT,250V AC 10A Close/Open,each 1, SPDT,50V AC 10A	OHQ-005/008/010除外 Except OHQ-005/008/010
行程 Stroke	90° ± 10°	0° ~270° 可选
失速保护/操作温度 Stall protection/ Operating temperature	内置过热保护, 开115°C ± 5°C/关97°C ± 5°C Built-in thermal protection, Open 115°C ± 5°C/Close 97°C ± 5°C	
指示器 Indicator	连续的位置指示刻度 Continuous position indicator	
手动操作 Manul operate	机械离合机构, 配手轮操作 Declutching mechanism, cooperate with handwheel	
自锁装置 Self-locking device	蜗轮, 蜗杆机构提供自锁 Self-locking by worm and worm gear	
机械限位 Mechanical Limit	2个外部调整螺栓 2 × external adjustable screws	
干燥器 Space heater	7-10W(110/220V AC)	
接线孔 Conduit entry	2个PF 3/4"	
环境温度 Ambient temperature	-20°C~+70°C	
润滑 Lubrication	铅基润滑脂 (EP 型) Grease moly(EP type)	
材料 Material	钢, 铝合金, 铝青铜, 聚碳酸酯 Steel, Aluminium alloy, Aluminium bronze, Polycarbonate	
环境湿度 Ambient humidity	最大90% RH Max 90% RH	非凝结 Non-Condensing
抗震性能 Anti-vibration	X Y Z 10g, 0.2-34 Hz, 30分 X Y Z 10g, 0.2 ~ 34Hz, 30 minutes	
外涂层 External coating	干粉, 环氧聚酯, 具有超强的防腐能力 Dry powder, Epoxy polyester, high anti-corrosion	

3. 可选规格

Option Specification

编号 No.	可选配置 Option scheme	备注 Remark
1	防爆执行器 (Exd II BT4, Exd II CT6) Explosion-proof Actuator (Exd II B T4, Exd II CT6)	OHQ 系列 OHQ series
2	防水执行器 (IP68, 10M, 250HR) Water-proof Actuator (IP68, 10M 250HR)	OHQ 系列 OHQ series
3	电位计 (1K-10K) Potentiometer Unit (1K-10K)	OHQ 系列 OHQ series
4	比例控制单元 (输入, 输出信号 4-20mA DC/1-5V/1-10V) Proportion Control Unit (input, output 4-20mA DC/1-5V/1-10V)	OHQ 系列 OHQ series
5	现场控制单元 (就地控制/开/停/关选择开关, 就地/远程切换) Local Control Unit (local control/open/stop/close optional switch, local/remote switch)	OHQ 系列 OHQ series
6	行程 120°, 180°, 270° Stroke 120°, 180°, 270°	OHQ 系列 OHQ series
7	直流电机 (24V DC) Direct current motor (24V DC)	OHQ 系列 OHQ series
8	附加扭矩开关 (SPDT X2 250V AC 10A) Torque switch (SPDT X2 250V AC 10A)	OHQ-005/008/010 除外 Except OHQ-005/008/010
9	电流位置传感器 (输出 4-20mA DC) Electric current position transfer (Output 4-20mA DC)	OHQ 系列 OHQ series
10	断电后, 电动阀自动开或关控制柜 After cutting power, the electric valve can open or close to control automatically	OHQ 系列 OHQ series
11	耐高温执行器 (-10°C ~ +100°C) High temperature resistance actuator (-10°C ~ +100°C)	OHQ 系列 OHQ series
12	耐低温执行器 (-40°C ~ +70°C) Low temperature resistance actuator (-40°C ~ +70°C)	OHQ 系列 OHQ series
13	低速执行器 Low speed actuator	OHQ 系列 OHQ series

结构 Structure

电动执行器主要由以下几部分组成:

Electric actuators is make up of the following parts:

○ 壳体部分: 包括外壳及底座部分;

Shell: including shell and pedestal

○ 驱动部分: 以高性能全封闭鼠笼式电机为动力源;

Drive parts: Full sealing high-performance squirrel-cage motor for the power source

○ 传动机构: 双蜗轮与离合器部分;

Driving mechanism: Double worm and clutch

○ 比例控制部分: 与机械部分分离, 提高可靠性;

Ratio control parts: separate with the mechanical parts, easy to debug

○ 力矩开关与限位开关部分;

Torque switch and limit switch part

○ 开度检测与反馈部分。

Opening detected and feedback parts.



凸轮及限位开关 >> Cam and limit switch

- 由两个螺丝在上面紧固，设置简单
- 每个凸轮可单独设置
- 一旦设置完成，每个凸轮会永远保持在此位置
- Tighten with two screws and simple setting
- Each cam can be set separately
- Once set, each cam will be on the position forever.

<< 手动操作（离合器系统）

Manual operation(Clutching system)

- 手动/自动转换手柄和手轮用于手动操作
- 通电后，手柄会自动复位转换成自动方式
- Manual/Auto convert to handle and handwheel used for emergency manual operation
- Powered, handle will automatically reset to auto operation



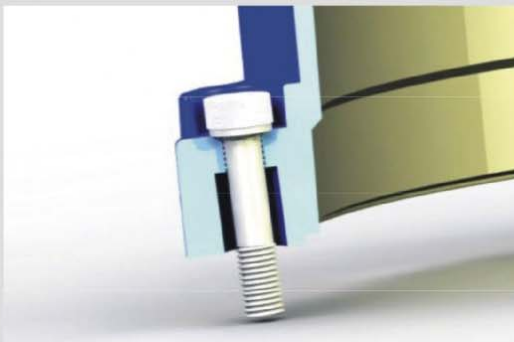
<< 干燥器

Space heater

- 7~10W, 由陶瓷制成，采用金属外壳散热快，寿命长同时作为恒温调节器调节温度，防止过热
- 没有漏电的危险
- 7-10W, ceramic housing with thermostat to prevent overheat comparing with set temperature
- Without risk of electricity leakage.

接线端子排 >> Terminal block

- 有足够的端子，使用户使用方便，最多为22个
- 能保证紧固，牢靠的电线连接
- 端子长度：8-9mm(2.5mm²)
- 端子尺寸：10×22×32mm
- Enough terminal for customer's convenience (Max 22 points)
- Proven reliability and tight wiring connection
- Terminal length: 8-9mm/(2.5mm²)
- Terminal dimension: 10×22×32mm.



<< 防脱螺栓

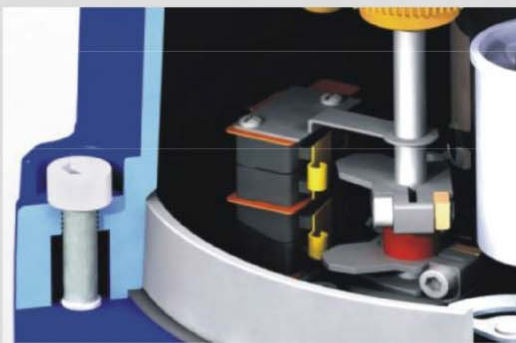
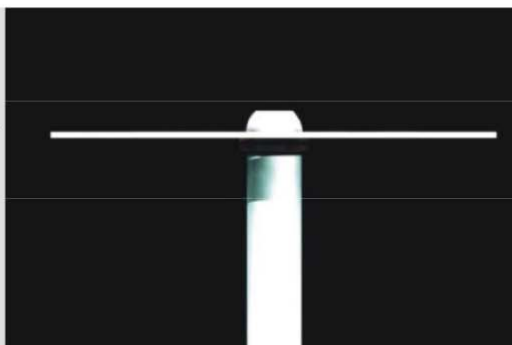
Anti-off bolt

- 上盖螺栓为专门设计，保养及安装时不会脱落
- 所有外部螺栓为不锈钢材质，不会生锈
- Cover bolts are specially designed to prevent falling down during maintenance or installation.
- All external bolts are stainless steel for rust prevention.

指示器由弹簧支撑 >>

Indicator sustained by spring

- 指示器的方向在出厂前已设置好
- 如果想改变指示方向，只需要抓住指示盘，改变方向即可
- 指示盘下面的弹簧会保持设定位置不会改变
- 不需要放松或上紧螺钉
- Direction of indicator has been set by factory
- If change direction of indicator, just grip the indicator plate to change it
- Spring under the indicator plate sustains the set position unchanged
- No need to loose screw and tight against at all.



<< 上盖与体的结合为斜面

Inclined plane

- 其他执行器由于上盖和体的结合面是竖直的，这样由于此处的公差很小，卸下上盖很不容易
- OHQ执行器此处设计为3°的斜面，解决了这个问题，尽管公差依然很小，但是卸下上盖就很容易了
- For other actuators, it is hard to take off cover because of little tolerance when the interface between cover and body is vertical.
- For OHQ actuators, it is easy to take off cover as small tolerance, the design of interface is 3 degree inclined plane.



扭矩开关 >>

Torque switch

- 扭矩开关可防止由于过载引起的电机及其他内部元件应过热对内部元件的损伤
- 一旦扭矩开关起作用，执行器应立即停止动作
- Torque switch protect motor and internal electric components from overheating caused by overload of valve.
- If torque works, the actuator stop at once.



<< 可换驱动轴套

Removable drive sleeve

- 轴套是可换的，且可根据不同的要求加工
- 四个悬耳用于驱动轴及轴套的紧密配合
- 和阀门的安装方便
- Sleeve is removable as different requirement
- 4 under hungs for tightening or loosening between drive shaft and sleeve.
- Easy installation with valve.

视窗上的两个小槽 >>

Two slots on window glass

- 视窗盖上有两个小槽，便于雨水排出，且视为凸镜不积水，更宜观察
- 流水视窗盖的雨水可能会影响视窗的密封
- 这样两个小槽就可防止上面的问题发生
- Two slots on the window covers and convex are convenient for draining and observing, and ensure the well sealing of the cover.



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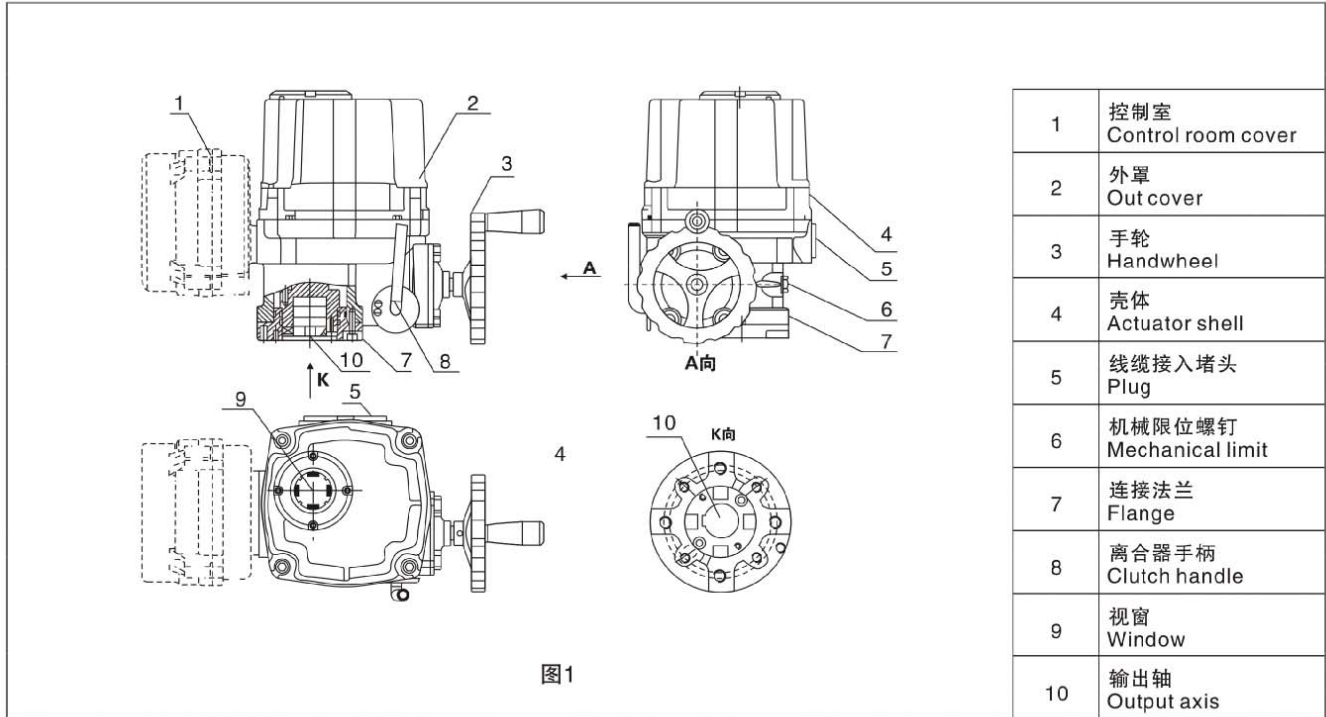
OHQ防爆电动执行器系列
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外观图 Outside view

虚线部分为模拟量控制盒，开关型无此尺寸

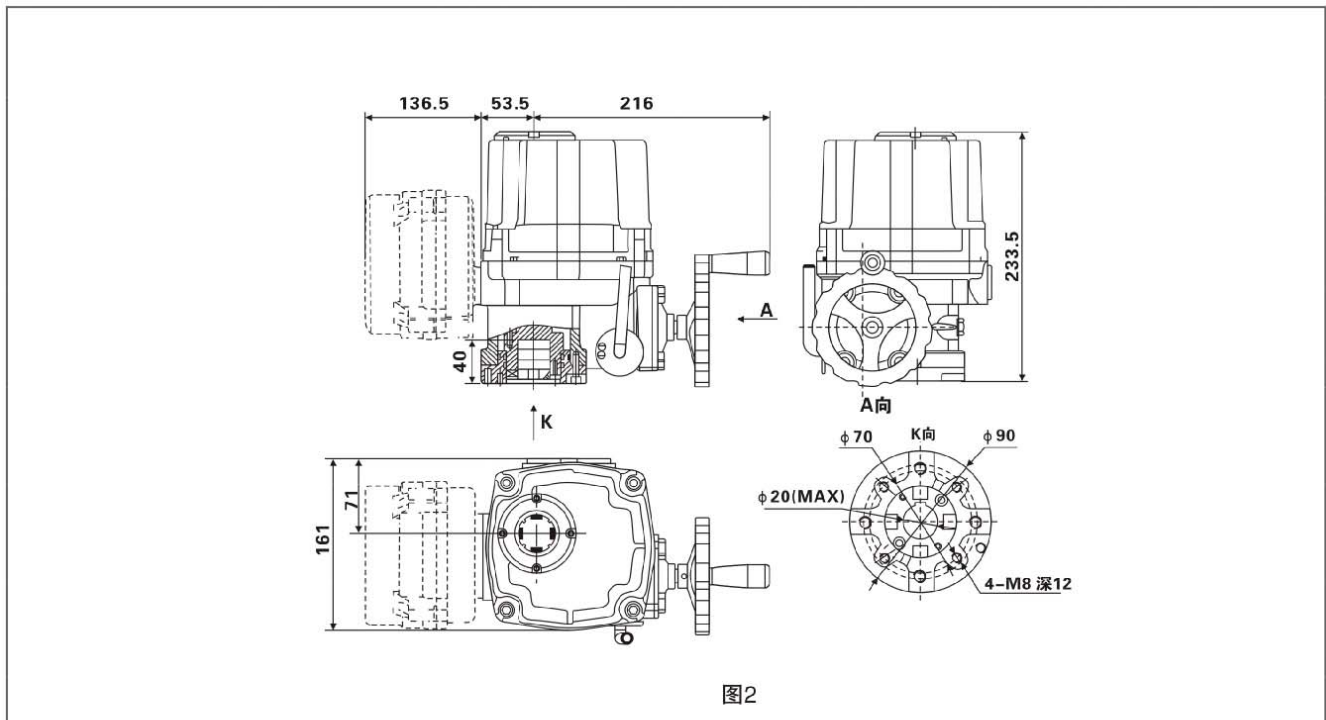
The part of broken line is used for analog quantity control box, on/off model don't have this size.



1.OHQ-005-010外观及安装尺寸(虚线部分为模拟量控制盒，开关型无此尺寸)

OHQ-005 ~ 010 Appearance and installation dimension

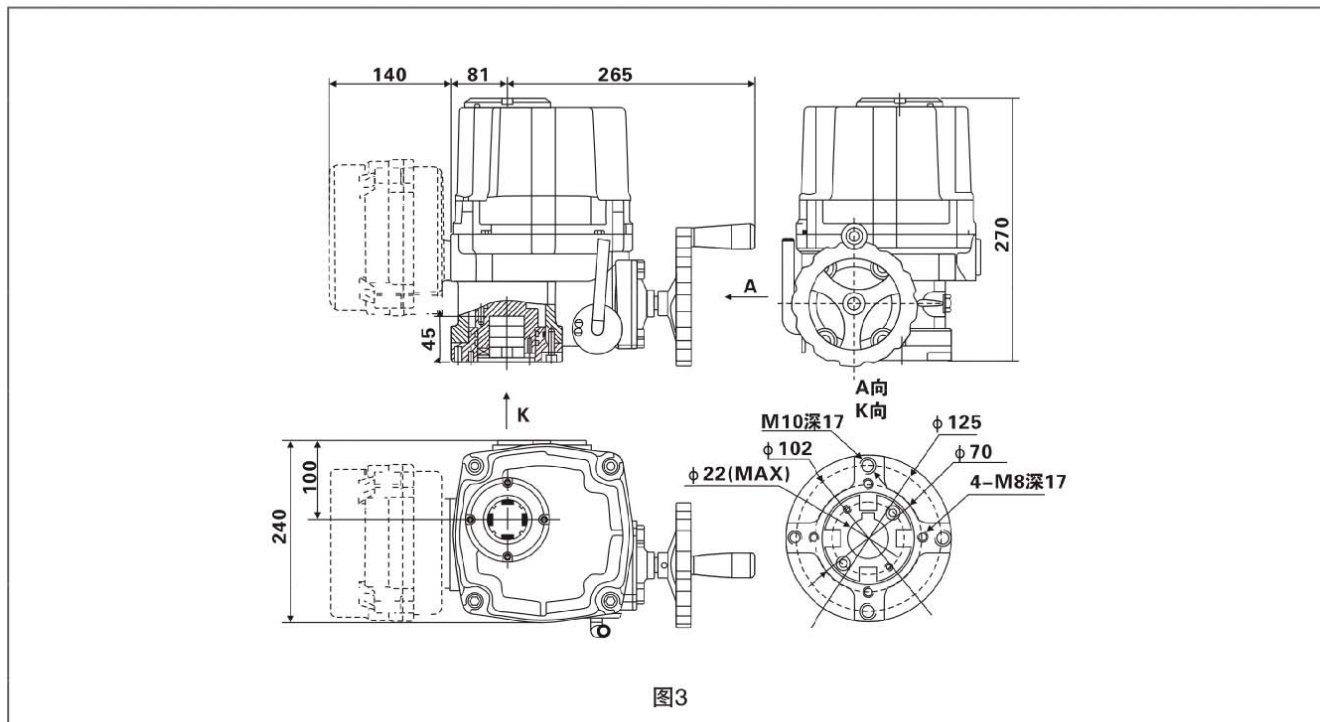
(The part of broken line is used for analog quantity control box, on/off model don't have this size)



2.OHQ-015-020外观及安装尺寸(虚线部分为模拟量控制盒, 开关型无此尺寸)

OHQ-015 ~ 020 Appearance and installation dimension

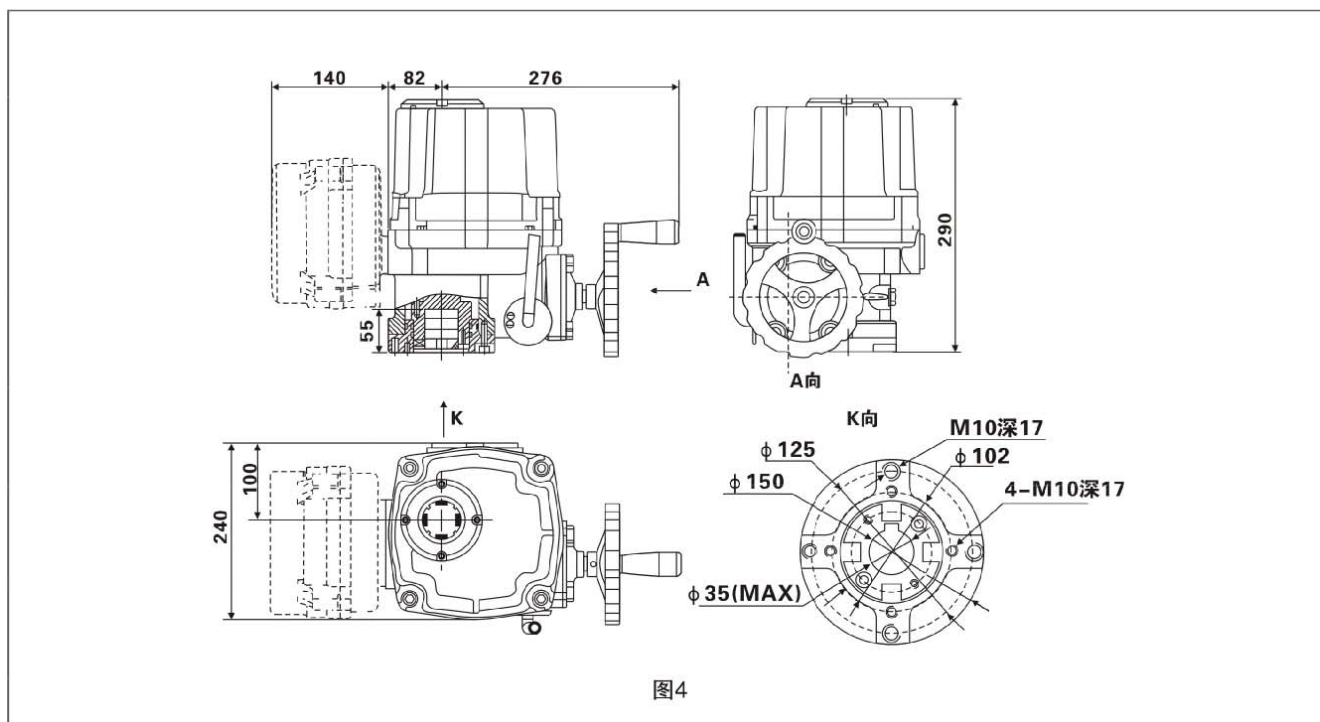
(The part of broken line is used for analog quantity control box,on/off model don't have this size)



3.OHQ-030-060外观及安装尺寸(虚线部分为模拟量控制盒, 开关型无此尺寸)

OHQ-030 ~ 060 Appearance and installation dimension

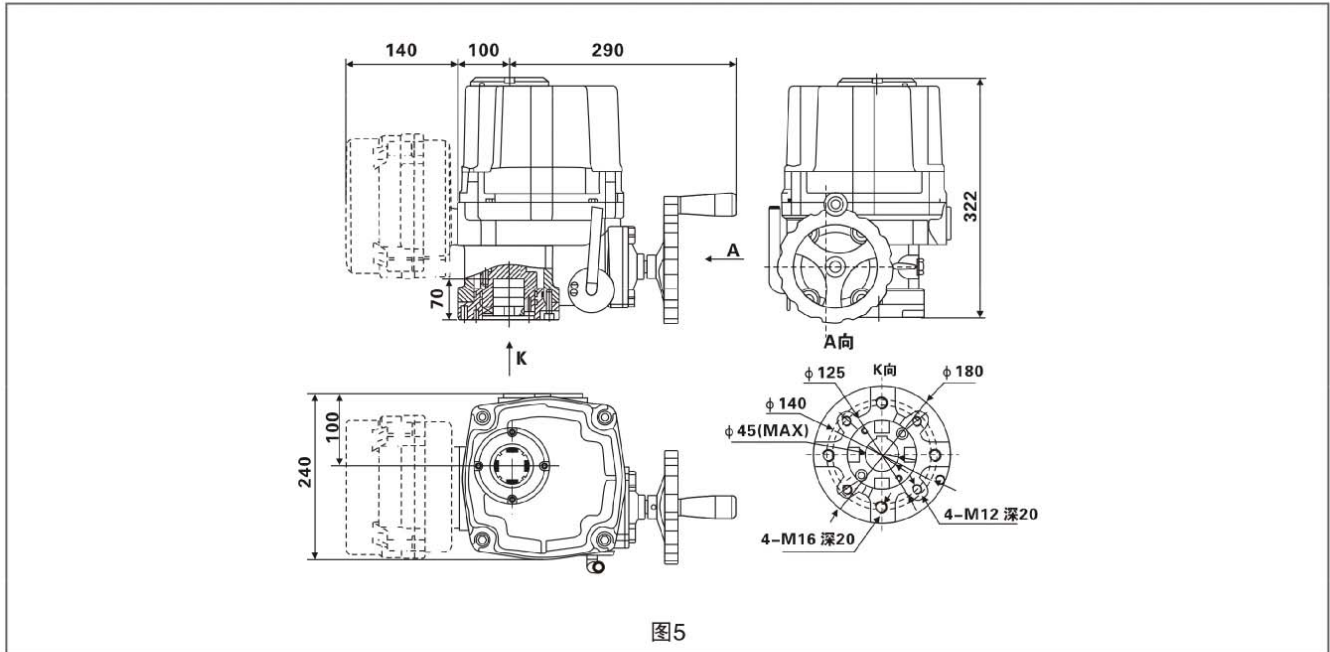
(The part of broken line is used for analog quantity control box,on/off model don't have this size)



4.OHQ-080 ~ 500外观及安装尺寸(虚线部分为模拟量控制盒, 开关型无此尺寸)

OHQ-080 ~ 500 Appearance and installation dimension

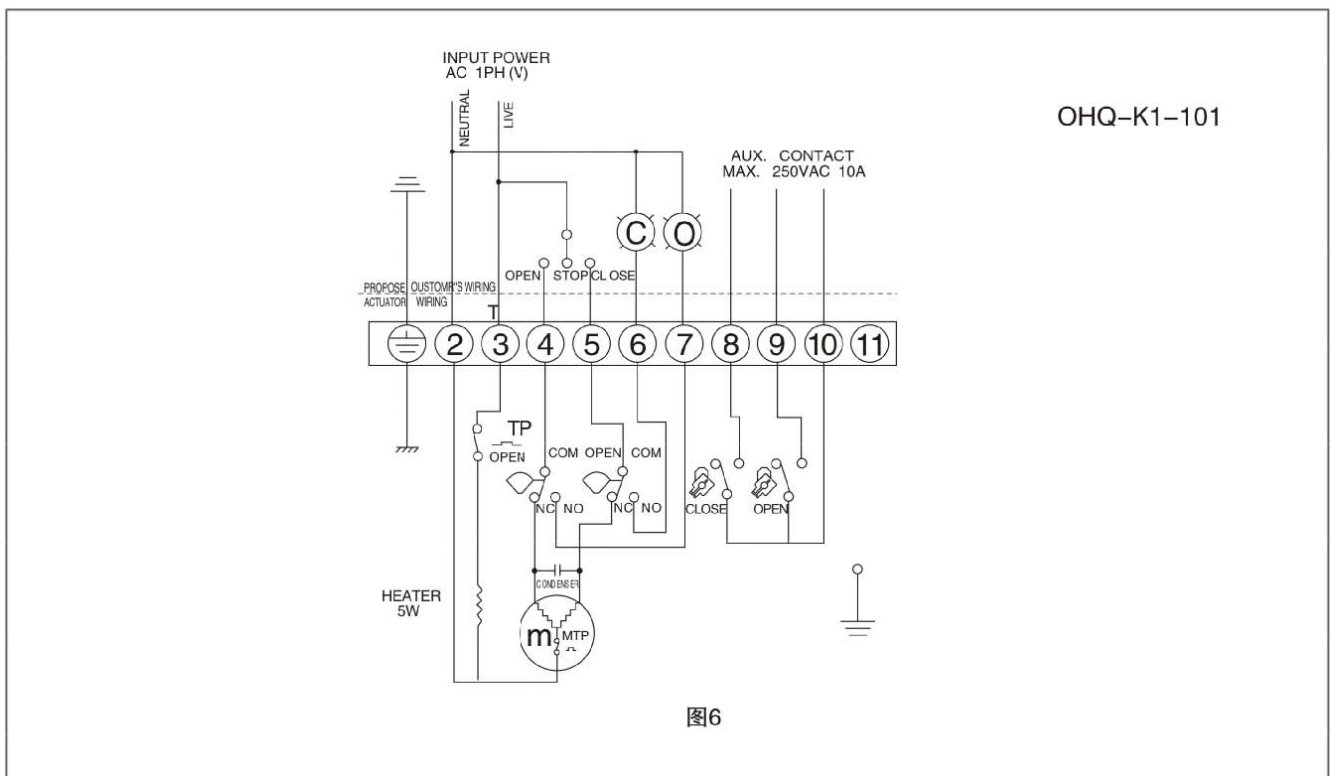
(The part of broken line is used for analog quantity control box, on/off model don't have this size)



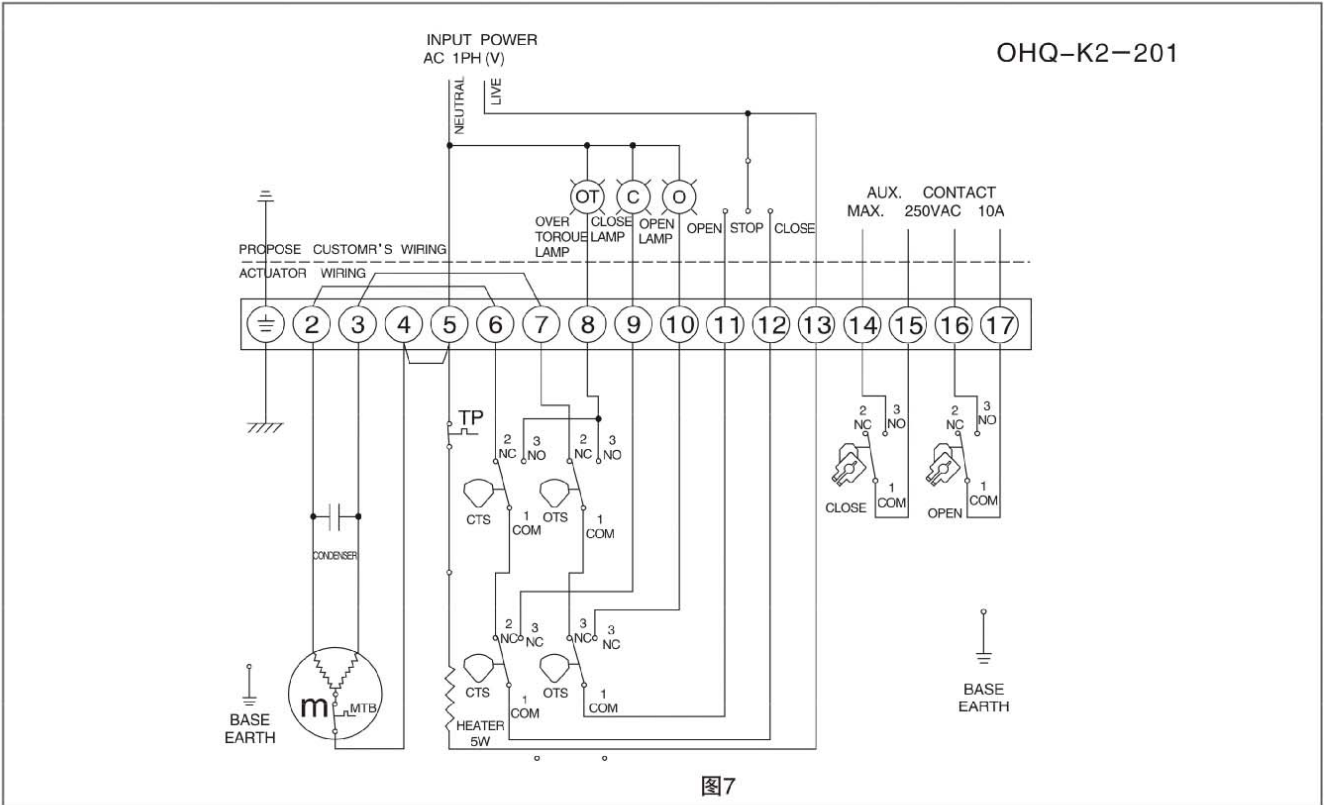
线路图 Circuit Diagram

1.OHQ-005-010 110/220VAC/50/60HZ,1Ph(标准开关型)

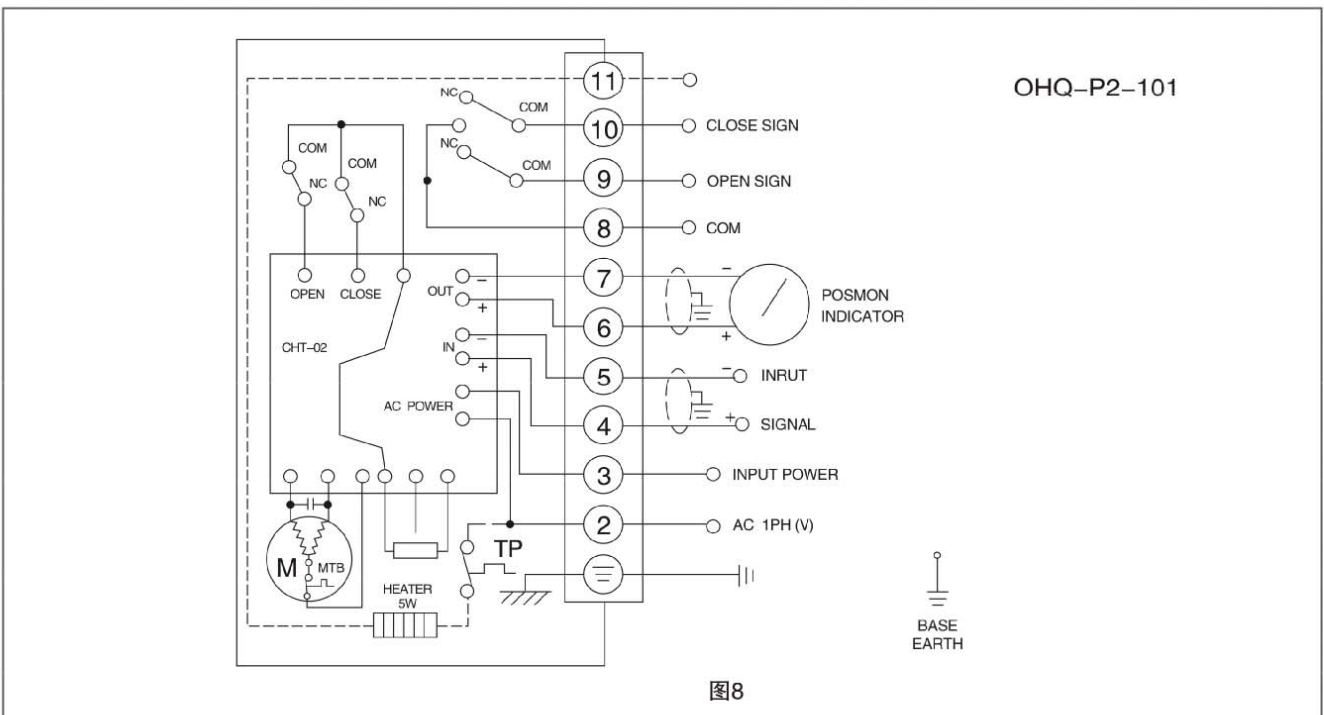
OHQ-005-010 110/220VAC/50/60HZ,1Ph(010 on/off model) OHQ-K1-101



2.OHQ-015 ~ 500 110/220VAC/50/60HZ,1Ph(标准开关型)
OHQ-015 ~ 500 110/220VAC/50/60HZ,1Ph(010 on/off model) OHQ-K2-201

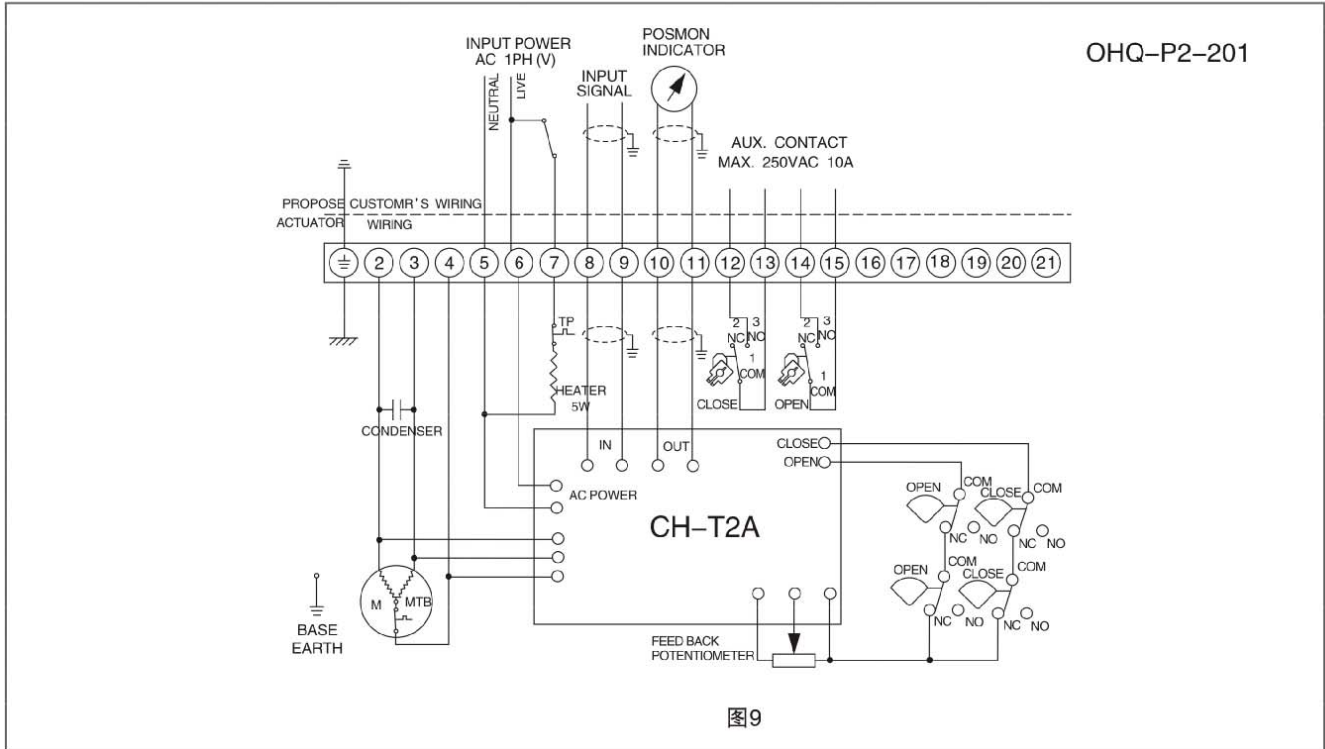


3.OHQ-005 ~ 010 模拟量无源触点信号输出线路图 OHQ-P2-101
OHQ-005 ~ 010 110/220VAC/50/60HZ,1Ph(010 modulating model) OHQ-P2-101



4.OHQ-015 ~ 500 110/220VAC/50/60HZ,1Ph(调节带过力矩保护型) OHQ-P2-201

4.OHQ-015 ~ 500 110/220VAC/50/60HZ,1Ph(Standard modulating modle)



5.OHQ-015 ~ 500 380V/440V AC/50/60HZ,3相(外置标准型) OHQ-K3-W201

5.OHQ-015 ~ 500 380V/440V AC/50/60HZ,3Ph(External standard on/off modle) OHQ-K3-W201

