



天津市自动化仪表七厂
AUTOMATIC INSTRUMENT FACTORY NO.7 TIANJIN CHINA



天津—伯纳德

TIANJIN - BERNARD Electric Actuators

GAMX 位置定位器 GAMX POSITIONERS

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天津市自动化仪表七廠

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一、概 述

GAMX 型位置定位器,是与电动执行机构相配套的高精度位置定位器。GAMX 采用了最新技术无触点功率放大器件(固态继电器),具有断信号保护功能,集成化程度较高,使定位器更可靠、更安全。GAMX 还具有动态电制动功能,有效地防止了执行机构的惯性惰走。另外定位器结合我国实际情况,前置级为国内常用的磁放大比较器,可进行多通道输入。

GAMX 位置定位器可与伯纳德产品直行程、角行程、多转式执行机构配套组成单相分立式比例调节型电动执行机构,也可以与我厂常规的 DKJ、DKZ 执行机构配套,尤其是与大力矩 DKJ-610 配套可极大地改善执行机构的阻尼特性,防止执行机构系统振荡。

二、主要技术性能

3.1 输入信号

4 ~ 20mA DC (250Ω)

3.2 死区

%~3%连续可调

3.3 断信号识别

Ⅱ型 ≤0.25mA DC b. Ⅲ型 ≤3mA DC

3.4 负载能力

a. 额定输出电流 20A b. 输出管压降 <3V

3.5 电源

220V~ +5% 50Hz ± 1%
-10%

3.6 使用环境

- a. 温度 0 ~ 50℃
- b. 相对湿度 10% ~ 85%
- c. 大气压 86 ~ 106Kpa
- d. 周围空气中无起腐蚀作用的气体。

Summarization

GAMX type of positioner is high precision positioner kitted with electric actuators. GAMX adopts the latest technology of non-touch power amplifier (solid relay), the performance of signal-break protection and the higher integration make the localizer more secure. The dynamic electric-brake function prevents the actuators from inertia moving. And besides, according to Chinese actual instance, the magnetic amplifier used generally in home is adopted in the forepart step of positioner, and it can be input by multi-ways.

GAMX positioner can be composed single-phase separated-model proportional modulating electric actuators kitted with Bernard products of linear, quarter-turn, multi-turn actuators, also with our normal DKJ DKZ actuators, especially with great-torque DKJ-610 can improve greatly damping characteristic of actuators to prevent actuators from system vibrating.

Main technical performance

2.1. Input signal:

4~20mA DC (250 Ω)

2.2. Deadband:

0.5~3 continue adjustable

2.3. Distinguish signal-break

$\leq 3\text{mA}$ DC

2.4. Load

Rated output current 20mA output voltage <3V

2.5. The power supply

220V~+5% 50Hz $\pm 1\%$
-10%

2.6. Operatig environment

- a. Temperature 0~50 $^{\circ}\text{C}$
- b. Relative humidity 10%~85%
- c. Air pressure 86~106Kpa
- d. Around air no corrective gas exists

三、使用方法

5.1 接线

位置定位器的接线端子排列如图 1 所示,使用时请按图正确接线,与执行器联接接线请见图 5 及图 6。

5.2

位置定位器在出厂前已调整好。在接人系统使用前如需进行予调试,一般采用专用调试仪进行,如果没有专用调试仪,可用信号源、电流表、灯泡等自行接线。方法见图2。

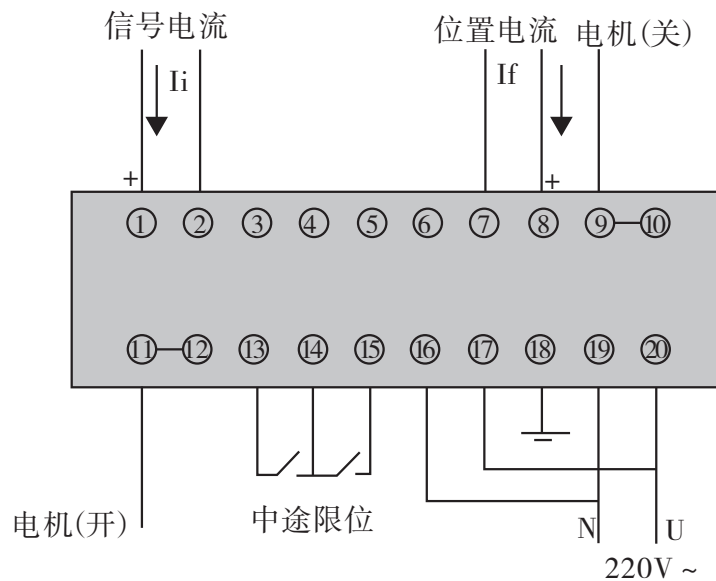
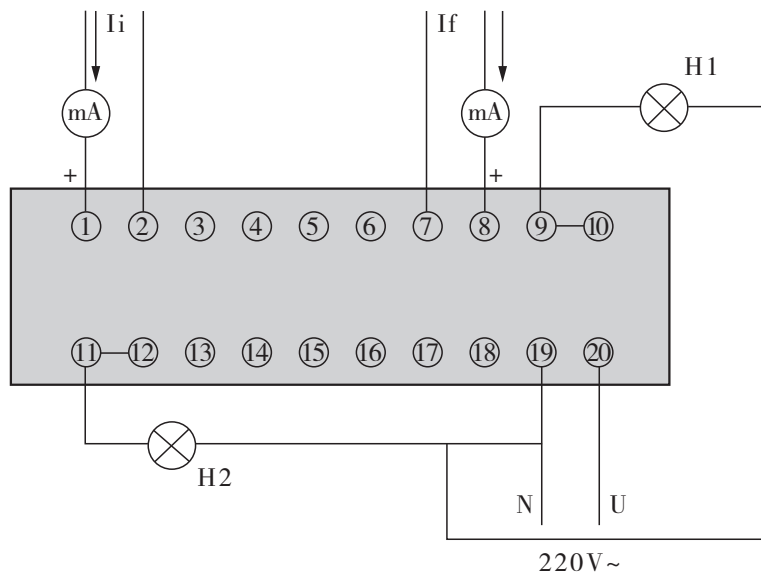


图1:GAMX位置定位器接线端子图



注: (1)P1、P2直流电流表准确度不低于 $\pm 0.5\%$
量程与定位器输入信号相适应
(2)H1、H2白炽灯泡220V、100W

图2：GAMX位置定位器调试接线图

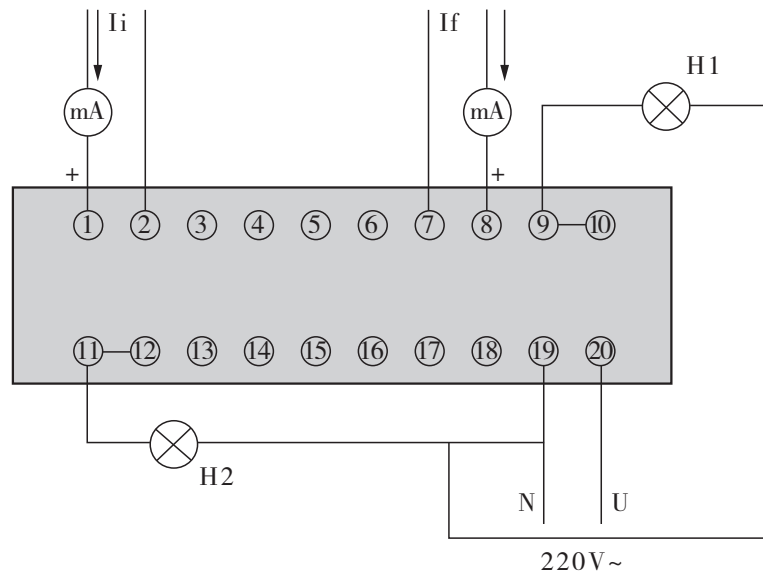
调试步骤如下：

(1)调零,接通定位器电源,调整定位器输入信号,使 $I_i=I_f=5.00\text{mA}$,然后用数字电压表测定定位器印刷线路板UO测孔上的电压值,缓慢调节定位器的调零电位器R8,使UO的绝对值在数毫伏以内。

(2)死区设定,保持 I_f (位置反馈电流) = 5.00mA ,调整 I_i (输入电流)= 5.15mA (Ⅱ型定位器)或 $I_i=5.24\text{mA}$ (Ⅲ型定位器)然后调整定位器线路板上的死区设定电位器R31至外接灯泡H2刚好亮即可。再减小 I_i 检查是否,H2灯熄,H1灯亮。R31电位器实际就是“调稳”电位器。

(3)断信号保护功能检查：

调整 I_i 和 I_f 使位置定位器有输出(即H1或H2亮),然后分别断开 I_i 和 I_f ,定位器均应无输出,同时,定位器“信断”,“位断”指示灯亮。



Note: (1) P1、P2 DC current meter accuracy is not lower than $\pm 0.5\%$
 The range is corresponding with the input signal of the positioner.
 (2) H1、H2 incandescence bulb 220V、100W

Figure2: GAMX Positioner adjustment wiring diagram

Adjustment steps:

(1). Setting of 0%

Switch on power supply, and adjust positioner input signal to make $I_i = I_f = 5.00\text{mA}$, then measure the UO hole voltage of positioner printed board, and adjust slowly zero potentiometer R8 of positioner to make absolute value of UO within a few milli-voltages.

(2) Setting of dead band

Hold $I_f = 5.00\text{mA}$, adjust I_i (input current) $= 5.00\text{mA}$ (II type positioner) or $I_i = 5.24\text{mA}$ (III type positioner). Then adjust setting dead band potentiometer R31 on the positioner board to let Lamp H2 just light. Again check when H2 is off whether H1 is just light. R31 is just potentiometer of adjusting regulator.

(3). Check of signal-break protection

Adjust I_i and I_f to let positioner has output (H1 or H2 is light), then cut off I_i and I_f separately, the positioner should has no output, at the same time, the light “signal-break”, “position-break” should light.

四、外形及安装尺寸

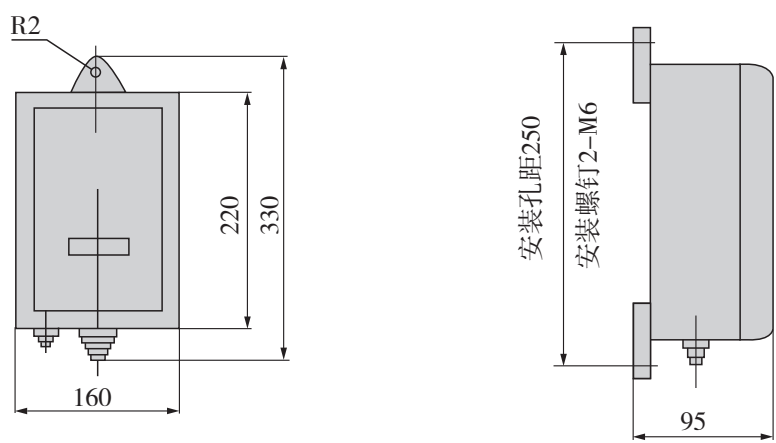


图3：墙挂式外形图

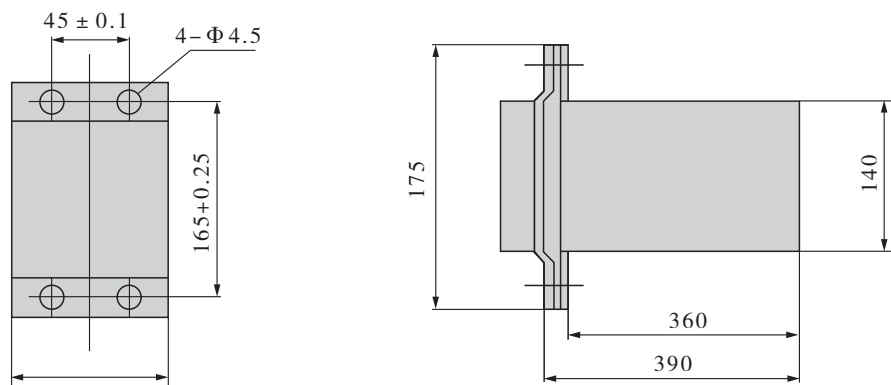


图4：架装式外形图

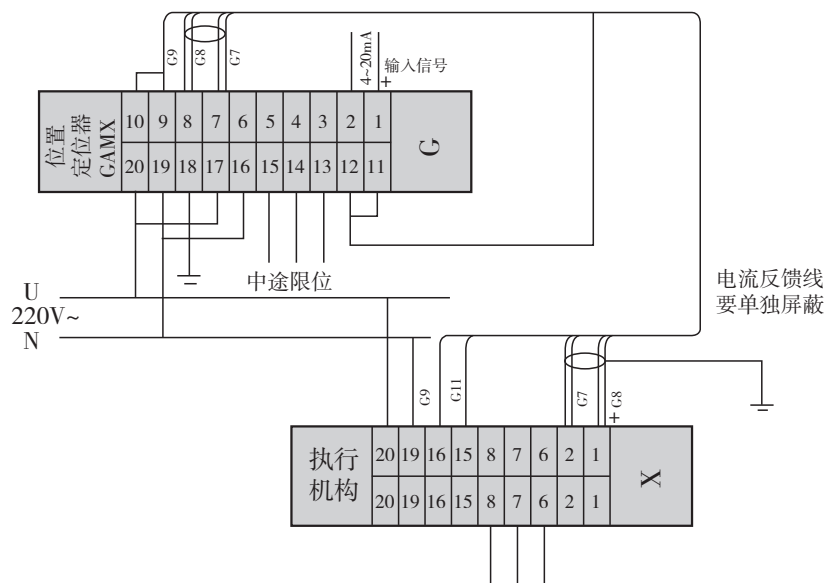
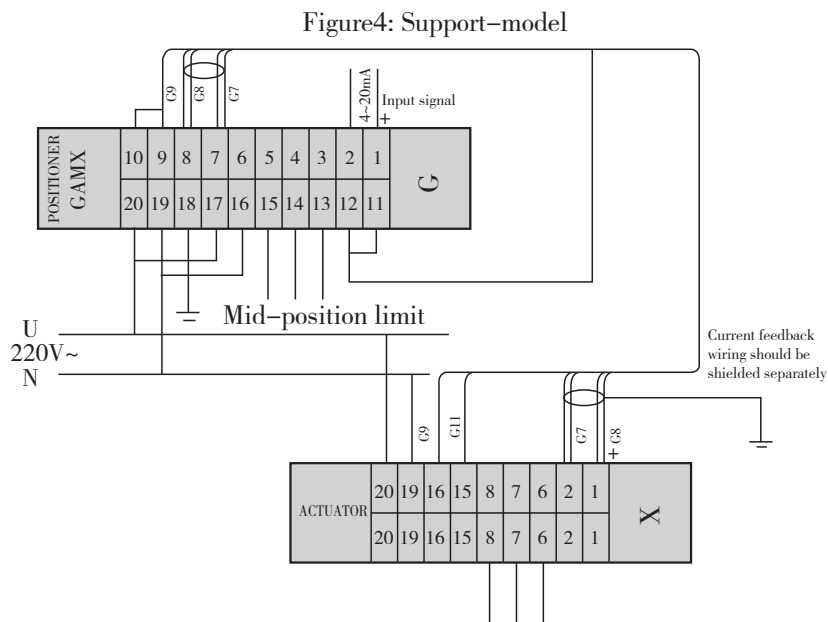
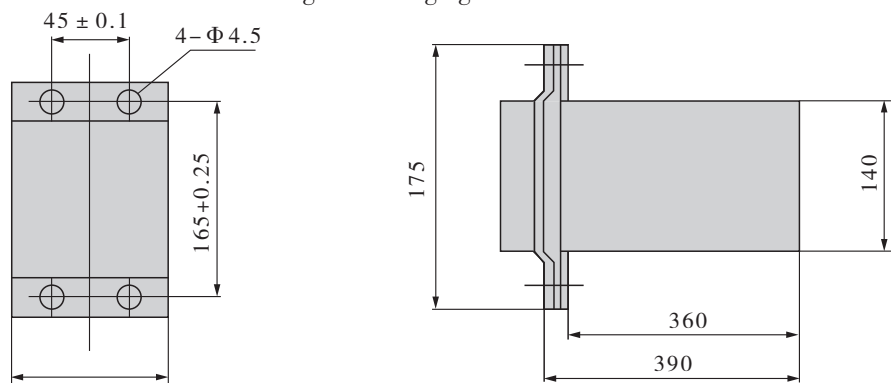
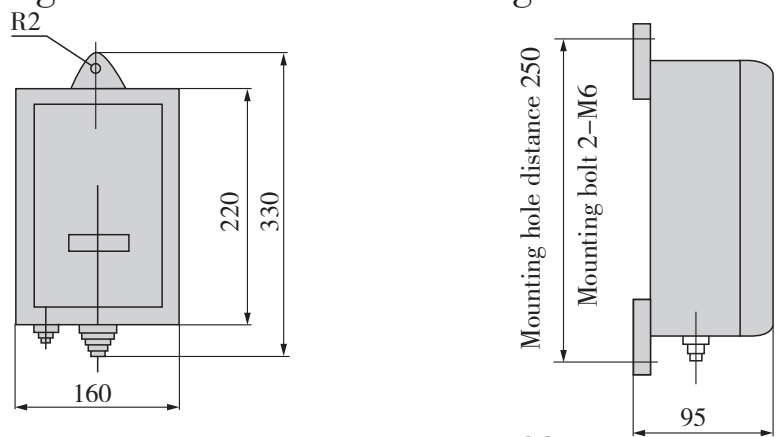


图5a：配SD系列分立式比例调节型电动执行机构接线图（不带操作器）

Figuration and installing dimensions



kitted with SD series (with no operator)

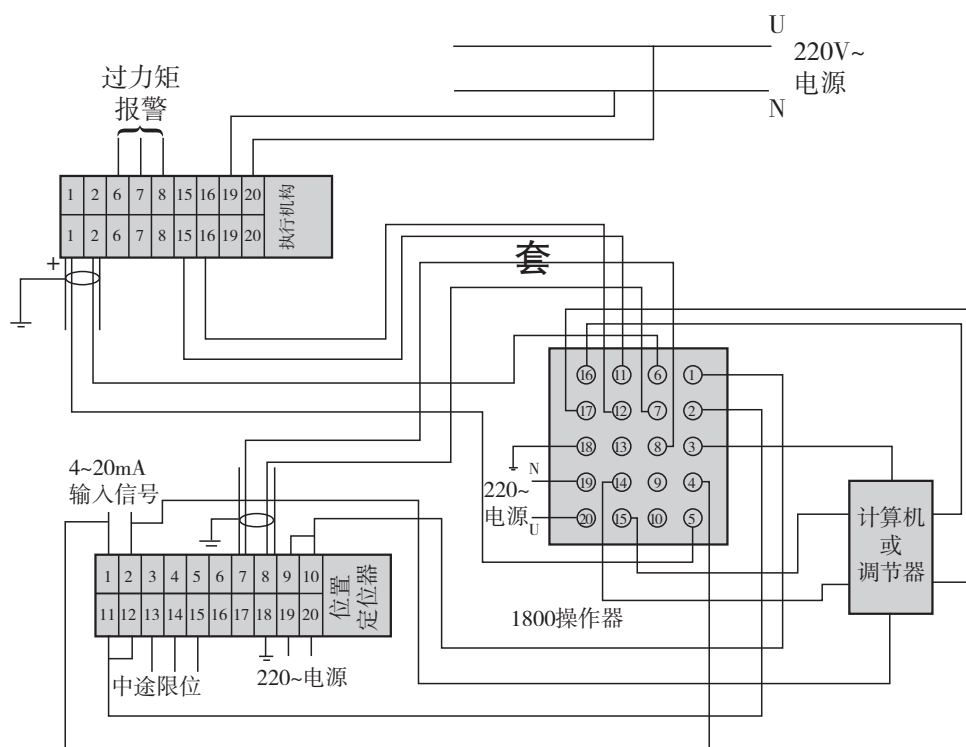


图5b：配SD系列分立式比例调节型电动执行机构接线图（带操作器）

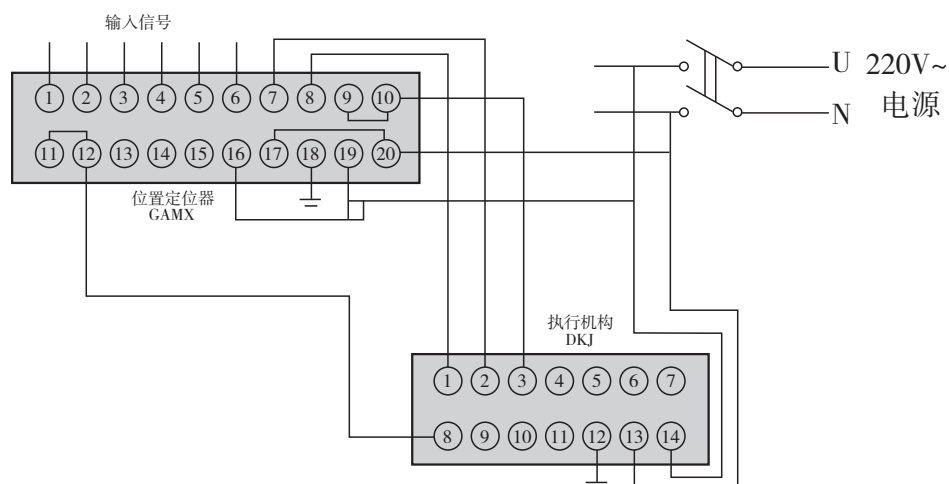


图6a：配DKJ、DKZ比例调节型电动执行机构接线图（不带操作器）

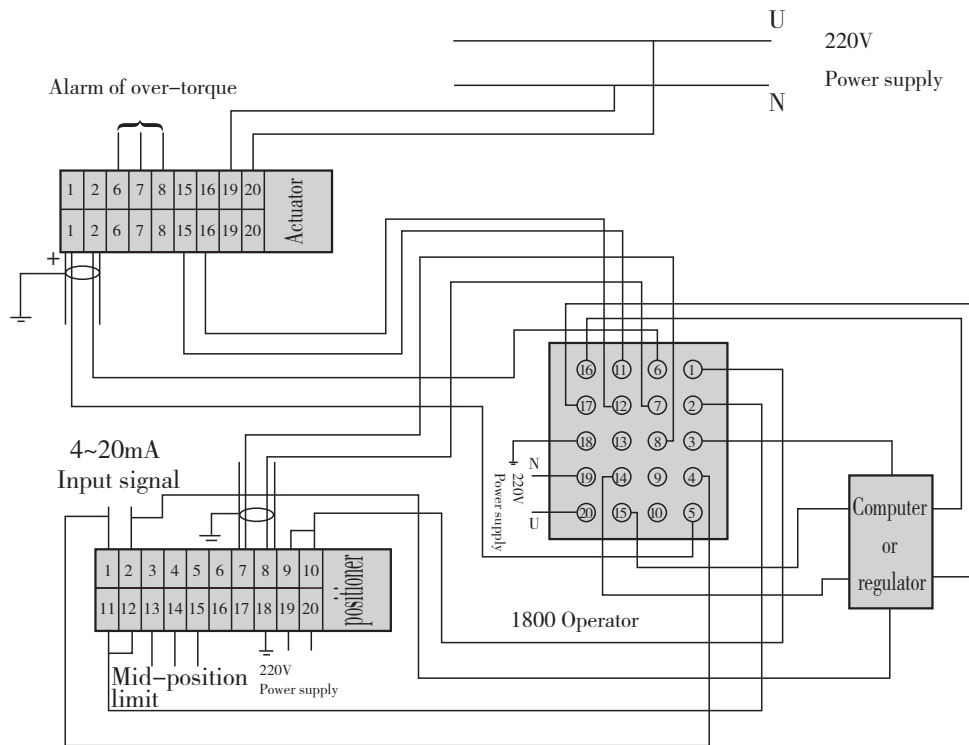


Figure5b: The Separate-model proportional modulating electric actuators wiring kitted with SD series (with operator)

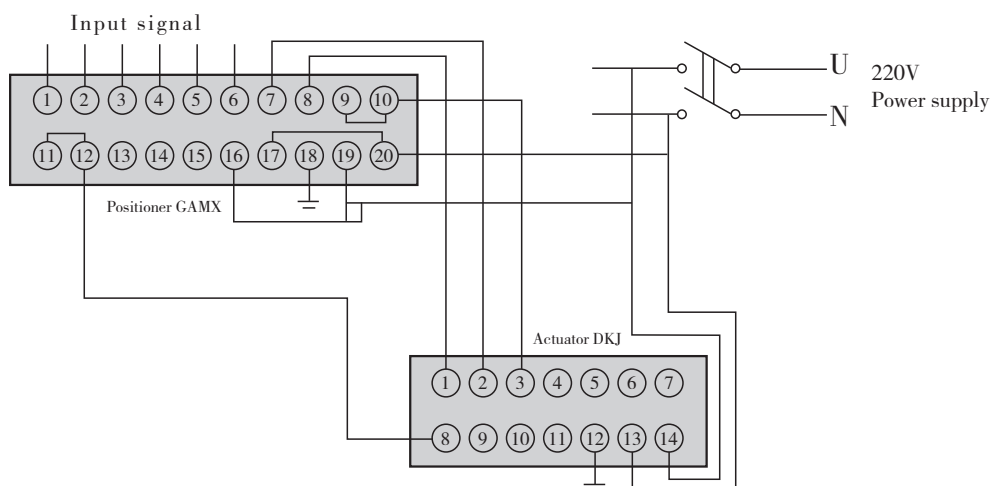


Figure6a: The separate-model proportional modulating electric actuators wiring kitted (without operator)

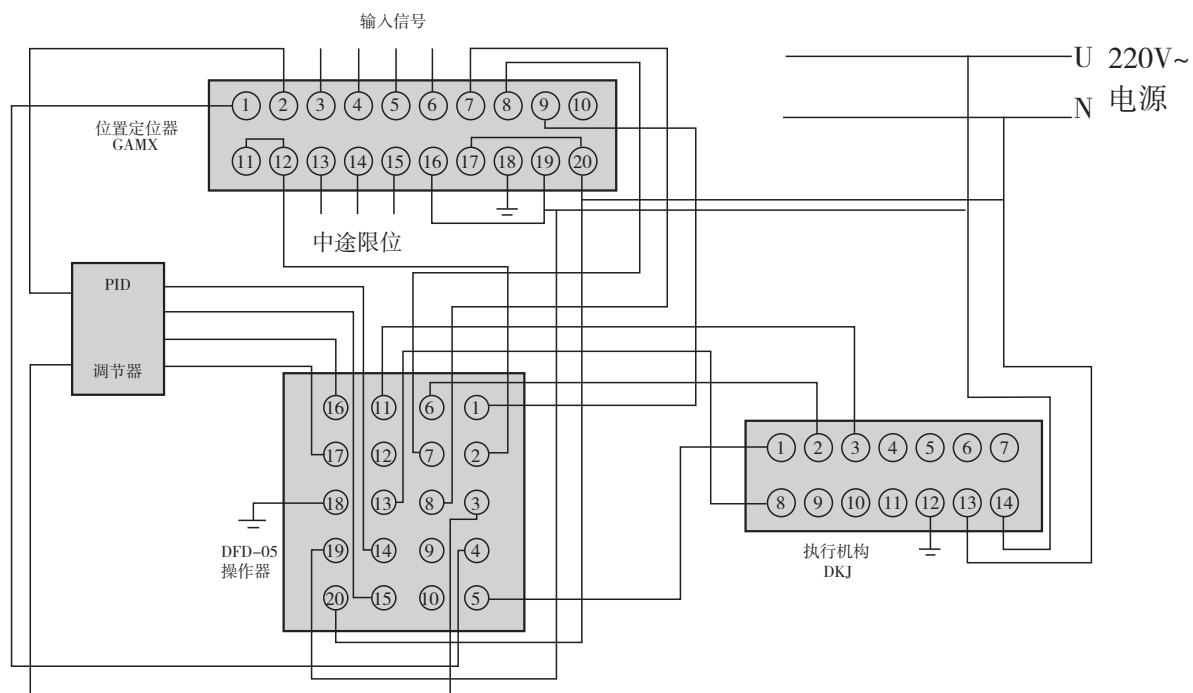


图6b: 配DKJ、DKZ比例调节型电动执行机构接线图（带操作器）

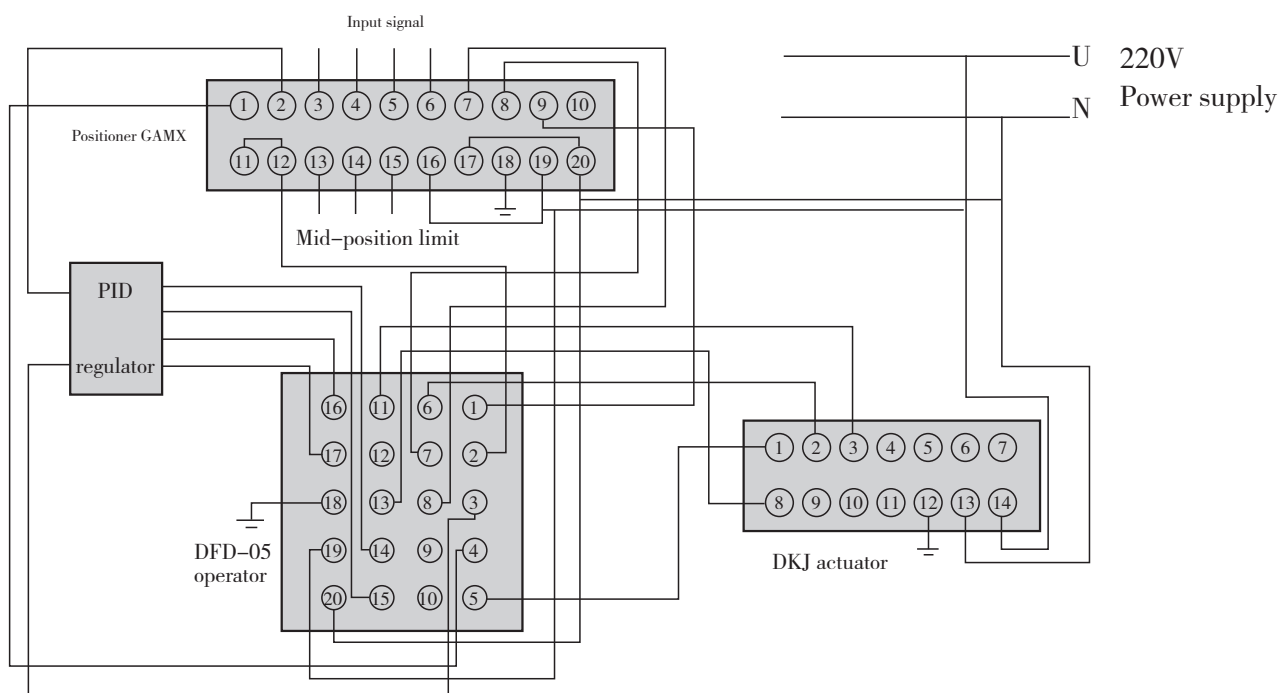


Figure6b: DKJ, DKZ series (with operator)

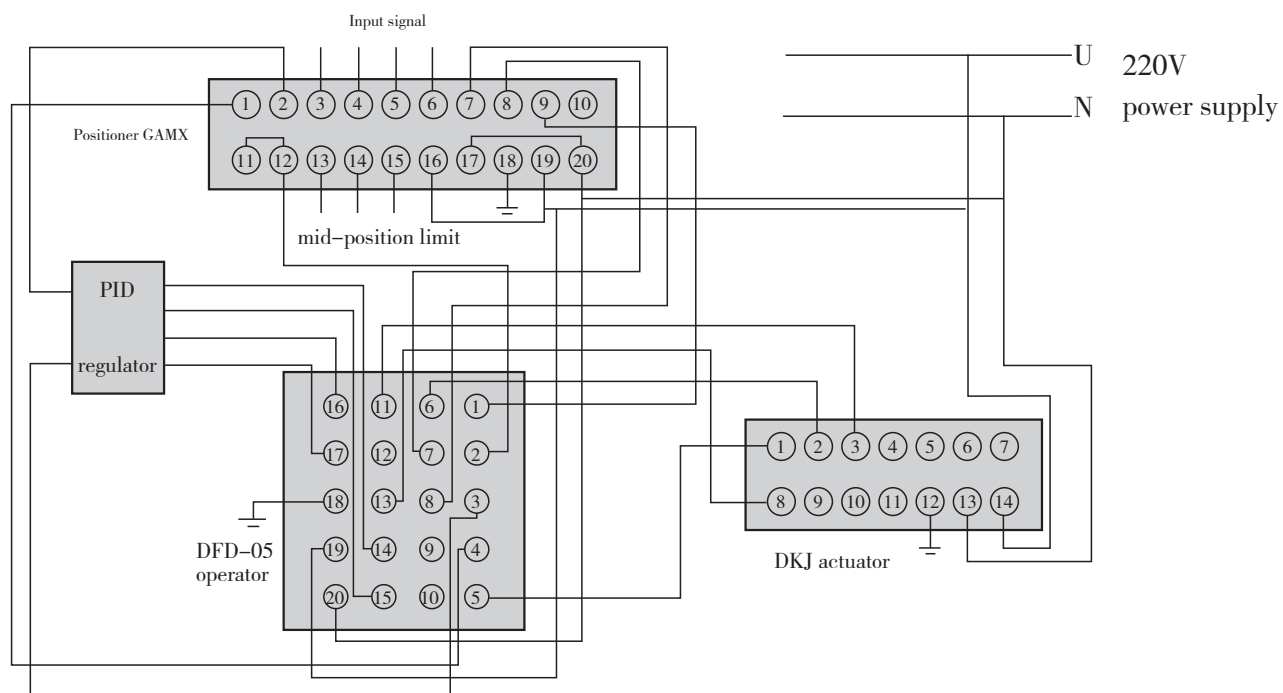


Figure6b: DKJ, DKZ series (with no operator)