



G 系列永磁直流无刷调速电动执行机构

G series permanent magnet DC brushless speed control electric actuator

操作手册 Operation manual



在调试和使用该设备前敬请仔细阅读该手册 A/01

Please read the manual carefully before commissioning & using the device.

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本手册适用于 D+R G 系列永磁直流无刷调速电动执行机构的安装、调试、使用和维护指导，以下简称电动执行机构。

The operation manual is applicable to the installation, commissioning, usage and maintenance instruction of D+R G series intelligent electric actuator, hereinafter referred to as electric actuator.



严重警告：禁止在通电情况下打开设备机壳。

Serious warning: It's forbidden to open the device enclosure with power on.



严重警告：调试过程中采用点动进行全开/全关位置设置时，在接近阀门的全开或全关位置时，应该改为手轮操作，以防止使用点动按钮操作造成阀位走过(此时过力矩保护不起作用)，致使阀门或者执行机构损坏，由此种原因造成阀门或执行机构损坏，D+R 概不负责。

Serious warning: In the inching setup of open/closed position during the commissioning, please change to handwheel operation mode when it is near the open or closed position of the valve; otherwise, the inching button will lead to valve position pass-off (at this moment, the over torque protective function does not play any effective role) so that valve or actuator is damaged. D+R will not bear any responsibilities for such damage.



警告：在安装、调试、使用和维护 D+RG 系列电动执行机构前，必须仔细阅读本手册，严格按照安全操作规程操作，以防造成设备及人身安全事故。

Warning: Please carefully read the operation manual before installation, commissioning, usage and maintenance of D+RG series intelligent electric actuator; operate in strict accordance with the safe operation modulating types and prevent equipment and personal safety accident.



警告：在操作过程中，必须小心高温、高压、易燃、易爆、有毒及腐蚀性介质、高电压和强大外力等危险情况。

Warning: In the normal operation, please pay special attention to such dangers: high-temperature, high-pressure, combustibile, explosive, poisonous and corrosive medium, high voltage and strong external force, etc..



警告：必须严格按照规范、图纸和手册等要求进行正确的安装、接线、调试、使用、储存和维护，否则有可能导致严重伤害及设备损坏。

Warning: Please execute correct installation, wiring, commissioning, usage, storage Andmaintenance in strict accordance with the codes, drawings and operation manual;otherwise, it may lead to serious damage against the equipment or injury to the operator.

注：点动:是指在进行阀门行程设置过程中，不采用手动旋转手轮的方式改变阀门行程，而是通过操作面板的按键改变行程，当手离开按键时，电机就会停止。

Remarks: Inching: In the setup of valve stroke, the operator does not change the valve stroke by manual rotation of the handwheel; instead, operator presses the keys of operation panel to change the valve stroke; the motor will shut down if the operator's hand releases the keys.

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D+R G 系列电动执行机构可用显示面板上的按钮功能或遥控器进行调试、操控、参数设置、修改等。

D+R G series electric actuators can be debugged, controlled, parameter set, modified, etc. with the button function on the display panel or the remote controller.

所有执行机构在出厂前，对其功能、参数、保护等进行了完整的确定，无需再进行重复设置，只需在与阀门连接后进行行程限位、信号校准即可。

The functions, parameters and protective functions of all the actuators are set up before they leave the factory; it is only needed to limit the stroke and calibrate the signal upon valve connection.

本手册提供如下指导：

The operation manual provides the following instructions:

◆ 手动/电动[就地/远程]操作

Manual/electric [local/remote] operation

◆ 执行机构的安装

Installation of actuator

◆ 执行机构基本设定。

Basic setup of actuator

◆ 执行机构组态设定。

Configuration setup of actuator

◆ 维护及故障排除。

Maintenance and fault settlement

◆ 技术支持。

Technical support

D+R 是世界上首家推出直流无刷无级调速电动执行机构的厂家，意味着速度、力矩可以改变。

D+R is known as the first manufacturer to launch DC brushless and stepless variable speed electric actuator in the world; It means that the speed, the moment can change.

本机为非侵入式设计，使用红外遥控器或操作面板上的按钮，对照本机的《使用说明书》进入执行机构的设定程序，无需打开机盖，即可完成相关设置及参数修改。

The machine is non intrusive design. Use the infrared remote control or the button on the operation panel to enter the setting procedure of the actuator according to the User's Manual of the machine. You can complete the relevant setting and parameter modification without opening the machine cover.

诊断功能可对控制系统、执行机构的工作状态进行自诊断，并通过显示屏以中/英形式显示。

The diagnosis function is able to make self-diagnosis to the working status of control system and actuator; display in the screen in Chinese/English (default).

设定、报警及状态菜单的文字说明有英语(默认)和中文。

The written specification of setup, alarm and status menu includes English (default) and Chinese version.

1、安全使用/Usage of safety

本手册是为满足条件的用户在安装、操作、调试 G 系列执行机构的需要而出版的。

The operation manual is published to meet the user's installation, operation and commissioning demand of G series actuator.

只有经过培训、有经验的现场仪表工程师才可以对 D+R 执行机构进行安装、操控及维护，并且必须依照本手册中的相关说明为准。用户及其设备操作人员应根据当地相关的安全与健康条例规定来熟悉他们的职责。

Only well-trained and experienced on-site instrument engineer is able to execute installation, operation, control and maintenance of D+R actuator; it must strictly adhere to related specifications herein. The user and its equipment operator shall become familiar with their responsibilities according to local safety and health stipulations.

当 G 系列执行机构与其它设备共同使用时，应充分考虑有可能发生的情况。如需要 D+RG 系列执行机构安全使用的更多资料及相关指导，可根据需要提供。

When G series actuating mechanism is applied together with other equipment, an adequate consideration shall be made to possible conditions; more documents and related instructions are provided if required for safe usage of D+RG series actuator.

电动执行机构的电气安装、维护及使用应按照本国相关的、适合现场安装条件以及设备安全使用的法律、法规。

The electric installation, maintenance and usage of actuator are in accordance with the national related laws and stipulations applicable to on-site installation conditions and safe usage of the equipment.

机械安装应按照本手册中的概述，并参照 ISO 5210/1 标准。如执行机构铭牌上标称为防爆型，则该执行机构只可安装到分类的 1 区和 21 区、2 区和 22 区(或 1 组、2 组的 1 级或 2 级)。除非铭牌上标称可用于更低的燃点，否则执行机构不能安装到燃点低于 135℃ 的防爆区域，执行机构只可安装在与铭牌

标称的可燃气体分组相符的防爆区域。

The mechanical installation is in accordance with the overview clearly specified in the operation manual and in reference to ISO 5210/1 standard; if the nominal mode in the nameplate is explosion-proof mode, the actuator is only installed in classified Zone 1 and Zone 21, Zone 2 and Zone 22 (or Level I or Level II of g/Group 1, g/Group 2); except that nominal mode in the nameplate is applicable to lower combustion point, it is forbidden to install actuator in the explosion-proof area with a combustion point of lower than 135°C; the actuator is only installed in the explosion-proof area compatible with the combustible gas grouping clearly specified in the nominal mode.

执行机构的电气安装、维护和使用也应依照特殊防爆认证相关的实施规程来进行。

The electric installation, maintenance and usage of actuator are in accordance with the execution modulating types clearly specified in the special explosion-proof accreditation.

如果执行机构符合防爆区域认证的要求,则无需对其进行检查和维修。无论在任何情况下,都不得对执行机构进行任意改造,因为这将使已经获得的防爆认证无效。

If the actuator meets the accreditation requirements of explosion-proof area, it is not needed to make inspection or execute maintenance; under any circumstance, it is forbidden to modify the actuator since it will make obtained explosion-proof accreditation become invalid.

在防爆区域内,禁止用任何带电导体接触执行机构,除非进行经特殊允许的工作,否则应切断电源,将执行机构卸下并移到非防爆区域进行维修或保养。

In the explosion-proof area, it is forbidden to contact the actuator with any charged conductor except for special permission; otherwise, the user shall cut off the power supply, dismantle the actuator and displace to the non-explosion-proof area for maintenance or servicing.



警告: 电机温度在常规操作时,执行机构电机外壳表面温度可能超过 60°C。如果执行机构设定为电机温度保护旁路,则其防爆认证无效,使用此设定

有可能发生电气危险，用户应考虑使用必要的安全措施加以保证。

Warning: In the normal operation, the surface temperature of motor shell of actuator may exceed 60°C; if protective bypass is collocated for the motor temperature, the explosion-proof accreditation is invalid. The setup may lead to electric danger; the user shall consider necessary safety measures.

执行机构外壳为铝合金，紧固件为不锈钢，推力型底座为铸铁或碳钢。

The shell of actuator is made of aluminum alloy; the fastener is made of stainless steel; the thrust foundation is made of cast iron or carbon steel.

用户必须确保操作环境和执行机构的外围材料在安全使用中不受影响，不能仅依赖执行机构本身承担完全保护作用。

The user must avoid negative impact on surrounding materials of operation environment and actuator in the safe usage; it is forbidden to merely depend on the actuator to play the total protective-role.

适当情况下，用户须确保操作环境对执行机构的适当保护。

Under proper conditions, the user must assure proper protection of operation environment to the actuator.

2、存放/Storage

如果执行机构不能立即安装到固定位置，则应将其保存在一个干燥、通风的场所。

If the actuator fails to be immediately installed to the fixed position, it shall be stored in a dry and ventilated area.



警告：禁止露天、潮湿、雨水和淹没的环境中存放，由此造成的后果，D+R 公司将不承担任何责任。

Warning: It is forbidden to store the actuator in open air, humid, rainy and sunken environment; D+R does not bear any responsibilities for such consequences.

如果执行机构已经安装到固定位置，但还没有电气连接，建议您将电缆入口的塑料塞换成缠有聚四氟乙烯带的密封金属塞。

If the actuator is installed into a fixed position without electric connection, it is recommended to replace plastic plug at the cable inlet into sealed metal plug enwrapped with teflon tape.

在使用过程中，执行机构主体部分需与腐蚀性介质、高压电缆、高强度磁场等有影响的环境隔离。

In the normal usage, the main part of actuator must be isolated from the influential environment such as corrosive medium, high-voltage cable and high-strength magnetic field.

如无意外，D+R 执行机构的密封结构将会很好地保护内部的电气部件。

The sealing structure of D+R actuator is able to protect the internal electric components except for accidental conditions.

调试 G 系列执行机构时仅仅只需打开接线端子仓盖即可。

In the commissioning of G series actuator, the user only needs to open the cover of wiring terminal.

如果由于用户曾经打开过除接线端子仓盖之外的任何腔体而使执行机构受到损坏，D+R 公司将不承担任何责任。

If the user once opened any cavity beyond the cover of wiring terminal and thus damaged the actuator, D+R does not bear any responsibilities.

每一台执行机构在出厂前均已经过全面检测，如果正确安装、调试、使用，

则可提供多年的无故障运行。

Each actuator has received integrated inspection before leaving the factory; correct installation, commissioning and usage will assure non-fault operation for years.



警告：由于执行机构外壳为铝制品结构，禁止外力冲击以免变形造成外部结构损伤等相关联事件发生。

Warning: Since the shell of actuator is made of aluminum structure, it is forbidden to impact by strong external force; otherwise, the shell is deformed and outer structure is damaged.

3、执行机构控制方式/Actuator control mode

在电动操作之前，请检查供电电源，确定与执行机构铭牌上的电压要求相符。

Before electric operation, please inspect and confirm the voltage of the power supply correspond with voltage requirements clearly specified in the nameplate of actuator.



警告：设备的安装和连接只能由具备相应资质的受过专业培训的仪表工程师或有授权的人员完成，并严格按照本手册进行操作。

Warning: The qualified and well-trained instrument engineer or authorized personnel are designated for the equipment installation and connection in strict accordance with the operation manual.

3.1 手轮的操作/Handwheel Operation

手轮可提供除电动之外的就地手动操作及紧急事态下的特殊操作。

The handwheel is able to provide local manual operation beyond electric operation and other special operation under emergency.

手轮在电动状态下与执行机构主传动处于分离状态，如需手轮操作时，必须在执行机构处于停机状态下，将手轮向(PUSH)方向推动，使之处于啮合状态(此状态下电动操作失效)，手动过程完毕后，需将手轮向外拉出，使之置于分离状态。(图 3-1)

Under electric conditions, the handwheel and actuator's main drive are in separation status. When the handwheel operation is needed, the actuator must be shutdown, then push the handwheel to "PUSH" direction, and make it in meshing state (in this state, electric operation is invalid); after the manual process finished, it needs to pull out the handwheel, making it in separation conditions.(Drawing 3-1)

此系列下的其他机型采用行星齿轮结构，无离合装置，无论处于就地/远程，手动/电动状态下皆可转动手轮，不会造成事故。(图 3-2)

The other models in this series use planetary gear structure, no clutch

device, no matter the local / remote, manual / electric state can turn the hand wheel, no accident. (Drawing 3-2)

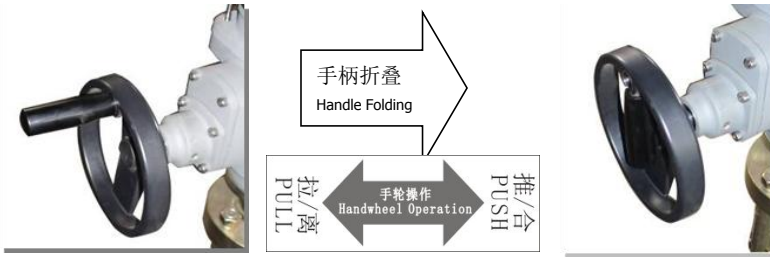


图 3-1 手轮折叠和推/拉操作

Drawing3-1 Hand wheel folding and push/pull operation

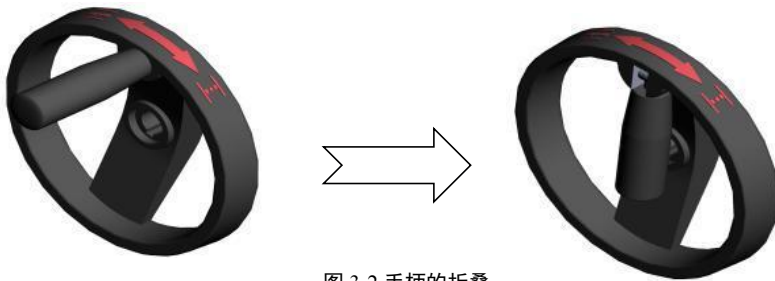


图 3-2 手柄的折叠

Drawing 3-2 Handle Folding



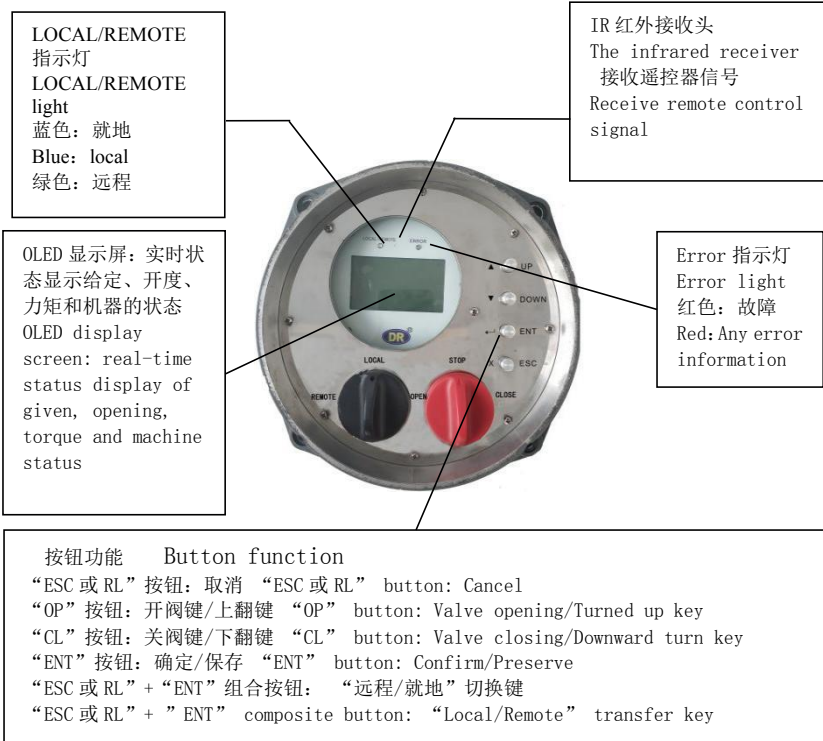
警告: 关于电动执行机构的操作, 任何情况下不允许使用其它附加工具旋转手轮, 这样可能会导致手轮、阀门或电动执行机构损坏。

Warning: Under any circumstance, it is forbidden to rotate the handwheel by other additional tools; otherwise, the handwheel, valve or electric actuator is damaged.

3.2 操作面板控制/ The operation panel control

操作面板包括 LOCAL/REMOTE 指示灯、Error 指示灯、IR 红外接收头、液晶显示屏和按钮功能。

The operation panel includes the LOCAL/REMOTE indicator light, the Errorlight, the infrared receiver , OLED and the Hall Magnetic function button.



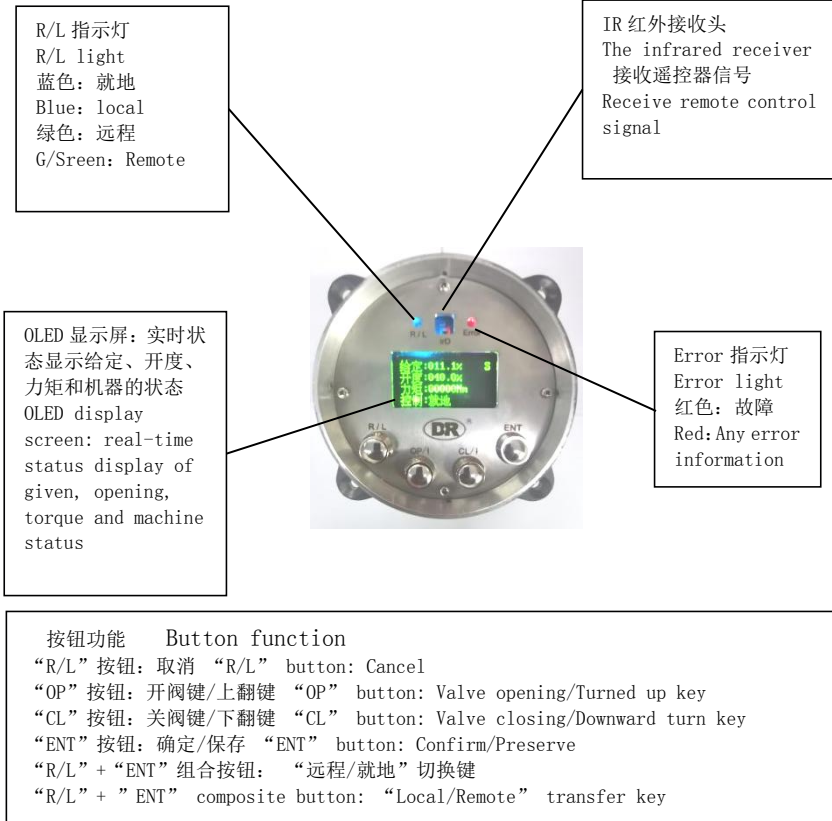
注/Notes:

调试时：须切换到“就地”状态/When setting: Must switch to "Local"

远程自动时：须切换到“远程”状态/When Remote automatic: Must switch to "Remote"

操作面板包括 R/L 指示灯、Error 指示灯、IR 红外接收头、液晶显示屏和按钮功能。

The operation panel includes the R/L light, the Errorlight, the infrared receiver, LCD and the Hall Magnetic function button.



注/Notes:

调试时: 须切换到“就地”状态/When setting: Must switch to "Local"

远程自动时: 须切换到“远程”状态/When Remote automatic: Must switch to "Remote"

3.2.1 LOCAL/REMOTE 指示灯/LOCAL/REMOTE light

LOCAL/REMOTE 指示灯/LOCAL/REMOTE light	
蓝色 Blue	绿色 green
就地 Local	远程 Remote
R/L 指示灯	
蓝色 Blue	绿色 green
就地 Local	远程 Remote

3.2.2 Error 指示灯/Error light

Error 指示灯 Error light	
有故障 Faults	红色灯亮 The red light is on
无故障 No faults	红色灯不亮 The red light does not work

3.2.3 实时状态显示/Display of real-time status

显示屏为 4 行 16 字符的显示器，所显示信息为字符和形符。可显示中文也可以显示英文。显示器一般分为两种：第一种常温 LCD 显示器使用温度 -20℃ ~+70℃，第二种低温 OLED 显示器使用温度 -40℃ ~+85℃。显示如下：

The display screen is a display with 4 lines and 16 characters, and the displayed information is characters and glyphs. It can display both Chinese and English. There are generally two types of displays: the first type is a room temperature LCD display with a temperature of -20 °C ~+70 °C, and the second type is a low temperature OLED display with a temperature of -40 °C ~+85 °C. The display is as follows:.

给定： 50.0 % S
开度： 50.0 %
力矩： 00000Nm
控制： 就地

InPu: 50.0 % S
Posi: 50.0 %
Torq: 00000Nm
CTRL: LOC

G 系列执行机构支持实时状态显示:

G series actuator supports the display function of real-time status:

第一行: 给定信号显示;

The first line: Display set signal.

第二行: 反馈角度显示;

The second line: Feedback angle display

第三行: 实时力矩值显示。

The third line: Display real time torque value;

第四行: 电动执行器的运转状态, 例如“就地”停的状态就会显示“就地”。

The fourth line: the operation status of the electric actuator, for example, the status of "local" stop will display "local".

3.2.4 按钮功能/ function button

“ESC 或 RL”或“R/L”按钮: 在设置过程中为“取消”键

ESC 或 RL or R/L button: Cancel key during setup

“OP ↑”按钮: 开阀键/上翻键

“OP ↑” button: Valve opening/Turned up key

“CL ↓”按钮: 关阀键/下翻键

“CL ↓” button: Valve closing/Downward turn key

“ENT”按钮: 在设置过程中为“确定”键

“ENT” button: “Confirm” key in the setup

“ESC 或 RL”或“R/L” +“ENT”组合按钮: “远程/就地”切换键

"ESC 或 RL" or "R/L"+"ENT" combination button: "remote/local"

ToggleKeys

3.2.5 就地/远程设置/Local/Remote Settings

通过面板按钮可对执行机构进行“就地/远程”切换操作。面板操作的组合键为“ESC”或“R/L” +“ENT”键, 或在基本设置-远程手动设置中进行切换。

The actuator can be switched to "local/remote" mode via the panel button. The combination key of panel operation is "ESC or "R/L"+"ENT" , or switch between basic setting and remote manual setting.



警告: 设置、修改、调试时, 执行机构必须处于“就地”状态。

Warning: In the setup, revision and commissioning, the actuator must be in the “local” status.

3.3 遥控器控制/The remote control

使用遥控器时建议在安装调试时使用，其他工作条件下慎用。

It is recommended to use it during installation and commissioning when using the remote control, and use it with caution under other working conditions.

按"ESC" 或"R/L"+"ENT" 键，将执行器切换到“就地”状态（蓝色灯亮）。

Press the "ESC" or "R/L"+"ENT" keys to switch the actuator to the "local" state (blue light on).

将遥控器红外发射端朝向执行器面板。

Make remote infrared emission end toward the actuator panel.

遥控器按键说明：

Remote control button instructions:

“Remote/Local 远程/就地”：远程就地切换；

“Remote/Local 远程/就地”：Switch between Remote and Local;

“Open/↑”：开阀，增加；

“Open/↑”：Open valve, increase;

“Close/↓”：关阀，减小；

“Close/↓”：Close valve, reduce;

“Set/设置”：进入设置；

“Set/设置”：Enter setup;

“Enter/确认”：确认，保存；

“Enter”：Confirm, save;

“Cancel/取消”：取消，停止；

“Cancel”：Cancel, stop;



简易通用遥控器
Simple universal remote control

3.4 4-20mA 控制/ The 4-20mA control

根据现场实际情况，将 4-20mA 信号线正确接入执行机构。4mA 信号对应全关位置，20mA 信号对应全开位置。根据给定的 4-20mA 信号，控制执行机构来改变阀门的开度。同时，执行机构还会把阀门的开度转换为 4-20mA 的信号反馈给控制中心，让阀门的开度稳定在指定位置。

According to the actual situation of the scene, the 4-20mA signal line is correctly connected to the actuator. 4mA signal corresponds to the fully closed position, 20mA signal corresponds to fully open position. According to the given 4-20mA signal, control the actuator to change the valve opening. At the same time, the actuator will also switch the valve opening to 4-20mA signal feedback to the control center, so that the valve opening stability in the specified location.

3.5 开关量控制/The switch control

根据现场实际情况，将开关量信号线正确接入执行机构。

According to the actual situation of the scene, the switch signal line is correctly connected to the implementing agencies.

控制信号为保持型时，信号长度不小于 100 毫秒。控制信号为点动型时，高电平为有效信号。

When the control signal is held, the signal length is not less than 100 milliseconds. When the control signal is a jog type, high level is a valid signal. 此项已经根据要求设定完成。若需求有变动，请联系 D+R 相关人员。

This item has been set up as required. If there is any change in demand, please contact D + R.

4、调试/Commissioning

4.1 概述/Overview

D+R G 系列电动执行机构采用非侵入式设计(无需打开端盖即可进行调试)。

D+R G series electric actuator is in the non-invasive design mode(Commissioning can be executed without opening the end closure).

所有设定功能存储在执行机构内部的非易失性存储器内，由 OLED 显示屏查看所有设定功能，每个功能的设定值均可查看或更改。

All setting functions are stored in the non volatile memory inside the actuator, and are viewed by the OLED display screen. The setting values of each function can be viewed or changed.



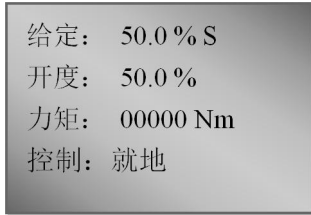
警告：在调试之前，推荐将控制系统的给定信号调至中间位置(以 4~20mA 信号为例)，应该将信号调至 12mA，或关闭输入信号。

Warning: Before commissioning, it is recommended to adjust set signal of control system to the middle (take 4—20mA signal as an example), adjust signal to 12mA or shut down the input signal.

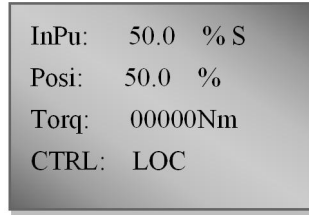
4.2 进入执行机构的主界面/Access parameter setup of actuator

通电开机后，屏幕显示如下：

After power on, the screen displays as follows:



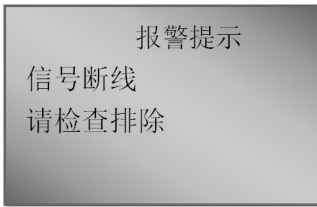
给定: 50.0 % S
开度: 50.0 %
力矩: 00000 Nm
控制: 就地



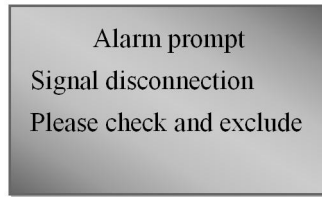
InPu: 50.0 % S
Posi: 50.0 %
Torq: 00000Nm
CTRL: LOC

如果信号源未接通时,屏幕显示如下:

If the set signal is not connected, the screen is displayed as follows:



报警提示
信号断线
请检查排除



Alarm prompt
Signal disconnection
Please check and exclude

此时故障指示灯常亮(红色)。此故障信息不影响按钮操作。按“ESC 或 RL”按钮可以忽略故障显示，进入主界面。若为“远程”状态(LOCAL/REMOTE 或 R/L 指示灯为绿色)，必须切换到“就地”状态。

At this time, the fault indicator light remains on (red). This fault message does not affect button operation. Press the "ESC or RL" button to ignore the fault display and enter the main interface. If it is in the "remote" state (Local/REMOTE or R/L indicator light is green), it must be switched to the "local" state.

4.3 菜单/The menu

4.3.1 主菜单/Main Menu

主菜单包括参数设置、报警查询、历史事件、极值纪录和版本信息。参数设置主要是对执行机构各个参数的设置，报警查询可查看执行器异常时所报警的事件，历史记录是对之前的报警事件记录可以查看，极值纪录是对电压电

流还有就是开关次数等的记录，版本信息是指系统版本号。

The main menu includes parameter settings, alarm queries, historical events, extreme value records, and version information. Parameter setting mainly refers to the setting of various parameters of the actuator. Alarm query can view the events that are triggered when the actuator is abnormal. Historical records can view previous alarm event records, extreme value records can record voltage, current, and switch times, and version information refers to the system version number.

4.3.2 参数设置/Parameter setting

参数设置分为基本设置、报警设置、高级设置和恢复出厂。

Parameter settings are divided into basic settings, alarm settings, advanced settings and factory restoration

4.3.3 基本设置/Basic settings

基本设置包括语言设置、就地/远程设置、行程限位、输入输出校准、速度设置、死区范围设置、信号类型、故障位置、关阀方向、设备地址、自检设置和时钟设置。

Basic settings include language setting, local/remote setting, travel limit, I/O calibration, speed setting, dead band range setting, signal type, fault location, valve closing direction, equipment address, self-test setting and clock setting.

4.3.4 报警设置/Alarm settings

4.3.5 高级设置/advanced setting

高级设置包括保护设置、传动比设置、电机关阀方向、力矩校准、力矩单位、电机控制参数、产品编号、密码设置、公司信息、modbus 调试和保存出厂设置。

Advanced settings include protection settings, transmission ratio settings, motor valve closing direction, torque calibration, torque unit, motor control parameters, product number, password settings, company information and save factory settings.



警告：出厂时，执行机构功能均已按出厂标准设定完成，除非在订货时有特殊要求，可按要求设定；在调试期间如果遇到问题，可恢复到默认设定状态，返回执行机构出厂的设定，然后开始现场调试。

Warning: Before leaving the factory, the functions of actuator are set up according to the factory standard; special requirements raised in the ordering are strictly adhered; in case of any problem in the commissioning, it is resumed to the default setup status and factory setup of actuator, and then on-site commissioning is started.



警告: 默认各个设定根据需要谨慎使用, 因为执行机构出厂后, 在现场所设置数据对阀门或者使用厂家来说十分重要。

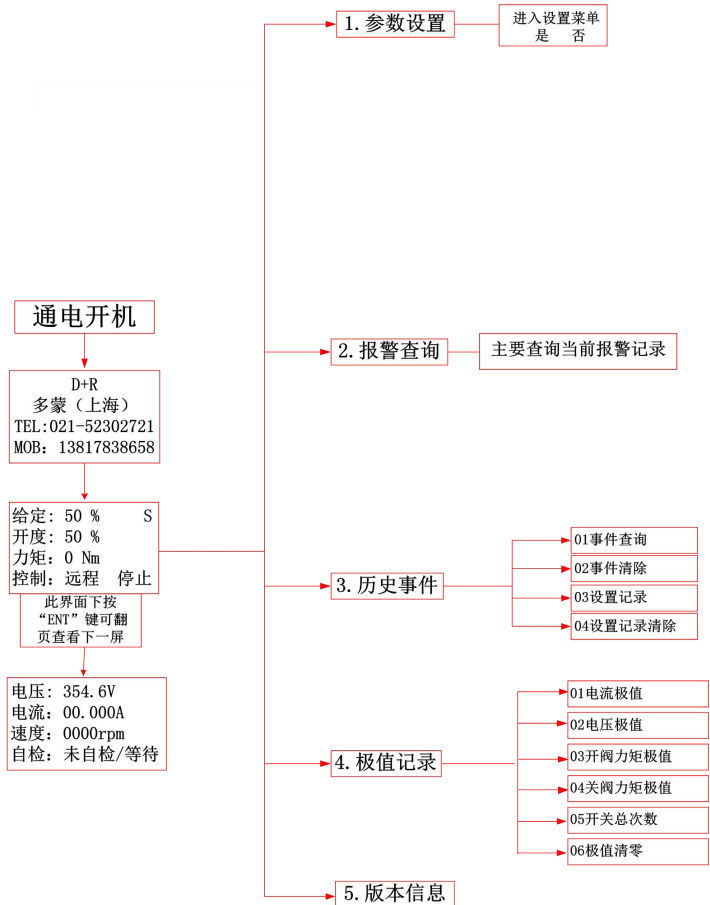
Warning: The default setup must be seriously used according to the actual demands; after leaving the factory, the on-site data setup of actuator is of vital importance to the valve or users.

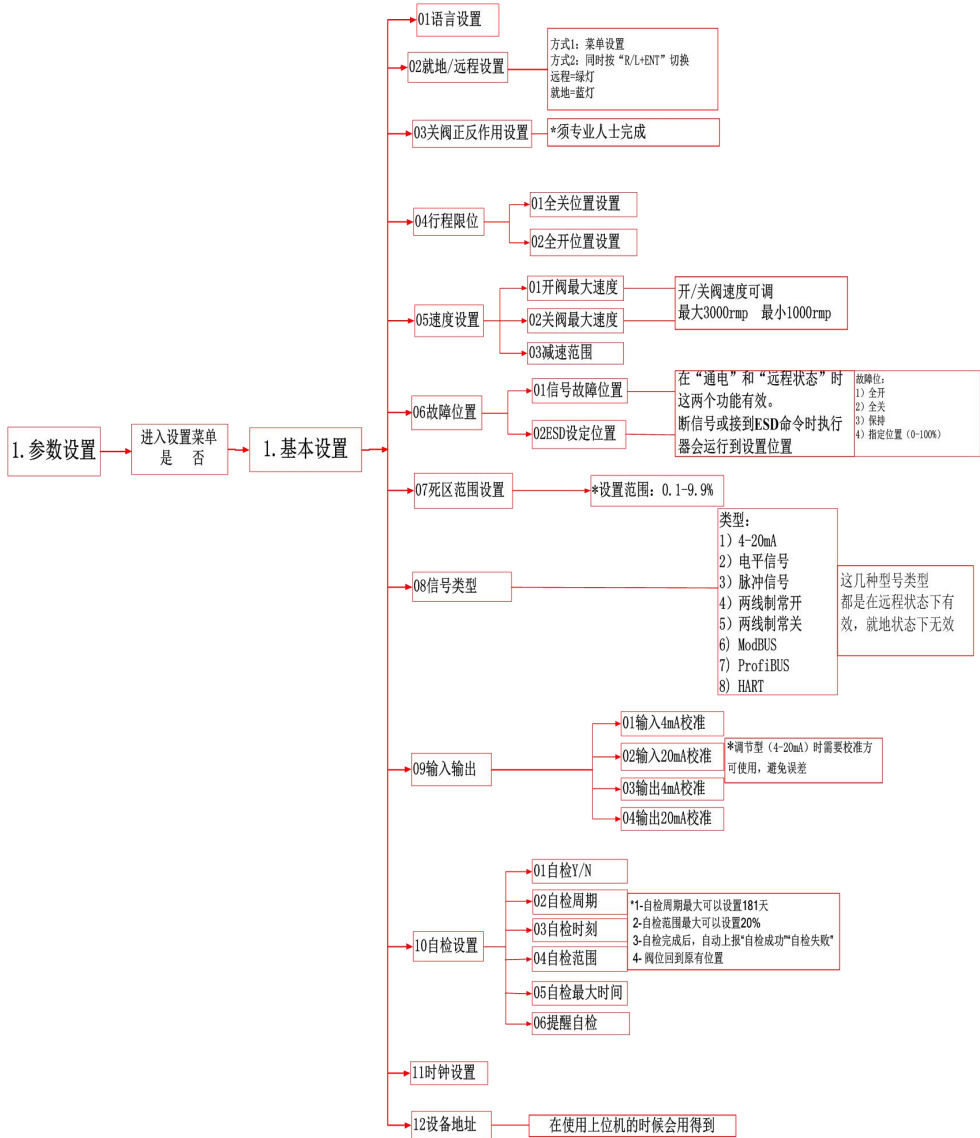


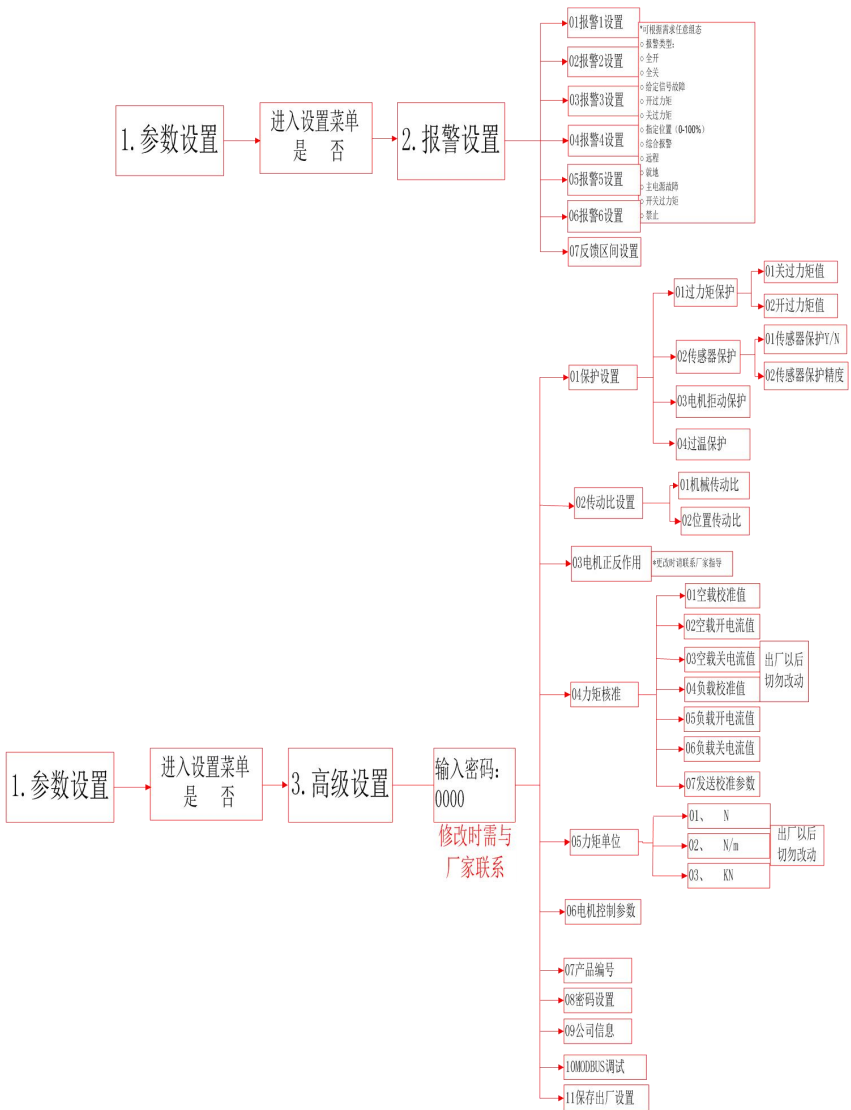
警告: 必须先进行基本设置。出厂设置在执行机构出厂后, 一般不需要改动。

Warning: The basic setup must be finished in advance. After the actuator leaves the factory, the factory setup hardly needs to change.

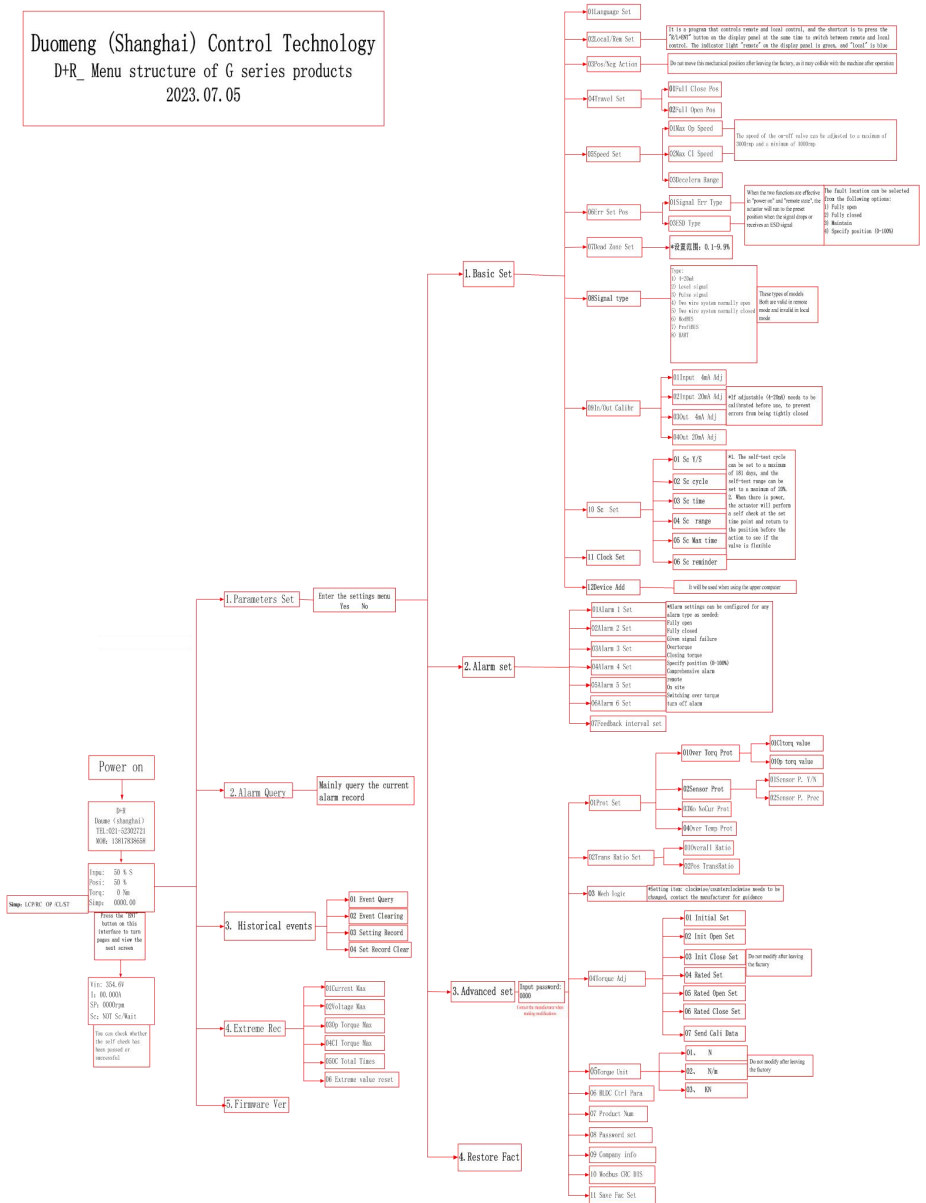
4.4 菜单结构图/The menu structure







Duomeng (Shanghai) Control Technology
D+R_ Menu structure of G series products
2023.07.05

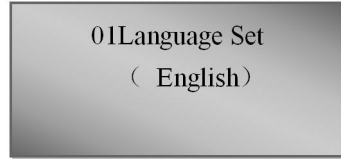


4.5 菜单项介绍/Menu item introduction

4.5.1 语言设置/Language setting

进入语言设置菜单后，屏幕显示如下：

The screen is displayed as follows in the language setting menu:



语言选择项值：简体中文和 English，默认为英文。

Item values of language option: Chineseand English(default) .

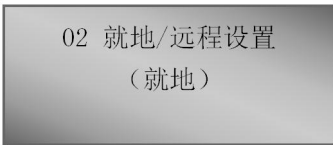
按“ENT”按钮后，进入设置状态，此时项值闪烁。按“OP↑”或“CL↓”按钮进行上下切换。选中后，按“ENT”按钮保存，并提示设置成功。

Press the "ENT" button to enter the setting state, then the value of the item flashes. Press “OP ↑” or “CL ↓” button to switch up and down. After the selection, press the "ENT" button to save, and prompt the setting is successful.

4.5.2 就地/远程设置/Local / remote settings

进入该项设置菜单时，屏幕显示：

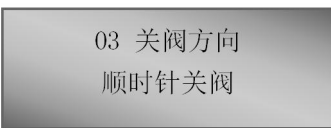
The screen is displayed as follows upon access into the “12Rem&Local Set” menu:



4.5.3 关阀方向/Valve closing direction

进入该项设置菜单时，屏幕显示：

The screen is displayed as follows upon access into the setting menu:



注：勿动出厂已经调整好，如果私自调整会出现撞机的风险。

Note: Do not move it. It has been adjusted before delivery. If it is adjusted privately, there will be a risk of collision.

4.5.4 行程限位/Travel limit

01 全关位置设置/Full close position setting

全关位置设置”对应阀门最小开度位置。顺时针摇动手轮使阀门到达全关位置，进入此设置项。屏幕显示：

The "fully closed position setting" corresponds to the minimum opening position of the valve. Rotate the handwheel clockwise to reach the fully closed position to enter this setting. Screen display:



第二行显示“已停止”表示执行器状态是停的状态。

The second line displays "Stopped" to indicate that the actuator status is in a stopped state.

第三行显示“2053.2072”表示编码器当前的位置值。

The third line shows "2053.2072" indicating the encoder's current position value.

第四行显示“0000.0400”表示已设定的位置值

The fourth line displays "0000.0400" indicating the set position value

在显示停止状态下，按“ENT”按钮将当前位置保存到全关位置。设置成功后，显示如下：

In the display stop state, press the "ENT" button to save the current position to the fully closed position. After successful setup, the display will be as follows:

01 全关位置设置
已停止
当前: 2053.2072
已设: 2053.2072

01Full CL Pos
STOP
RT: 2053.2072
SET: 2053.2072

02 全开位置设置/Full open position setting

“02 全开位置设置”对应阀门最大开度位置。逆时针摇动手轮使阀门到达全开位置，进入此设置项。屏幕显示：

Full open position setting "corresponds to the maximum opening position of the valve. Rotate the handwheel counterclockwise to reach the fully open position to enter this setting. Screen display:

02 全开位置设置
已停止
当前: 2003.0802
已设: 2053.2072

02Full OP Pos
(SET 3000-3300)
RT: 2003.0802
SET: 2053.2072

第二行显示“已停止”表示执行器状态是停的状态。

The second line displays "Stopped" to indicate that the actuator status is in a stopped state.

第三行显示“2003.0802”表示编码器当前的位置值。

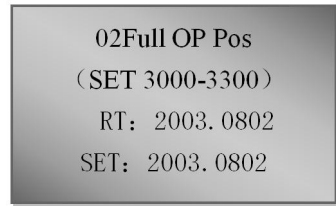
The third line shows "2003.0802" indicating the encoder's current position value.

第四行显示“2053.2072”表示已设定的位置值

The fourth line displays "2053.2072" indicating the set position value

在显示停止状态下，按“ENT”按钮将当前位置保存到全开位置。设置成功后，显示如下：

In the display stop state, press the "ENT" button to save the current position to the fully open position. After successful setup, the display will be as follows:



4.5.5 速度设置/Speed setting

01 最大开阀速度/Max Op Speed

进入该项设置菜单时，屏幕显示：

The screen is displayed as follows upon access into the setting menu:



第二行显示“100%”表示已设最大开阀速度。最大开阀速度的设置范围：30%-100%。

The second line shows "100%" to indicate that the maximum valve opening speed has been set. The setting range of the maximum valve opening speed is 30%-100%.

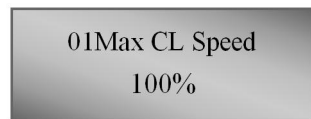
按“ENT”按钮可进入设置状态，修改此参数。

Press "ENT" button to enter the setting state and modify this parameter.

02 最大关阀速度/Max CL Speed

进入该项设置菜单时，屏幕显示：

The screen is displayed as follows upon access into the setting menu:



第二行显示“100%”表示已设最大关阀速度。最大关阀速度的设置范围：30%-100%。

The second line shows "100%" to indicate that the maximum valve close speed has been set. The setting range of the maximum valve close speed is 30%-100%.

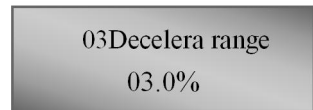
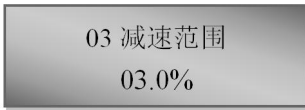
按“ENT”按钮可进入设置状态，修改此参数。

Press "ENT" button to enter the setting state and modify this parameter.

03 减速范围/Deceleration range

减速范围是执行器开始降速到停止的范围。该项设置值根据实际情况进行调节，可调范围为 0.1%~10%。进入该设置屏幕显示：

The deceleration range is the range in which the actuator starts to decelerate to the stop. The setting value is adjusted according to the actual situation. adjustable range is 0.1% to 10%. The screen is displayed as follows upon access into the setting menu:



4.5.6 故障位置/Fault location

01“信号故障位置”功能定义为：当执行机构出现给定信号故障时，执行机构所采取的动作。

The functional definition of “Sign err type”: Actions taken by the actuator in case of set signal faults.

信号故障类型项值：全开、全关、保持和指定位置。

The item values of “Signerrtype”: Fully Open, Fully Close, Maintain and Specify Seat.

项值解释：

Interpretation of item value:

1. 全开：当发生信号故障时，执行机构运行至全开位置；

Fully Open: In case of signal fault, the actuator operates to open position.

2. 全关：当发生信号故障时，执行机构运行至全关位置；

Fully Close: In case of signal fault, the actuator operates to closed position.

3. 保持：当发生信号故障时，执行机构保持当前位置；

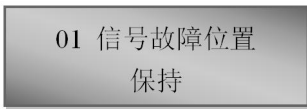
Maintain: In case of signal fault, the actuator maintains in the current position.

4. 指定位置：当发生信号故障时，执行机构运行到预设的位置。

Specify Seat: In case of signal fault, the actuator operates to the preset position.

进入该项设置菜单时，屏幕显示：

The screen is displayed as follows upon access into the setup menu:

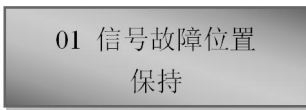


第二行显示“保持”表示信号故障类型已设值。

The second line shows "Hold" indicating that the signal failure type has been set.

按“ENT”按钮进入设置状态，显示如下：

Press "ENT" button to enter the setting state. the display is as follows:



第二行显示“保持”，并闪烁。此时可根据实际需要选择其他选项。选择后按“ENT”按钮进行设保存。

The second line shows "Hold" and flashes. At this time, other options may be selected according to actual needs. After selecting, press "ENT" button to set the save.

02、ESD 设定位置同 01 信号故障位置一样

4.5.7 死区范围设置/Dead zone set

死区范围设置又称灵敏度调整，设置范围为 0.1~9.9，推荐值为 0.3~0.8。进入该项设置，屏幕显示：

The dead zone setting is also called sensitivity adjustment. The setting range is 0.1~9.9, and the recommended value is 0.3~0.8. Enter this setting and the screen will display:

07 死区范围设置
00.5%

07Dead Zone
00.5%

4.5.8 信号类型/Signal type

如需要用到联系厂家勿私自操作/Contact the manufacturer if necessary. Do not operate without permission

4.5.9 输入输出校准/I / O calibration

01、输入 4mA 校准/ Input 4mA adjustment

进入“01 输入 4mA 校准”，屏幕显示：

The screen is displayed as follows upon access into “06 Input 4mA Adj” setup menu:

01 输入 4mA 校准
(已设 0400)
0700

01Input 4mA Adj
(SET 0400)
0700

第二行显示“0400”表示 4mA 输入已设校准值。

The second line shows "0400" indicating that the 4mA input has a calibrated value.

第三行显示“0700”表示当前 4mA 输入校准值。

The third line shows "0700" indicating that the current 4mA input is the calibration value.

按“ENT”按钮保存当前校准值。设置成功后，显示如下：

Press the "ENT" button to save the current calibration value. After the setting is successful, the display is as follows:

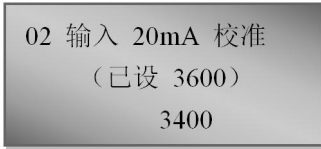
01 输入 4mA 校准
(已设 0700)
0700

01Input 4mA Adj
(SET 0700)
0700

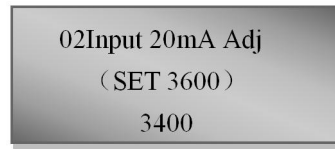
02、输入 20mA 校准/Input 20mA adjustment

进入“02 输入 20mA 校准”，屏幕显示：

The screen is displayed as follows upon access into “ 07Input 20mA Adj” setup menu:



02 输入 20mA 校准
(已设 3600)
3400



02Input 20mA Adj
(SET 3600)
3400

第二行显示“3600”表示 20mA 输入已设校准值。

The second line shows "3600" indicating that the 20mA input has a calibrated value.

第三行显示“3400”表示当前 20mA 输入校准值。

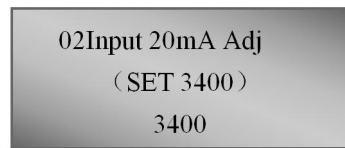
The third line shows "3400" indicating that the current 4mA input is the calibration value.

按“ENT”按钮保存当前校准值。设置成功后，显示如下：

Press the "ENT" button to save the current calibration value. After the setting is successful, the display is as follows:



02 输入 20mA 校准
(已设 3400)
3400



02Input 20mA Adj
(SET 3400)
3400

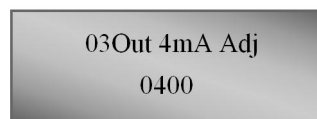
03、输出 4mA 校准/Output 4mA adjustment

进入“03 输出 4mA 校准”，屏幕显示：

The screen is displayed as follows upon access into “ 07Out4mA Adj” setup menu:



03 输出 04mA 校准
0400



03Out 4mA Adj
0400

第二行显示“0400”表示 4mA 输出已设校准值。

The second line shows "0400" indicating that the 4mA output has a calibrated value.

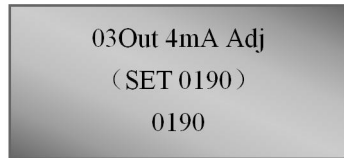
按“ENT”按钮进入设置状态，显示如下：

Press "ENT" button to enter the setting state. the display is as follows:



第二行显示“0190”表示当前可修改值，根据实际输出反馈值调整，若输出值大，则减小此值；若输出值小，则增大此值（按 OP 键是增加 CL 键是减小）。调整后，按“ENT”按钮进行设保存，会提示设置成功，保存后显示如下：

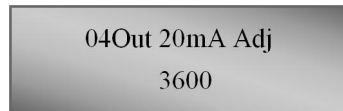
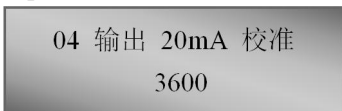
The second line displays "0190", indicating the current modifiable value, which is adjusted according to the actual output feedback value. If the output value is large, the value will be reduced; If the output value is small, increase this value (press OP key to increase CL key to decrease). After adjustment, press the "ENT" button to save the settings, and a prompt indicating successful settings will be displayed as follows after saving:



04 输出 20mA 校准/Output 20mA adjustment

进入“04 输出 20mA 校准”，屏幕显示：

The screen is displayed as follows upon access into “09 Out 20mA Adj” setup menu:



第二行显示“3600”表示 20mA 输出已设校准值。

The second line shows "3600" indicating that the 20mA output has a

calibrated value.

按“ENT”按钮进入设置状态，显示如下：

Press "ENT" button to enter the setting state. the display is as follows:

04 输出 20mA 校准
3400

04Out 20mA Set
3400

第二行显示“3400”表示当前可修改值，根据实际输出反馈值调整，若输出值大，则减小此值；若输出值小，则增大此值（按 OP 键是增加 CL 键是减小）。调整后，按“ENT”按钮进行设保存，会提示设置成功，保存后显示如下：

The second line displays "0190", indicating the current modifiable value, which is adjusted according to the actual output feedback value. If the output value is large, the value will be reduced; If the output value is small, increase this value (press OP key to increase CL key to decrease). After adjustment, press the "ENT" button to save the settings, and a prompt indicating successful settings will be displayed as follows after saving

04 输出 20mA 校准
(已设 3400)

04 Out 20mA Adj
(SET 3400)

4.5.10 自检设置/Self test settings

进入该项设置菜单时，屏幕显示：

When entering the setting menu, the screen displays:

01 自检 Y/N
02 自检周期
03 自检时刻
04 自检范围
05 自检最大时间
06 自检提醒

01 SC Y/N
02 SC Period
03SC Time
04SC Range
05SC Max Time
06 Self inspection

当主电源有电情况下，此功能打开有效。这个主要是预防阀门长期不动

作导致阀门锈死，而设计此功能（也可以不使用，具体情况根据现场而定）。如果此功能打开以后会在一定的周期内执行器会自动动作所设定的角度，然后再返回原来的位置。

his function is effective when the main power supply is powered. This function is mainly designed to prevent the valve from rusting due to long-term inaction of the valve (it can also not be used, and the specific situation depends on the site). If this function is turned on, the actuator will automatically operate the set angle within a certain period, and then return to the original position.

01 进入该项设置菜单时，屏幕显示：

When entering the setting menu, the screen displays::



自检选择项：Y（打开）和 N（关闭），默认为 N（关闭）。

Self test options: Y (open) and N (close), the default is N (close).

按“ENT”按钮后，进入设置状态，此时选择项闪烁。按“OP↑”或“CL↓”按钮进行上下切换。选中后，按“ENT”按钮保存，并提示设置成功。

Press the "ENT" button to enter the setting state, then the value of the item flashes. Press “OP ↑” or “CL ↓” button to switch up and down. After the selection, press the "ENT" button to save, and prompt the setting is successful.

02 进入该项设置菜单时，屏幕显示：

When entering the setting menu, the screen displays:



自检功能打开时，需要选择合适的自检周期（0-180 天内设置）

When the self-test function is turned on, it is necessary to select a proper self-test cycle (set within 0-180 days).

按“ENT”按钮后，进入设置状态，此时设置项闪烁。按“OP↑”或“CL↓”按钮进行数字加和减。ESC 或 RL 键为往前移位，键 ENT 为往后移位键。写

好适当周期以后，按“ENT”按钮保存，并提示设置成功。

Press the "ENT" button to enter the setting state, and the setting item flashes. Press the "OP ↑" or "CL ↓" button to add and subtract numbers. The ESC 或 RL key is the forward shift key, and the ENT key is the backward shift key. After the appropriate cycle is written, press the "ENT" button to save and prompt that the setting is successful.

03 进入该项设置菜单时，屏幕显示：

When entering the setting menu, the screen displays:



自检功能打开时，需要选择合适的时间（0-24 小时内选择）。

When the self-test function is turned on, you need to select a suitable time (0-24 hours).

按“ENT”按钮后，进入设置状态，此时设置项闪烁。按“OP↑”或“CL↓”按钮进行数字加和减。ESC 或 RL 键为往前移位键 ENT 为往后移位键。写好适当时刻以后，按“ENT”按钮保存，并提示设置成功。

Press the "ENT" button to enter the setting state, and the setting item flashes. Press the "OP ↑" or "CL ↓" button to add and subtract numbers. The ESC 或 RL key is the forward shift key and the ENT key is the backward shift key. After writing the appropriate time, press the "ENT" button to save and prompt that the setting is successful.

04 进入该项设置菜单时，屏幕显示：

When entering the setting menu, the screen displays:



自检功能打开时，需要选择合适的角度（0-20%内任意调节）。

When the self check function is turned on, it is necessary to select a suitable angle (any adjustment within 0-20%).

按“ENT”按钮后，进入设置状态，此时设置项闪烁。按“OP↑”或“CL↓”

按钮进行数字加和减。ESC 或 RL 键为往前移位键 ENT 为往后移位键。写好适当角度以后，按“ENT”按钮保存，并提示设置成功。

Press the "ENT" button to enter the setting state, and the setting item flashes. Press the "OP ↑" or "CL ↓" button to add and subtract numbers. The ESC 或 RL key is the forward shift key and the ENT key is the backward shift key. After writing the appropriate angle, press the "ENT" button to save and prompt that the setting is successful.

05 进入该项设置菜单时，屏幕显示：

When entering the setting menu, the screen displays:



自检功能打开时，需要选择合适的转动时间（0-201S 内任意调节）。

When the self check function is turned on, it is necessary to select a suitable angle (any adjustment within 0-20%).

按“ENT”按钮后，进入设置状态，此时设置项闪烁。按“OP↑”或“CL↓”按钮进行数字加和减。ESC 或 RL 键为往前移位键 ENT 为往后移位键。写好适当执行器动作时间以后，按“ENT”按钮保存，并提示设置成功。

Press the "ENT" button to enter the setting state, and the setting item flashes. Press the "OP ↑" or "CL ↓" button to add and subtract numbers. The ESC 或 RL key is the forward shift key and the ENT key is the backward shift key. After writing the appropriate actuator action time, press the "ENT" button to save and prompt that the setting is successful.

06 进入该项设置菜单时，屏幕显示：

When entering the setting menu, the screen displays:



在自检功能不打开的情况下，如果阀门 180 天不动作情况会自动提示阀门该动作，以防阀门长期不动作而锈死。前提是执行器在工作中。

When the self check function is not opened, if the valve does not operate

for 180 days, it will automatically prompt for the valve to operate, in order to prevent the valve from rusting due to long-term non operation. The premise is that the actuator is in operation

注:一般情况是不用更改这个时间

Note: generally, it is not necessary to change this time

4.5.11 时钟设置/Clock set

进入该项设置菜单时, 屏幕显示:

The screen is displayed as follows upon access into the setting menu:



按“Ent”按钮进入设置状态, 此时设置项闪烁, 从左到右, 依次按位设置。

Press the "Ent" button to enter the setting state. At this time, the setting item flashes and is set in bits from left to right.

按“OP↑”或“CL↓”按钮进行数字加和减。ESC 或 RL 键为往前移位键, ENT 为往后移位键。按“ENT”按钮保存, 并提示设置成功。

Press the "OP ↑" or "CL ↓" button to add and subtract numbers. ESC or RL is the forward shift key, and ENT is the backward shift key. Press the "ENT" button to save and prompt that the setting is successful.

4.5.12 设备地址/Device address

进入该项设置菜单时, 屏幕显示:

The screen is displayed as follows upon access into the setting menu:



用于现场总线时设备识别编号。Device identification number when used for fieldbus

4.5.13 反馈设置/Feedback settings

接线端子最多 5 个报警端口（报警输出数量根据现场实际情况而定），每个端口的报警设置可以通过“报警功能”进行设定。可以对每个端口的报警分别设置。

There are at most 5 alarm ports on the terminal block (the number of alarm outputs depends on the actual situation on site), and the alarm settings of each port can be set through the "alarm function". The alarm of each port can be set separately.

反馈输出出厂默认设置：报警 1（全开位），报警 2（全关位），报警 3（综合报警），报警 4（远方）。

Factory default settings of feedback output: Alarm 1 (fully open position), Alarm 2 (fully closed position), Alarm 3 (integrated alarm), Alarm 4 (remote).

进入报警设置，屏幕显示：

The screen is displayed as follows upon access into "Alarm Set" setup

01 报警 01 设置
02 报警 02 设置
03 报警 03 设置
04 报警 04 设置
05 报警 05 设置
06 报警 06 设置
07 反馈区间设置

01Alarm -1 set
02Alarm -2 set
03Alarm -3 set
04Alarm -4 set
05Alarm -5 set
06Alarm -6 set
07Alarm Range

报警功能项值：全开位报警、全关位报警、给定信号故障、关过力矩、开过力矩、指定位置（050.0%）、综合报警、远方、就地 and 禁止报警。

The item values of alarm function: Full Open, Full Close, No g/Siven Signal, Close Torque, Open Torque, Spec Add (050.0%), Complex Alarm, Remote, Local and Prohibit Alarm

当报警设置编程时，屏幕会显示当前所设置的报警功能项值在闪烁：

When the alarm setting is selected "Specified position", The screen is displayed as follows upon access into the setup menu :

01 报警 01 设置
报警关闭

01Alarm -1 set
Alarm Off

按“OP↑”或“CL↓”按钮进行上下翻页，选择全开反馈输出，按“ENT”按钮保存，并提示设置成功。

Press "OP ↑" or "CL ↓" button to turn pages up and down, select full open feedback output, press "ENT" button to save, and prompt that the setting is successful

01 报警 01 设置
全开

01Alarm -1 set
Full open

报警 2 到报警 7 设置同报警 1。

Alarm 2 and alarm 6 are set with alarm 1.

4.5.14 保护设置/Protection settings

进入保护设置，屏幕显示：

Enter the protection setting, and the screen displays:

01 过力矩保护
02 传感器保护
03 电机拒动保护
04 过温保护

01 Over Torque Prot
02 Sensor Prot
03 Mo NoCur Prot
04 Over Temp Prot

出厂前已设置好无需编程。需要编程联系厂家指导调试

It has been set in the factory without programming. Programming is required to contact the manufacturer to guide debugging

4.5.15 传动比设置/Transmission ratio setting

进入传动比设置，屏幕显示： /Enter the transmission ratio setting, and the screen displays

01 位置传动比
02 机械传动比

01 POS Trans Ratio
02Overall Ratio

出厂前已设置好无需编程。需要编程联系厂家指导调试

It has been set in the factory without programming. Programming is required

to contact the manufacturer to guide debugging

4.5.16 电机关阀方向/Motor valve closing direction

进入电机关阀方向，屏幕显示：

Enter the motor valve closing direction, and the screen displays:



出厂前已设置好无需编程。需要编程联系厂家指导调试

It has been set in the factory without programming. Programming is required to contact the manufacturer to guide debugging

4.5.17 力矩校准/torque calibration

进入力矩校准，屏幕显示

Enter torque calibration, screen display

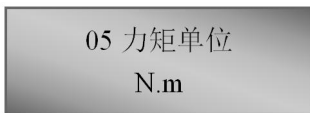


出厂前已设置好无需编程。需要编程联系厂家指导调试

It has been set in the factory without programming. Programming is required to contact the manufacturer to guide debugging

4.5.18 力矩单位/Moment unit

进入力矩单位，屏幕显示/Enter the moment unit, and the screen will display



出厂前已设置好无需编程。需要编程联系厂家指导调试

It has been set in the factory without programming. Programming is required to contact the manufacturer to guide debugging

4.5.19 电机控制参数/Motor control parameters

进入电机控制参数，屏幕显示

Enter the motor control parameters, and the screen displays

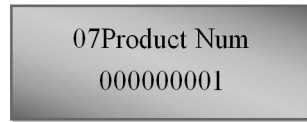


出厂前已设置好无需编程。需要编程联系厂家指导调试

It has been set in the factory without programming. Programming is required to contact the manufacturer to guide debugging

4.5.20 产品编号/Product number

进入产品编号，屏幕显示/Enter the product number and the screen will display



出厂前已设置好无需编程。需要编程联系厂家指导调试

It has been set in the factory without programming. Programming is required to contact the manufacturer to guide debugging

4.5.21 密码设置/Password settings

出厂前已设置好无需编程。需要编程联系厂家指导调试

It has been set in the factory without programming. Programming is required to contact the manufacturer to guide debugging

4.5.22 公司信息/Company information

进入产品编号，屏幕显示/Enter the product number and the screen will display



出厂前已设置好无需编程。需要编程联系厂家指导调试

It has been set in the factory without programming. Programming is required to contact the manufacturer to guide debugging

4.5.23 MODBUS 调试/MODBUS debugging

在使用 modbus 时没有校验码时可以打开，就不对指令校验就可以回复信息。出厂时默认关闭。

When using modbus, if there is no check code, it can be opened, and information can be returned without checking the command. Off by default at the factory.

When using modbus, if there is no check code, it can be opened, and information can be returned without checking the command. Off by default at the factory.

4.5.24 保存出厂设置/Voltage extreme reset

出厂设置主要设置执行器配置相关的参数，此参数已在出厂时已设定完成。若要进入出厂设置，需向 D+R 相关人员索取密码。

The factory setting is to set the parameters related to the actuator configuration. This parameter has been set at the factory. To enter the factory settings, need to D + R related personnel to obtain a password.

4.5.25 恢复出厂/Restore factory parameters

出厂时所设置的参数已经备份，若有需要可恢复出厂时的参数。

The parameters set at the factory have been backed up and the factory parameters can be restored if necessary.

4.5.26 报警查询/Alarm Query

报警查询中主要记录了当前所发生的报警事件，以便处理各种异常。

The alarm query mainly records the current alarm events to handle various exceptions.

4.5.27 历史记录/History

历史记录中主要记录了对前 32 个报警的记录和位置变更的记录，以便查询所发生故障事件和位置变更次数。

The history records mainly record the records of the first 32 alarms and location changes, so as to query the fault events and location changes.

4.5.28 极值纪录/Extreme value record

极值纪录主要是对电流、电压、开阀力矩极值、关阀力矩极值和开关总次数等的记录。

The extreme value record is mainly used to record the extreme value of

current, voltage, valve opening torque, valve closing torque and total switching times.

4.5.29 版本信息/Version information

版本信息主要是记录主板系统版本号 and 显示系统版本号。

The version information mainly records the system version number of the main board and displays the system version number.

4.5.30 当前告警/Current Alarm

报警事件/Alarm event	故障分析/Failure analysis	解决办法/Solution
无输入电流信号 No Input Current	4-20mA 信号线连接松动 4-20mA signal cable connection loose	检查 4-20mA 线路, 重新接线 Check the 4-20mA lines and re-wiring
关过力矩保护 Two Close Prote 开过力矩保护 Two open Prote	执行机构所驱动的力, 已经远大于 所要求的力。 The force driven by the implementing agency is far greater than the force required.	检查机械部分 Check the mechanical parts
其他报警信息 Other alarm information		请联系维修人员 Please contact the service personnel

4.6 调节型执行器调试方法 /Adjustable actuator debugging method

4.6.1 确认接线无误/Confirm that the wiring is correct

检查电源线、4-20mA 输入和输出线是否正确接入。

Check that the power cord, 4-20 mA input and output lines are properly connected.

1、屏幕正常显示, 说明电源线连接正常。

The screen is displayed normally, indicating that the power cord is connected properly.

2、进入“参数设置-->基本设置-->09 输入输出校准-->01 输入 4mA 校准”, 调节 4-20mA 输入信号, 观察显示屏最下面一行数值, 数值在正常范围内变化,

说明 4-20mA 输入线连接正常。否则，请检查 4-20mA 输入接线是否正常。若接线无问题，请检查 4-20mA 信号源是否正常。

Enter "Parameter Setting -->Basic Setting -->09 Input/Output Calibration -->01 Input 4mA Calibration", adjust the 4-20mA input signal, and observe the value at the bottom of the display screen. The value changes within the normal range, indicating that the 4-20mA input line is connected normally. Otherwise, please check whether the 4-20mA input wiring is normal. If there is no problem with the wiring, please check whether the 4-20mA signal source is normal.

3、4-20mA 输出接收终端，可正常接收到信号。说明 4-20mA 接线正常。否则，请检查 4-20mA 输出接线是否正常。若接线无问题，请直接在接线端子处，用万用表测量 4-20mA 输出是否正常。

4-20mA output receiving terminal, can receive signals normally. Note that the 4-20mA wiring is normal. Otherwise, check if the 4-20mA output wiring is normal. If there is no problem with the wiring, please measure the 4-20mA output with a multimeter directly at the terminal.

4.6.2 全开全关位置设定/Full open and Close position setting

1、全开位置设置：将阀门开到全开位置，再进入“参数设置-->基本设置-->04 行程限位-->02 全开位置设置”，点击“ENT”键确认并保存全开位置值。

Setting of full open position: open the valve to the full open position, enter "parameter setting -->basic setting -->04 travel limit -->02 full open position setting", click "ENT" to confirm and save the full open position value.

2、全关位置设置：将阀门关到全关位置，再进入“参数设置-->基本设置-->04 行程限位-->01 全关位置设置”，点击“ENT”键确认并保存全关位置值。

Setting of fully closed position: close the valve to the fully closed position, enter "parameter setting -->basic setting -->04 travel limit -->01 fully closed position setting", click "ENT" to confirm and save the fully closed position value.

4.6.3 校准 4-20mA 输入信号/Calibrate the 4-20mA input signal

1、校准 4mA 输入信号：进入“参数设置-->基本设置-->09 输入输出校准-->01 输入 4mA 校准”，将 4-20mA 输入信号调到 4mA，待到数值稳定后，点击“ENT”键确认并保存校准值。

Calibrate the 4mA input signal: enter "parameter setting -->basic setting -->09 input/output calibration -->01 input 4mA calibration", adjust the 4-20mA input signal to 4mA, and click “ENT” to save the calibration value when the value is stable.

2、校准 20mA 输入信号：进入“参数设置-->基本设置-->09 输入输出校准-->02 输入 20mA 校准”，将 4-20mA 输入信号调到 20mA，待到数值稳定后，点击“ENT”键确认并保存校准值。

Calibrate the 20mA input signal: enter "parameter setting -->basic setting -->09 input/output calibration -->02 input 4mA calibration", adjust the 4-20mA input signal to 20mA, and click “ENT” to save the calibration value when the value is stable.

4.6.4 校准 4-20mA 输出信号/Calibrate the 4-20mA output signal

1、校准 4mA 输出信号：进入“参数设置-->基本设置-->09 输入输出校准-->03 输出 4mA 校准”，调整校准值（按“OP↑”键进行数字增加，按“CL/↓”键数字减小 ENT 是往右移位 ESC 或 RL 是向左移位键）使输出信号到 4mA，点击“ENT”键确认并保存校准值。

2、Calibrate 4mA output signal: enter "parameter setting -->basic setting -->09 input/output calibration -->03 output 4mA calibration", adjust the calibration value (press "OP ↑" key to increase the number, press "CL/ ↓" key to decrease the number; press "ENT" key to shift right; ESC 或 RL "key to shift left), make the output signal to 4mA, click" ENT "key to confirm and save the calibration value

3、校准 20mA 输出信号：进入“参数设置-->基本设置-->09 输入输出校准-->04 输出 20mA 校准”，调整校准值（按“OP↑”键进行数字增加，按“CL/↓”键数字减小 ENT 是往右移位 ESC 或 RL 是向左移位键）并观察 4-20mA 输出反馈是否满足要求使输出信号到 20mA，点击“ENT”键确认并保存校准值。

Calibrate 20mA output signal: enter "parameter setting -->basic setting -->04 input/output calibration -->09 output 20mA calibration", adjust the calibration value (press "OP ↑" key to increase the number, press "CL/↓" key to decrease the number, and press "ENT" key to shift right ESC 或 RL "key to shift left), and observe whether the 4-20mA output feedback meets the requirements to make the output signal to 20mA, click" ENT "key to confirm and save the calibration value

4.6.5 就地试运行/Local operation

1、确认工作在就地状态，显示板上“ESC 或 RL 灯”为蓝色。如果为绿色，同时按下“ESC 或 RL”和“ENT”键，切换到就地状态。

Confirm that the work is in the local state, and the “ESC or RL lamp” on the display panel is blue. If it is green, press the "ESC or RL" and "ENT" keys at the same time to switch to the local state.

2、按“OP↑”键进行开阀，按“CL/↓”键进行关阀，并观察 4-20mA 输出反馈是否满足要求。如果反馈有偏差，请重新校准 4-20mA 输出信号。

Press the “OP↑” button to open the valve, press the “CL/↓” button to close the valve, and observe whether the 4-20mA output feedback meets the requirements. If the feedback is skewed, recalibrate the 4-20mA output signal.

4.6.6 远程试运行/Remote operation

1、同时按下“ESC 或 RL”和“ENT”键，切换到远程状态，显示板上“ESC 或 RL 灯”为绿色表示切换成功。

Press the “ESC or RL” and “ENT” keys at the same time to switch to the remote state. The “ESC or RL light” on the display panel is green to indicate successful switching.

2、远程给定控制信号，观察执行器动作是否满足要求。满足要求，则调试结束。

The control signal is given remotely to see if the actuator action meets the requirements. If the requirements are met, the commissioning ends.

4.7 开关型执行器调试方法/Adjustable actuator debugging method

4.7.1 确认接线无误/Confirm that the wiring is correct

检查电源线、开关量输入和继电器反馈输出线是否正确接入。

Check that the power line, digital input, and relay feedback output line are properly connected.

1、屏幕正常显示，说明电源线连接正常。

The screen is displayed normally, indicating that the power cord is connected properly.

2、开关量输入接线，分为干接点和湿接点两大类。湿接点输入信号分两种：带 24VDC 电的输入控制信号。如果输入控制信号为干接点时，需要将执行器本身提供的 24VDC 串入回路中。具体的接线，请参照详细接线图。

Switch input wiring is divided into two categories: dry contact and wet contact. There are two types of wet contact input signals: input control signal with 24VDC. If the input control signal is dry contact, the 24VDC provided by the actuator itself needs to be connected in series to the circuit. For specific wiring, please refer to the detailed wiring diagram.

3、继电器反馈输出是否正确。

The relay feedback output is correct.

4.7.2 就地试运行/Local operation

1、本地工作状态时，显示板上“ESC 或 RL 灯”为蓝色。如果为绿色，同时按下“ESC 或 RL”和“ENT”键，切换到就地状态。

Confirm that the work is in the local state, and the “ESC or RL lamp” on the display panel is blue. If it is green, press the "ESC or RL" and "ENT" keys at the same time to switch to the local state.

2、按“OP ↑”键进行开阀，按“CL/↓”键进行关阀，并观察继电器反馈输出是否正常。如果反馈有问题，请重新继电器反馈输出接线和菜单设置项中报警输出功能的配置是否正确。

Press the “OP ↑” button to open the valve, press the “CL/ ↓” button to close the valve, and observe that the relay feedback output is normal. If there is a problem with the feedback, please re-relay the feedback output wiring and the configuration of the alarm output function in the menu setting item is correct.

4.7.3 远程试运行/Remote operation

1、同时按下“ESC 或 RL”和“ENT”键，切换到远程状态，显示板上“ESC 或 RL”灯为绿色表示切换成功。

Press the “ESC or RL” and “ENT” keys at the same time to switch to the remote state. The “ESC or RL” light on the display panel is green to indicate successful switching.

2、远程给定控制信号，观察执行器动作是否满足要求。满足要求，

则调试结束。如果执行器不动作，请确认当远程给信号时屏幕上给定值是否有相应的变化。如果给定值无相应的变化，请检查接线方式是否正确；否则，请查看出厂设置中信号类型的选择是否匹配。

The control signal is given remotely to see if the actuator action meets the requirements. If the requirements are met, the commissioning ends. If the actuator does not operate, please confirm whether there is a corresponding change in the value given on the screen when the signal is given remotely. If there is no corresponding change in the given value, please check if the wiring is correct; otherwise, check if the signal type selection in the factory setting matches.

5 电气联接/Electric connection



警告：执行机构在接通电源前，请确认接地线是否已可靠接地。

Warning: Before connection of actuator with the power supply, please confirm the reliable grounding of grounding wire.



警告：电气连接必须在断电状态下进行，连接之前一定要检查电源形式(电压和频率等)和电机参数是否与本机要求一致。

Warning: The electric connection must be made under power off status; before connection, please inspect the power mode (voltage and frequency) and motor parameters for conformity with the requirements.



警告：电气设备的安装和连接只能由具备相应资质的受过专业培训的电气技术人员完成，严格按照相应规范进行操作。

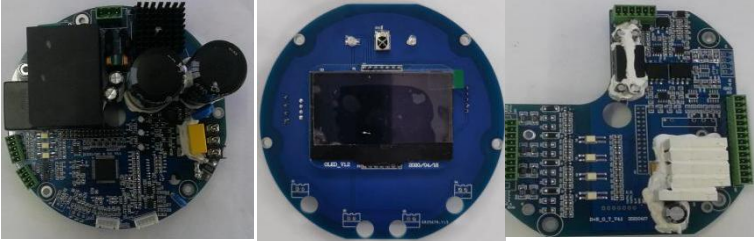
Warning: The qualified and well-trained electric personnel are designated for the installation and connection of electric equipment in strict accordance with the codes.

5.1 高度集成 CPU 控制模块/High-integrated CPU control module

D+R g/S 系列控制模块采用 ARM 32 位集成芯片，其特点：功能强大、计算速度快、控制精度更高。

D+R g/S series control module adopts ARM 32-digit integrated chip, featuring powerful function, Powerful function, fast computing speed and higher control

precision.



电源板/Power panel 显示板/Display panel 控制板/Control panel

高精度智能控制驱动模块/High precision intelligent control and driving module

5.2 接线端子排/Wiring terminal block

1. D+RG 系列执行器进线入口接头预留有 M25×1.5、M20×1.5，可根据进线位置自由选择。

D+RG series actuator inlet inlet joints are reserved with M25×1.5 and M20×1.5, which can be freely selected according to the incoming line position.

2. 请按照序号对应接线,具体请参照端子接线定义 5-3-1。

Please refer to the serial number for the wiring5-3-1 .

强烈建议信号线采用屏蔽电缆，电源线和信号线分孔进入，以免造成干扰。

It is strongly recommended that the signal line be separated by shielding cable, power cable and signal cable to avoid interference.

3. 电缆接头防水处理。

Waterproofing of cable joints.

5.3 端子接线定义/Definition of wiring terminal

5 -3-1 端子接线定义 (230V/400VAC) /Terminal wiring definition(230V/400VAC)

1	4-20mA 输入 IN+	1	4-20mA IN+
2	4-20mA 输入 IN-	2	4-20mA IN-
3	4-20mA 输出 OUT+	3	4-20mA OUT+
4	4-20mA 输出 OUT-	4	4-20mA OUT-
5	24VDC 输出 +	5	24VDC output +
6	24VDC 输出 -	6	24VDC output -
7	开关量-开 (24VDC+)	7	Digital-OPEN (24VDC+)
8	开关量-关 (24VDC+)	8	Digital-CLOSE (24VDC+)
9	开关量-停 (24VDC+)	9	Digital-STOP (24VDC+)
10	开关量-公共端 (24VDC-)	10	Digital-COM (24VDC-)
11	ESD	11	ESD
12	备用	12	spare
13	备用	13	spare
14	阀位全开	14	Valve position fully open
15	公共端	15	Common terminal
16	阀位全关	16	Valve position is fully closed
17	公共端	17	Common terminal
18	综合报警	18	Integrated alarm
19	公共端	19	Common terminal
20	远程	20	Remote
21	公共端	21	Common terminal
22	就地	22	On site
23	公共端	23	Common terminal
24	常闭备用触点(特殊需求)	24	Normally closed spare contact (Special needs)
25	PE	25	PE
26	L1	26	L1
27	L2/L	27	L2/L
28	L3/N	28	L3/N



警告: 未接线时, 请勿松动接线端子仓堵塞, 以防进水, 湿气等, 非专业人员

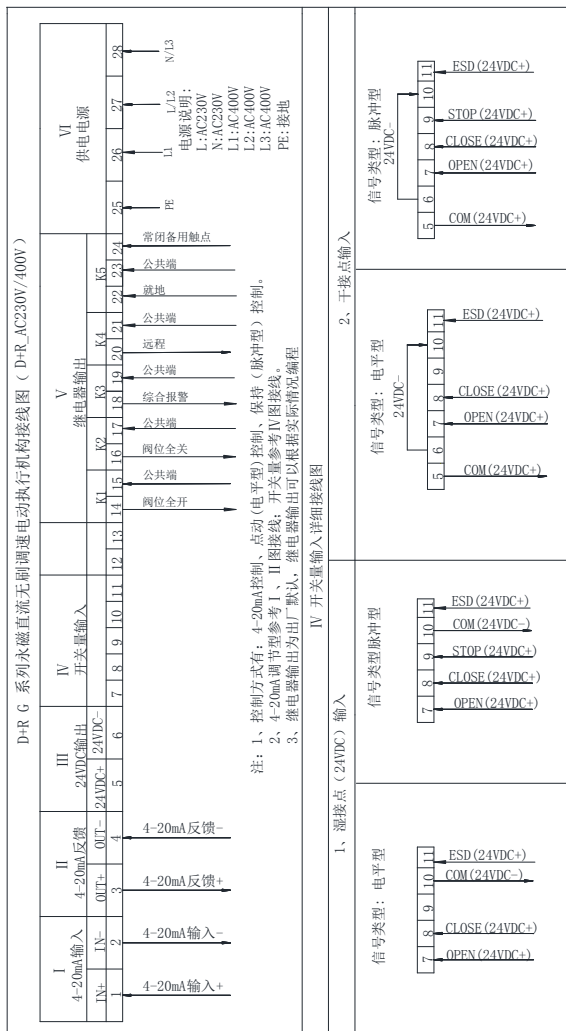
不得进行从事本接线工作, 否则由此造成的后果 D+R 不予保修。

Warning: Please fasten the plug of wiring terminal before wiring to prevent water and humidity;

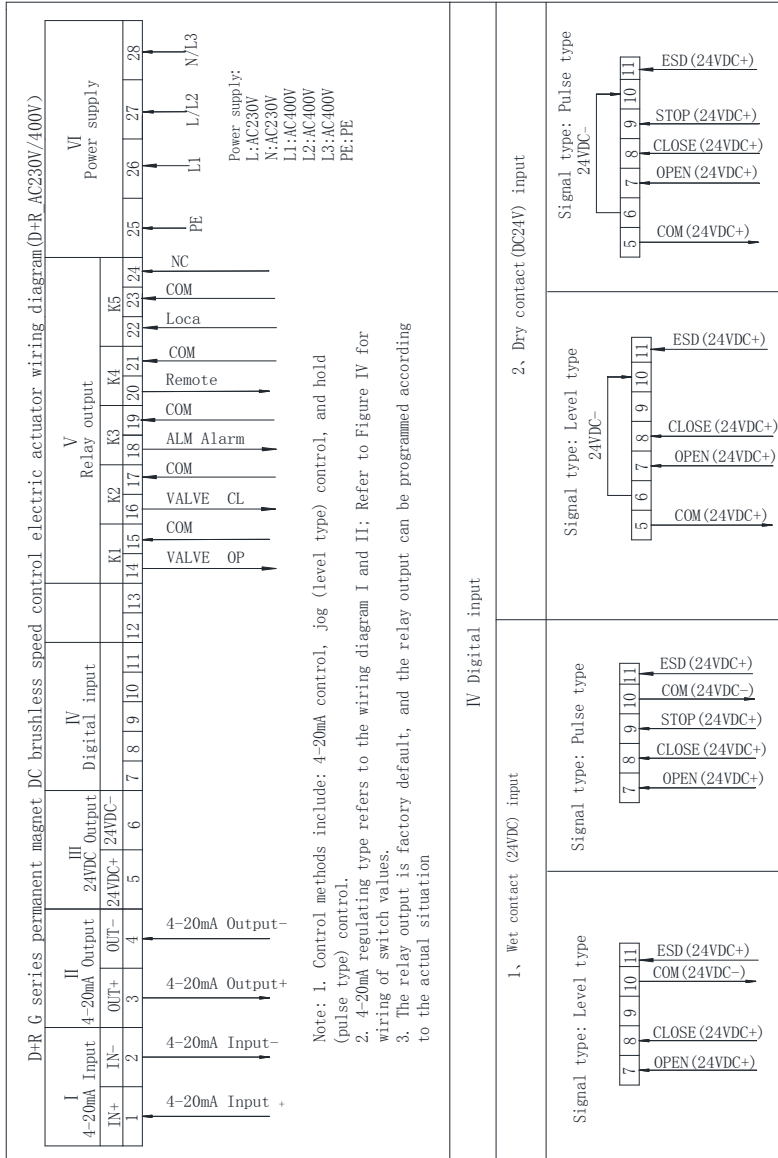
it is forbidden for irrelevant personnel to execute the wiring; otherwise D+R does not bear maintenance and servicing responsibilities.

5.4 接线示意图/ Wiring diagram

5-4-1 接线示意图 (230VAC/400VAC)



5-4-1 Wiring diagram(230VAC/400VAC)



6 设备维护和保养 /Maintenance and Servicing of Equipment

6.1 设备维护周期/Equipment Maintenance Cycle

在正常使用情况下，D+RG 系列电动执行机构是免维护的，但是少量的日常维护是必须的。

Under normal usage, D+RG series electric actuator is free from maintenance; however, a small amount of daily maintenance is necessary.

产品在长期存放中，会在电动执行机构的法兰面和密封面上渗有少量的润滑油脂，这不会影响产品的寿命和使用，但为了确保设备的正常可靠运行，请定期做一次运行测试。

In the long-term storage, a small amount lubricant oil may be leaked on the flange and sealed surface of electric actuator, which will not influence the life time and normal usage of products. However, in order to ensure the normal and reliable operation of equipment, please make regular operating test.

当您使用的 D+R 产品出现您解决不了的故障，请您立即与我们办事处、代理商联系，我们将在最短的时间内给您圆满解决问题。

Please contact our office or agency whenever you encounter any unmanageable fault, and we promise to settle the problem within the shortest time.

6.2 润滑/Lubrication

D+RG 系列电动执行机构在正常使用条件下，整个寿命周期内无须额外的润滑。所使用的润滑油脂为添加二硫化钼的多用途高级润滑油。如需购买请及时与 D+R 中国办事处或各级代理商联系。

Under normal usage, D+RG series electric actuator does not require for additional lubrication within the whole use life. The lubricant refers to multi-purpose senior lubricant containing molybdenum disulfide. Please contact with D+R Chinese office or agent at various levels for procurement.

7 故障信息及处理一览表/List of Fault Information and Settlement

故障情况 Faults	可能故障原因 Possible Reasons	故障处理 Solutions
不能开机（指示灯或 OLED 显示屏不显示） Unable to start the machine (indicator light or OLED display does not display)	无供电电源或电源不符合要求 There is no power supply or the power fails to meet the requirements.	检查电源和接线端子接线的正确性和可靠性。 Inspect the power supply and wiring terminal for correct and reliable wiring.
	控制电路保险丝熔断或回路开路 Fuse of control circuit is fused or loop is open.	检查电路或更换保险 Inspect the circuit or replace the fuse.
开机后，给定指令，执行机构不动作 Upon start and issuing command, the actuator has no operation.	“全开位置”和“全关位置”数据相等 “Open_Pos/Open position” and “Close_Pos”/Closed position” are equivalent.	进入设置菜单检查数据，并修改。 Enter into the setting menu, inspect and revise the related data.
	电机绕组烧毁 The motor winding is burnt out.	更换电机或维修 Replace or repair the motor.
	电机超温保护 The motor suffers from over temperature protection.	电机降温 Cool down the motor.
	开限位、关限位 Limit switches in open/close direction.	反向运转后正常 Operate reversely and become normal.
手动操作时执行机构不动作或很难动作 In the manual operation, the	传动轴承卡涩 The transmission shaft is blocked.	维修或更换 Repair or replace
	阀杆和执行机构输出轴不同轴 Valve stem and actuator's output shaft are not co-axial.	维修或更换 Repair or replace



actuator has no operation or suffers from operation difficulty.	阀门卡涩或损坏 The valve is blocked or damaged.	维修或更换 Repair or replace
	传动齿轮没有润滑 The transmission gear isn't lubricated.	进行加油润滑 Add lubricant
电机工作时，阀门不动作 In the normal operation of motor, the valve has no operation.	传动齿轮脱离或损坏 The transmission gear is stripped or damaged.	维修或更换 Repair or replace
	电机轴承损坏或卡涩 The motor shaft is blocked or damaged.	维修或更换 Repair or replace
	阀门卡涩或损坏 The valve is blocked or damaged.	维修或更换 Repair or replace
	阀门轴、阀杆的驱动螺母损坏 The driving nut of valve shaft and valve stem is damaged.	维修或更换 Repair or replace

D+R 电动执行机构分为 F、G、MT、MC、四个系列，适用于不同的用户。四十年的品质和近乎理想的控制性能与精度，赢得了世界范围广大用户的一致认可和支持。D+R 电动执行机构的生产、销售、服务都严格按照 ISO9001 质量体系 and ISO5211 标准执行。

D+R electric actuator includes four series: F、G、MT、MC、etc., which are applicable to different users. Forty-year quality and almost ideal control property and precision have won unanimous recognition and support of worldwide users. The production, sales and service of D+R electric actuator are in strict accordance with ISO9001 quality system and ISO5211 standard.

2005 年 D+R 在全球率先推出直流无刷无级调速电动执行机构 G 系列，各种技术性能指标全面超过采用交流及交流变频调速执行机构。特别适用于要求输出力大、动作频率、调节精度高、反应速度快、快开快关场所。

In 2005, D+R launched DC brushless stepless variable speed electric actuator as first of its kind in the world g series; various technical properties and indicators have exceeded AC and AC variable frequency & speed actuators. It is particularly applicable to the areas with large output force, high action frequency, high adjustment precision, swift response and fast opening/closing.

D+R 电动执行机构广泛应用于电力/核电、冶金、有色、石油、化工、制药、造纸、市政、轻工、铁路等行业。
D+R electric actuator is widely applied in the power/nuclear power, metallurgical, non-ferrous, petroleum, chemical engineering, pharmaceutical, paper making, municipal, light industry and railway industries.

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The operation instruction manual is extracted and translated by D+R China Office, Daume (Shanghai) Control Technology Co., Ltd., and the final interpretation right belongs to us. Please contact us whenever you encounter any problem; we reserves the right to change the above statement without prior notice!

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