



MT 系列智能型电动执行机构

MT Series Intelligent Electric Actuators

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

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

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本手册适用于 D+R MT 系列智能型电动执行机构的安装、调试、使用和维护指导。

The operation manual is applicable to the installation, commissioning, usage and maintenance instruction of D+R MT series intelligent 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门走过(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+R MT 系列智能型电动执行机构前，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+R MT 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, combustible, 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.

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D+R MT 系列智能型电动执行机构可用显示面板上的霍尔磁性按钮进行调试、操控、参数设置、修改等。

D+R MT series intelligent electric actuator can use the Hall magnetic function button in display panel for commissioning , control, operation, parameter setup and revision.

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，无须再进行重复设置，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

本机为非侵入式设计，使用操作面板上的霍尔磁性按钮，对照本机的《使用说明书》进入执行机构的设定程序，无须打开机盖，即可完成相关设置及参数修改。

The machine is in the non-invasion design mode, operated by Hall magnetic function button in the panel; the user enters into the setup procedure of actuator according to the <Operation Manual> and fulfills the setup and parameter revision with no need to open the 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 MT 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 MT 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 MT 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+R MT 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 MT 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+R MT 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 Group 1, 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,则无须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 MT 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 MT 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 手轮控制/ The handwheel control

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.

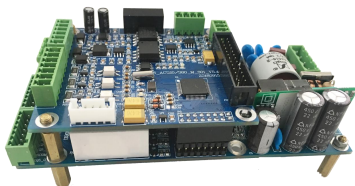


警告：关于电动执行机构的操作，任何情况下不允许使用其它附加工具旋转手轮，这样可能会导致手轮、阀门或电动执行机构损坏。

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 电动控制/ Control module control

MT 系列电动执行机构控制模块采用 32 位高精度 CPU,采集准确,灵敏度高,模块(D+R_AC230V/400V)如下:

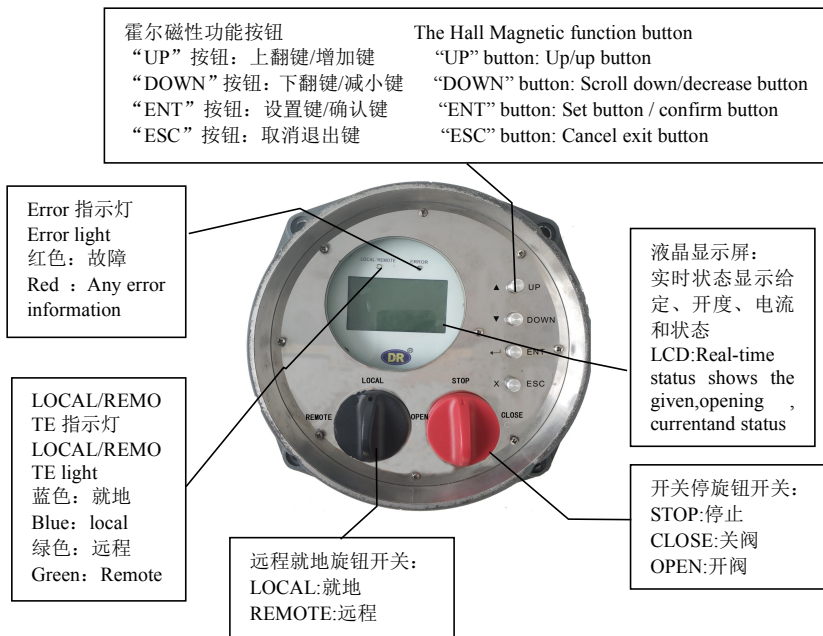


The MT series electric actuator control module adopts 32-bit high-precision CPU, which has accurate acquisition and high sensitivity. The module (D+R_AC230V/400V) is as follows.

3.2.1 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、液晶显示屏、远程/就地旋钮开关, 开阀、关阀、停止旋钮开关、霍尔按钮。

The operation panel includes ESC indicator, Error indicator, LCD, remote/local knob switch, valve opening, valve closing, stop knob switch, Hall button.



注：

调试时：须切换到“就地”状态；
 远程自动时：须切换到“远程”状态；

Notes:

When setting: Must switch to "Local"
 When Remote automatic: Must switch to " Remote"

3.2.1.1 ESC 指示灯/ESC light

ESC 指示灯 ESC light	
蓝色 Blue	绿色 Green
就地 Local	远程 Remote

3.2.1.2 Error 指示灯/Error light

Error 指示灯 Error light	
不亮 Lights off	红色 Red
无故障 No faults	有故障 Faults

长按“ESC”按钮可取消当前的报警状态。

Long press "ESC" button to cancel the current alarm status.

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

实时显示给定、开度、电流、状态。

Display the given, opening, current, and status in real time.

给定:	50.0 % S
开度:	50.0 %
电流:	00.000A
状态:	就地/停止

InPu:	50.0 % S
Posi:	50.0 %
Current:	00.000A
Status:	Local/Stop

3.2.1.4 就地/远程操作/Local/remote operation

就地操作时，LOCAL/REMOTE 旋钮开关处于就地状态，通过开关阀旋钮开关来实现开阀和关阀操作。远程控制操作时，LOCAL/REMOTE 旋钮开关必须处于 REMOTE 状态，实现开阀和关阀。

When operating in place, the LOCAL/REMOTE rotary switch is in the local state, and the valve opening and closing operation is achieved by switching the valve knob switch. For remote control operation, the LOCAL/REMOTE knob switch must be in the REMOTE state to open and close the valve.

3.2.2 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.

3.2.3 远程开关量控制/ Remote switch control

根据现场实际情况，将远程开关量控制线正确接入执行机构，实现开阀、关阀。开关量控制类型有干接点和湿接点两种，触发信号有电平和脉冲。

According to the actual situation on site, the remote switch quantity control line is correctly connected to the actuator to realize valve opening and closing. There are two types of switch control: dry contact and wet contact. The trigger signal has two levels: level and pulse.

3.3 遥控器控制/ 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.

在安装调试中用遥控器控制开关阀，必须按“激活/失效”键激活方可进行，按一下“激活/失效”键，显示面板“LOCAL/REMOTE”指示灯变为闪烁，此时可用遥控器控制阀门开和关。

Control the on/off valve with the remote control during installation and commissioning, you must press the “Activate/Disable” button to activate. Press the “Activate/Fail” button and the display panel “LOCAL/REMOTE” indicator will flash. The valve controls the valve to open and close.

遥控器按键说明:

The remote control button description:

“Enable/Invalid 激活/失效”：激活使用遥控器控制开关阀

“Enable/Invalid 激活/失效”：Activate the remote control to control the on/off valve.

“Open/↑”：开阀，增加；

“Open/↑”：Open valve, increase;

“Close/↓”：关阀，减小；

“Close/↓”：Close valve, reduce;

“Set/设置”：进入一级菜单；

“Set/设置”：Enter the first level menu;

“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 供电电源失电后控制/ Control after power supply loss

供电电源失电后,执行机构可记录阀门位置。操作时可任意按一个操作面板上的霍尔按钮，激活低功耗模式，按“ENT”键进入主界面，摇动手轮，查看阀门位置。

After the power supply is de-energized, the actuator can record the valve position. During operation, you can press the Hall button on the operation panel to activate the low power mode. Press the “ENT” button to enter the main interface and shake the handwheel to check the valve position.

注：此项为特殊需求，订货时请明确。

Note: This item is a special requirement, please specify when ordering.

4 调试/Commissioning

4.1 概述/Overview

D+R MT 系列电动执行机构采用非侵入式设计(无须打开端盖即可进行调试)。

D+R MT 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，由液晶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 the set functions are saved in NVM of the actuator; the user will search for all the set functions by LCD, and each set function's set value can be searched 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 主界面/ Main interface

通电开机后，屏幕显示如下：

After power on, the screen displays as follows:



若为“远程”状态，必须切换到“就地”状态，若有报警事件按“ESC”键进入主界面，主界面显示如下：

If it is in the "remote" state, you must switch to the "local" state. If there is an alarm event, press the "ESC" button to enter the main interface. The main interface

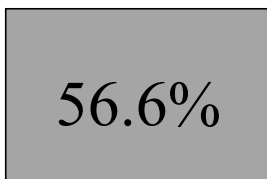
is displayed as follows:

给定:	50.0	%	S
开度:	50.0	%	
电流:	00.000A		
状态:	就地/停止		

InPu:	50.0	%	S
Posi:	50.0	%	
Current:	00.000A		
Status:	Local/Stop		

2 分钟内不操作会自动切换至开位显示界面，开位显示界面下可按任意一个霍尔按钮或旋转就地远程切换旋钮即可返回主界面。开度直接界面如下：

If you do not operate for a long time in the main interface, it will automatically switch to the opening indication interface. If you want to return to the main interface, you can press any of the Hall buttons to return to the main interface. The direct interface of the opening is as follows:



4.3 菜单结构/The menu structure



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。

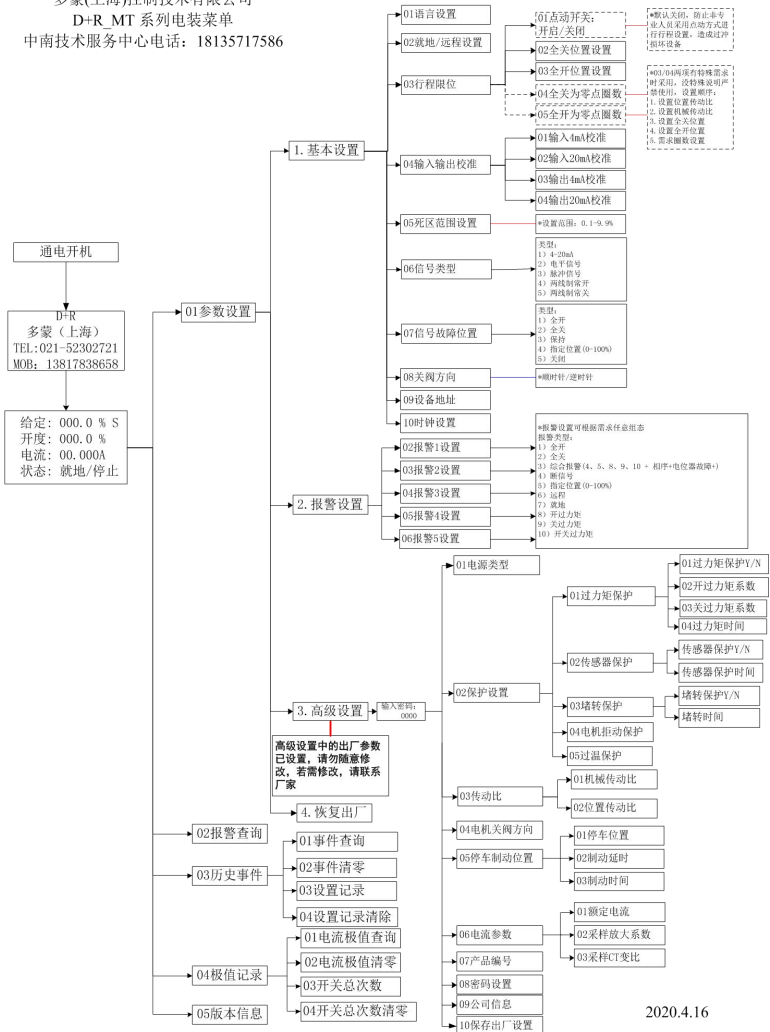
Warning: The default setup must be seriously used according to the actual demands; after leaving the factory, the on-site data setup of actuator is of vital importance to the valve or users.



警告：必须先进行基本设置。出厂设置在执行机构出厂后已设置，一般不需要改动，若确需改动请联系厂家。

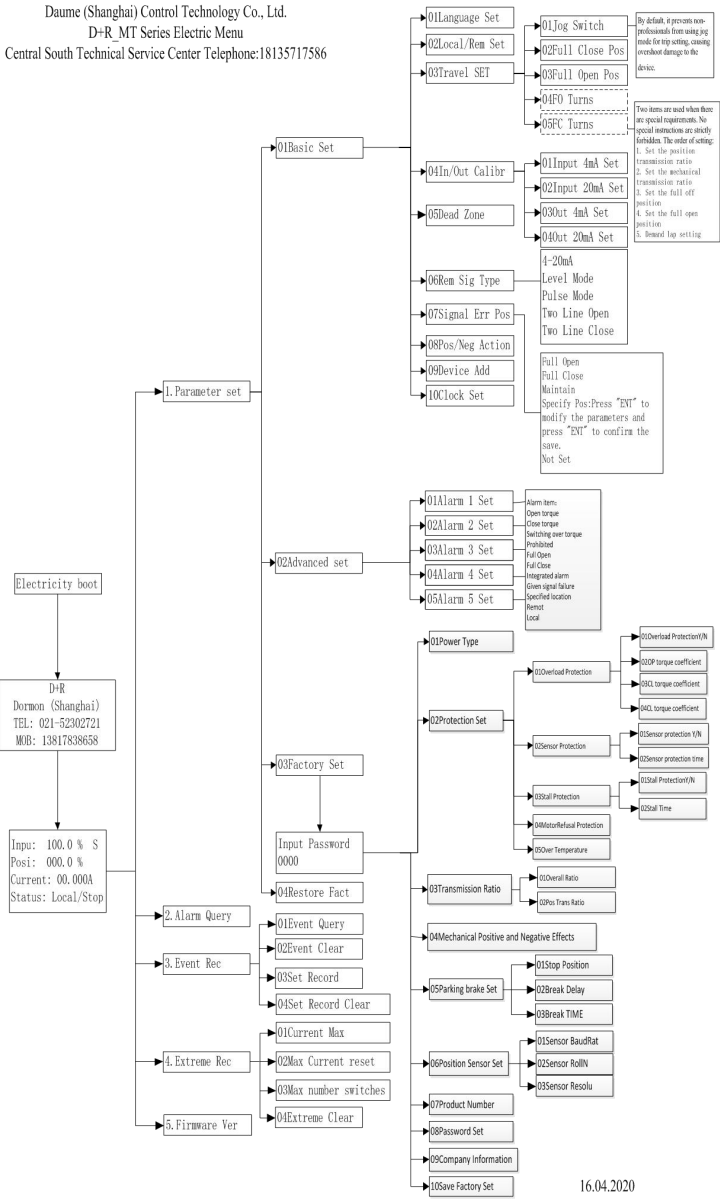
Warning: The basic setup must be finished in advance. After the actuator leaves the factory, the factory setup hardly needs to change.

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2020.4.16

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16.04.2020

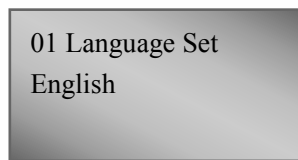
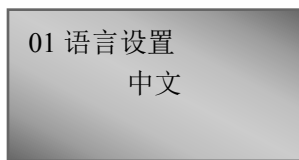
4.4 调试步骤

4.4.1 步骤一：语言设置/ Step 1: Language settings

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.基本设置▶01语言设置”，再按“ENT”键，进入“01语言设置”界面，屏幕显示如下：

Press the “ENT” key on the main interface to enter the menu, select “1. Parameter set ▶1. Basic set ▶01 language set”, and then press “ENT” key to enter the setting interface. The screen displays as follows:

Press the “ENT” key on the main interface to enter the menu, select “1. Parameter Set ▶ 1.Basic Set ▶ 01language Set”, and then press “ENT” key to enter “01language Set” interface, the screen displays as follows:



第二行“中文”表示当前选择的语言。

The second line "Chinese" indicates the currently selected language.

按“R/L”按钮可取消设置并返回上级菜单，按“OP/↑”或“CL/↓”按钮进行上下切换菜单项，按“ENT”按钮保存设置并返回上级菜单。

Press the "R / L" button to cancel the setting and return to the previous menu. Press the "OP/ ↑ " or "CL / ↓ " button to switch menu items up and down. Press the "ENT" button to save the setting and return to the previous menu.

语言选择项值：中文和英文（默认）。

Item values of language option: Chinese and English(default) .

4.4.2 步骤二：行程设置/ Step 2: Trip Settings

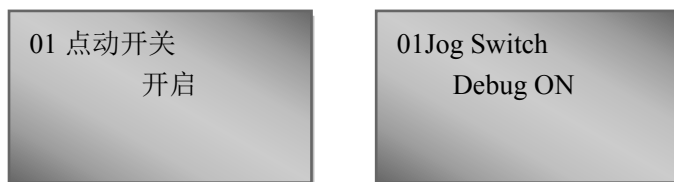
1. 已知全关位置和全开位置设置行程

Know the full close position and full open position setting stroke

a) 打开点动开关/ Turn on the jog switch

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.基本设置▶03 行程限位▶01 点动开关”。按“ENT”键，进入“01 点动开关”界面，屏幕显示如下：

Press the “ENT” key on the main interface to enter the menu, and then select “1.Parameter Set ▶ 1.Basic Set ▶ 03Travel Set ▶ 01Jog Switch”. Press “ENT” to enter the “ 01Jog Switch” interface. The screen displays as follows:



按“CL/↓”或“OP/↑”键，选择“开启”，按“ENT”键保存。

Press the “CL/↓” or “OP/↑” button to select “Start” and press the “ENT” button to save.

b) 设置全关位置/ Set the full close position

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.基本设置▶03 行程限位▶02 全关位置设置”。按“ENT”键，进入“02 全关位置设置”界面，屏幕显示如下：

Press the “ENT” key on the main interface to enter the menu, and then select “1.Parameter Set ▶ 1.Basic Set ▶ 03Travel Set ▶02Full Close Pos”. Press “ENT” to enter the “ 02Full Close Pos” interface. The screen displays as follows:

02 全关位置设置
(已设: 1088-3089)
1587-1097

02Full Close Pos
(SET: 1088-3089)
1587-1097

第二行显示: 已设位置值。

The second line shows: the position value has been set.

第三行显示: 当前位置值。

The third line shows: the current position value.

按“CL/↓”或“OP/↑”键, 调整阀门至全关位置附近, 再手动微调, 按“ENT”键保存全关位置值。

Press the “CL/↓” or “OP/↑” button to adjust the valve to the vicinity of the fully closed position, then manually fine-tune it, and press the “ENT” button to save the full-off position value.

c) 设置全开位置/ Set the full open position

在主界面按“ENT”键进入菜单, 依次选择“1.参数设置▶1.基本设置▶03行程限位▶03全开位置设置”。按“ENT”键, 进入“03全开位置设置”界面, 屏幕显示如下:

In the main interface, press the “ENT” key to enter the menu, and then select “1.Parameter Set ▶ 1.Basic Set ▶ 03Travel Set ▶03Full Open Pos”. Press “ENT” to enter the “03Full Open Pos” interface. The screen displays as follows:

03 全开位置设置
(已设: 2088-3089)
2087-1097

03Full Open Pos
(SET: 2088-3089)
2087-1097

第二行显示: 已设位置值。

The second line shows: the position value has been set.

第三行显示：当前位置值。

The third line shows: the current position value.

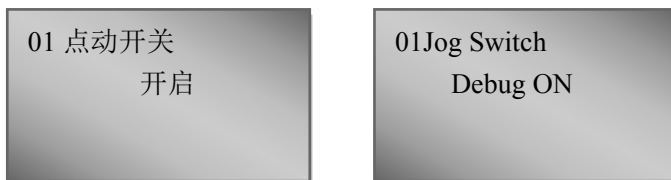
按“CL/↓”或“OP/↑”键，调整阀门至全开位置附近，再手动微调，按“ENT”键保存全开位置值。

Press the “CL/↓” or “OP/↑” button to adjust the valve to the vicinity of the fully open position, and then fine-tune manually. Press the “ENT” button to save the full open position value.

d) 关闭点动开关/ Turn off the jog switch

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.基本设置▶03 行程限位▶01 点动开关”。按“ENT”键，进入“01 点动开关”界面，屏幕显示如下：

Press the “ENT” key on the main interface to enter the menu, and then select “1.Parameter Set ▶ 1.Basic Set ▶ 03Travel Set ▶ 01Jog Switch”. Press “ENT” to enter the “01Jog Switch” interface. The screen displays as follows:



按“CL/↓”或“OP/↑”键，选择“关闭”，按“ENT”键保存。

Press the “CL/↓” or “OP/↑” button, select “Debug OFF” and press the “ENT” button to save.

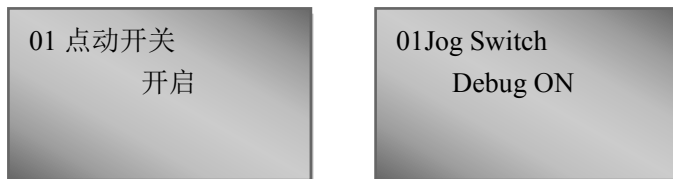
2. 已知全关位置和全行程的圈数设置行程

Know the full-close position and the full-turn lap setting stroke

a) 打开点动开关/ Turn on the jog switch

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.基本设置▶03 行程限位▶01 点动开关”。按“ENT”键，进入“01 点动开关”界面，屏幕显示如下：

Press the “ENT” key on the main interface to enter the menu, and then select “1.Parameter Set ▶ 1.Basic Set ▶ 03Travel Set ▶ 01Jog Switch”. Press “ENT” to enter the “ 01Jog Switch” interface. The screen displays as follows:



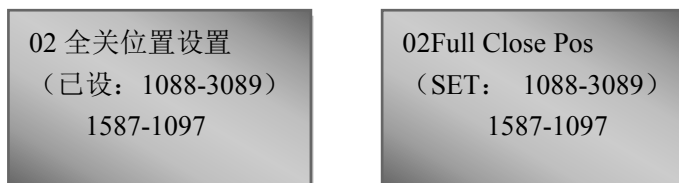
按 “CL/↓” 或 “OP/↑” 键，选择 “启动”，按 “ENT” 键保存。

Press the “CL/↓” or “OP/↑” button to select “Start” and press the “ENT” button to save.

b) 设置全关位置/ Set the full close position

在主界面按 “ENT” 键进入菜单，依次选择 “1.参数设置▶1.基本设置▶03 行程限位▶02 全关位置设置”。按 “ENT” 键，进入 “02 全关位置设置” 界面，屏幕显示如下：

Press the “ENT” key on the main interface to enter the menu, and then select “1.Parameter Set ▶ 1.Basic Set ▶ 03Travel Set ▶02Full Close Pos”. Press “ENT” to enter the “ 02Full Close Pos” interface. The screen displays as follows:



第二行显示：已设位置值。

The second line shows: the position value has been set.

第三行显示：当前位置值。

The third line shows: the current position value.

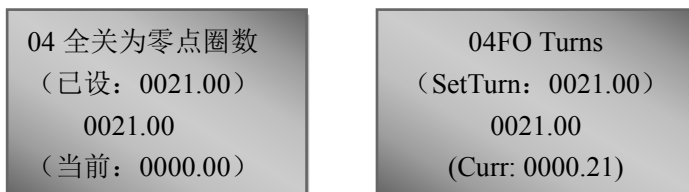
按“CL/↓”或“OP/↑”键，调整阀门至全关位置附近，再手动微调，按“ENT”键保存全关位置值。

Press the “CL/↓” or “OP/↑” button to adjust the valve to the vicinity of the fully closed position, then manually fine-tune it, and press the “ENT” button to save the full-off position value.

c) 以全关为零点设置圈数/ Set the number of turns with full close zero

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.基本设置▶03行程限位▶04全关为零点设置圈数”。按“ENT”键，进入“04全关为零点设置圈数”界面，屏幕显示如下：

In the main interface, press the “ENT” key to enter the menu, and then select “1.Parameter Set ▶ 1.Basic Set ▶ 03Travel Set ▶ 04FO Turns”. Press the “ENT” button to enter the “04FO Turns” interface. The screen displays as follows:



The second line shows: The number of laps has been set.

第三行显示：需要设置圈数。

The third line shows: need to set the number of turns.

按“CL/↓”键或按“OP/↑”，调整需要设置的圈数，按“ENT”键保存所设定的圈数。

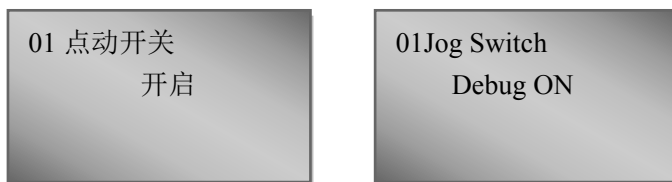
Press the “CL/↓” button or press “OP/↑” to adjust the number of turns to be set. Press the “ENT” button to save the set number of turns.

d) 关闭点动开关/ Turn off the jog switch

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.

基本设置▶03 行程限位▶01 点动开关”。按“ENT”键，进入“01 点动开关”界面，屏幕显示如下：

Press the “ENT” key on the main interface to enter the menu, and then select “1.Parameter Set ▶ 1.Basic Set ▶ 03Travel Set ▶ 01Jog Switch”. Press “ENT” to enter the “ 01Jog Switch” interface. The screen displays as follows:



按“CL/↓”或“OP/↑”键，选择“关闭”，按“ENT”键保存。

Press the “CL/↓” or “OP/↑” button, select “Debug OFF” and press the “ENT” button to save.

3. 已知全开位置和全行程的圈数设置行程

Know the full-open position and the full stroke setting stroke

a) 打开点动开关/ Turn on the jog switch

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.基本设置▶03 行程限位▶01 点动开关”。按“ENT”键，进入“01 点动开关”界面，屏幕显示如下：

Press the “ENT” key on the main interface to enter the menu, and then select “1.Parameter Set ▶ 1.Basic Set ▶ 03Travel Set ▶ 01Jog Switch”. Press “ENT” to enter the “ 01Jog Switch” interface. The screen displays as follows:

01 点动开关
开启

01Jog Switch
Debug ON

按“CL/↓”或“OP/↑”键，选择“启动”，按“ENT”键保存。

Press the “CL/↓” or “OP/↑” button to select “Start” and press the “ENT” button to save.

b) 设置全开位置/ Set the full open position

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.基本设置▶03 行程限位▶03 全开位置设置”。按“ENT”键，进入“03 全开位置设置”界面，屏幕显示如下：

In the main interface, press the “ENT” key to enter the menu, and then select “ 1.Parameter Set ▶ 1.Basic Set ▶ 03Travel Set ▶03Full Open Pos”. Press “ENT” to enter the “ 03Full Open Pos” interface. The screen displays as follows:

03 全开位置设置
(已设: 2088-3089)
2087-1097

03Full Open Pos
(SET: 2088-3089)
2087-1097

第二行显示：已设位置值。

The second line shows: the position value has been set.

第三行显示：当前位置值。

The third line shows: the current position value.

按“CL/↓”或“OP/↑”键，调整阀门至全开位置附近，再手动微调，按“ENT”键保存全开位置值。

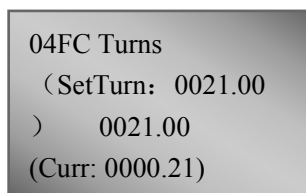
Press the “CL/↓” or “OP/↑” button to adjust the valve to

the vicinity of the fully open position, and then fine-tune manually. Press the “ENT” button to save the full open position value.

c) 以全开为零点设置圈数/ Set the number of turns with full open zero

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.基本设置▶03 行程限位▶05 全开为零点设置圈数”。按“ENT”键，进入“05 全开为零点设置圈数”界面，屏幕显示如下：

In the main interface, press the “ENT” key to enter the menu, and then select “ 1.Parameter Set ▶ 1.Basic Set ▶ 03Travel Set ▶05FC Turns”. Press the “ENT” button to enter the “ 05FC Turns” interface, the screen displays as follows:

第二行显示：已设圈数。

The second line shows: The number of laps has been set.

第三行显示：需要设置圈数。

The third line shows: need to set the number of turns.

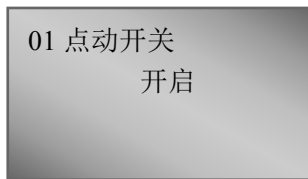
按“CL/↓”键或按“OP/↑”，调整需要设置的圈数，按“ENT”键保存所设定的圈数。

Press the “CL/↓” button or press “OP/↑” to adjust the number of turns to be set. Press the “ENT” button to save the set number of turns.

d) 关闭点动开关/ Turn off the jog switch

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.基本设置▶03 行程限位▶01 点动开关”。按“ENT”键，进入“01 点动开关”界面，屏幕显示如下：

Press the “ENT” key on the main interface to enter the menu, and then select “1.Parameter Set ▶ 1.Basic Set ▶ 03Travel Set ▶ 01Jog Switch”. Press “ENT” to enter the “ 01Jog Switch” interface. The screen displays as follows:



按“CL/↓”或“OP/↑”键，选择“关闭”，按“ENT”键保存。

Press the “CL/↓” or “OP/↑” button, select “Debug OFF” and press the “ENT” button to save.



警告：在调试过程中，利用点动功能调试行程设置时，点动接近阀门的全开或全关位置时，用手轮摇动阀门直到开或关位置(严禁使用点动按钮进行点动操作)，否则可能由于位置走过引起阀门或者执行机构的损坏，由于此种原因造成执行机构损坏，D+R 不予保修。行程设置完成后，调试模式必须关闭，若忘记关闭造成执行机构损坏，D+R 不予保修。

Warning: During the commissioning process, when using the jog function to adjust the stroke setting. When the jog is close to the fully open or fully closed position of the valve, shake the valve with the handwheel until it is turned on or off. Location (It is strictly forbidden to use the jog button to perform jog operation). Otherwise, the valve or actuator may be damaged due to the position. If the actuator is damaged due to such reasons, D+R will not be guaranteed. After the stroke setting is completed, the debug mode must be turned off. If you forget to close the actuator and cause damage to the actuator, D+R will not be guaranteed.

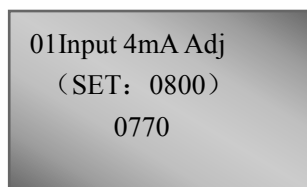
4.4.3 步骤三：输入输出校准/ Step 3: Input and Output Calibration

1. 输入 4-20mA 校准/ Input 4-20mA calibration

a) 输入 4mA 校准/ Input 4mA calibration

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.基本设置▶04 输入输出校准▶01 输入 4mA 校准”。按“ENT”键，进入“01 输入 4mA 校准”界面，屏幕显示如下：

Press the “ENT” key on the main interface to enter the menu, and then select “1.Parameter Set ▶ 1.Basic Set ▶ 04In/Out Calibr ▶ 01Input 4mA Adj”. Press “ENT” to enter the “01Input 4mA Adj” interface. The screen displays as follows:



第二行显示“(已设: 0800)”表示 4mA 校准值。

The second line shows "(set: 0800)" indicating the 4 mA input calibration value.

第三行显示“0770”表示当前输入信号转换值，此值范围 0000~4095。

The second line shows "0770" that the current input signal conversion value.

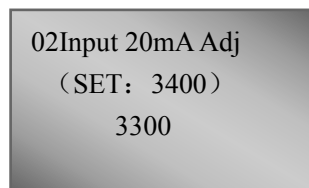
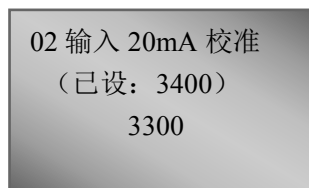
将输入电流信号调整到 4mA，等到显示值稳定。按“R/L”按钮可取消设置并返回上级菜单。按“ENT”按钮可保存当前输入信号值，并返回上级菜单。

The input current signal is adjusted to 4mA, wait until the display value is stable. Press the "R / L" button to cancel the setting and return to the previous menu. Press the "ENT" button to save the current input signal value and return to the previous menu.

b) 输入 20mA 校准/ Input 20mA calibration

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.基本设置▶04 输入输出校准▶02 输入 20mA 校准”。按“ENT”键，进入“02 输入 20mA 校准”界面，屏幕显示如下：

Press the “ENT” key on the main interface to enter the menu, and then select “ 1.Parameter Set ▶ 1.Basic Set ▶ 04In/Out Calibr ▶ 02Input 20mA Adj”. Press the “ENT” button to enter the “02Input 20mA Adj” interface. The screen displays as follows:



第二行显示“（已设：3400）”表示 20mA 输入校准值。

The second line shows "(set: 3400)" indicating the 20 mA input calibration value.

第三行显示“3330”表示当前输入信号转换值，此值范围 0000~4095。

The second line shows "3300" that the current input signal conversion value.

将输入电流信号调整到 20mA，等到显示值稳定。按“R/L”按钮可取消设置并返回上级菜单。按“ENT”按钮可保存当前输入信号值,并返回上级菜单。

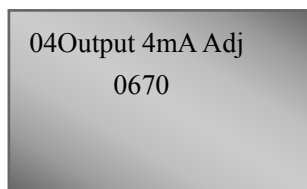
The input current signal is adjusted to 20mA, wait until the display value is stable. Press the "R / L" button to cancel the setting and return to the previous menu. Press the "ENT" button to save the current input signal value and return to the previous menu.

2. 输出 4-20mA 校准/ Output 4-20mA calibration

a) 输出 4mA 校准/ Output 4mA calibration

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.基本设置▶04 输入输出校准▶03 输出 4mA 校准”。按“ENT”键，进入“03 输出 4mA 校准”界面，屏幕显示如下：

Press the “ENT” key on the main interface to enter the menu, and then select “ 1.Parameter Set ▶ 1.Basic Set ▶ 04In/Out Calibr ▶ 03Out 4mA Adj”. Press “ENT” to enter the “ 03Out 4mA Adj” interface. The screen displays as follows:



第二行“0670”表示 4mA 输出校准值。

The second line "0670" indicates the 4mA output calibration value.

如果反馈信号为 4mA，则无须调整，按“R/L”按钮退出。如果电流表或控制室读数不是 4mA，则需进行微调，直至电流表或控制室的读数为 4mA。微调时，数值设置是从左到右，依次按位设置。按“OP/↑”或“CL/↓”按钮进行数值调整。调整后，按“Ent”按钮保存并进入下一位设置。

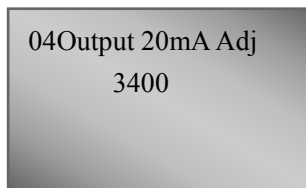
If the feedback signal is 4 mA, no adjustment is required and press the “R/L” button to exit. If the ammeter or control room reading is not 4 mA, fine tune it until the ammeter or control room reads 4 mA. When fine-tuning, the value setting is from left to right, followed by the bit setting. Press the “OP/↑” or “CL/↓” button to adjust the value. After adjustment, press the “Ent” button to save and go to the next setting.

b) 输出 20mA 校准/ Output 20mA calibration

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.基本设置▶04 输入输出校准▶04 输出 20mA 校准”。按“ENT”

键，进入“04 输出 20mA 校准”设置界面，屏幕显示如下：

Press the “ENT” key on the main interface to enter the menu, and then select “ 1.Parameter Set ▶ 1.Basic Set ▶ 04In/Out Calibr ▶ 04Out 20mA Adj”. Press “ENT” to enter the “ 04Out 20mA Adj” interface. The screen displays as follows:



第二行“3400”表示 20mA 输出校准值。

The second line "3400" indicates the 20mA output calibration value.

如果反馈信号为 20mA，则无须调整，按“R/L”按钮退出。如果电流表或控制室读数不是 20mA，则需进行微调，直至电流表或控制室的读数为 20mA。微调时，数值设置是从左到右，依次按位设置。按“OP/↑”或“CL/↓”按钮进行数值调整。调整后，按“Ent”按钮保存并进入下一位设置。

If the feedback signal is 20 mA, no adjustment is required and press the “R/L” button to exit. If the ammeter or control room reading is not 20 mA, fine tune it until the ammeter or control room reads 20 mA. When fine-tuning, the value setting is from left to right, followed by the bit setting. Press the “OP/ ↑ ” or “CL/ ↓ ” button to adjust the value. After adjustment, press the “Ent” button to save and go to the next setting.

4.4.4 步骤四：确认就地运行是否正常/ Step 4: Confirm that the local operation is normal

1. 确认界面在就地状态的主界面，屏幕显示如下：

Confirm that the interface is in the main interface of the local state, the screen is as follows:

给定:	50.0 % S
开度:	50.0 %
电流:	00.000A
状态:	就地/停止

InPu:	50.0 % S
Posi:	50.0 %
Current:	00.000A
Status:	Local/Stop

2. 确认开度是否在中间位置，如果在全开或全关位，请转动手轮使阀门的开度至中间位置。

Confirm that the opening is in the middle position. If it is fully open or fully closed, turn the handwheel to open the valve to the middle position.

3. 按“CL/↓”键，观察阀门是否能走到全关位置。
Press the “CL/↓” button to see if the valve can reach the fully closed position.
4. 按“OP/↑”键，观察阀门是否能走到全开位置。
Press the “OP/↑” button to see if the valve can reach the fully open position.
5. 反复运行几次，无问题可进入下一步调试。
Run it several times repeatedly, no problem can go to the next step of debugging.

4.4.5 步骤五：确认远程运行是否正常/ Step 5: Confirm that the remote operation is normal

1. 将执行器切换到远程状态。“R/L”+“ENT”键同时按下，“R/L”指示灯为绿色，则说明在远程状态。

Switch the actuator to a remote state. The “R/L”+“ENT” button is pressed at the same time, and the “R/L” indicator is green, indicating that it is in the remote state.

2. 调节型：给定 4-20mA 信号，观察给定和反馈是否一致。如果一致调试完毕。若不一致请参照下面情况调试：

Adjustment type: Given the 4-20 mA signal, observe whether the given and feedback are consistent. If consistent debugging is completed. If not, please refer to the following situation to debug:

- a) 已给定且执行器无动作，请确认“06 信号类型”（1.参数设置 ▶ 1.基本设置 ▶ 06 信号类型）中的信号类型是否为“4-20mA”。

Given and the actuator does not operate, please confirm whether the signal type in "06Rem Sig Type" (1.Parameter Set ▶ 1.Basic Set ▶ 06Rem Sig Type) is "4-20mA".

- b) 有“信号断线”提示，请检查 4-20mA 输入接线是否正常。

There is a “signal disconnection” prompt, please check if the 4-20mA input wiring is normal.

- c) 执行器动作且无反馈，请检查 4-20mA 输出接线。

Actuator action and no feedback, please check the 4-20mA output wiring.

- d) 执行器动作但反馈不正常，请重新校准 4-20mA 输出。

Actuator action but feedback is not normal, please recalibrate the 4-20mA output.

3. 开关型：给定全开或全关信号，观察给定和反馈是否一致。如果一致调试完毕。若不一致请参照下面情况调试：

Switch type: Given the full open or full off signal, observe whether the given sum and feedback are consistent. If consistent debugging is completed. If not, please refer to the following situation to debug:

- a) 已给定且执行器无动作，请确认“06 信号类型”（1.参数设置 ▶ 1.基本设置 ▶ 06 信号类型）中的信号类型是否选择为相应类型。

Given and the actuator is not active, please confirm whether the signal type in "06Rem Sig Type" (1.Parameter Set ▶ 1.Basic Set ▶ 06Rem Sig Type) is selected as the corresponding type.

- b) 已给定且执行器无动作，确认是干接点控制还是湿接点控制，确认接线是否正常。

Given and the actuator is inactive, confirm whether it is dry contact control or wet contact control to confirm whether the wiring is normal.

- c) 执行器动作且无反馈，请确认“01报警1设置”和“02报警2设置”（1.参数设置▶2.报警设置▶01报警1设置/02报警2设置）中的值是否设置正确。

Actuator action and no feedback, please confirm whether the values in "01Alarm 1 Set" and "02Alarm 2 Set" (1.Parameter Set ▶ 2.Alarm Set ▶ 01Alarm 1 Set/ 02Alarm 2 Set) are set correctly.

- d) 执行器动作且无反馈，确认报警输出接线是否正常。

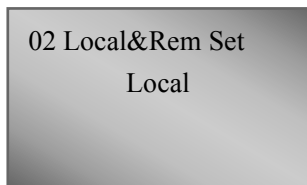
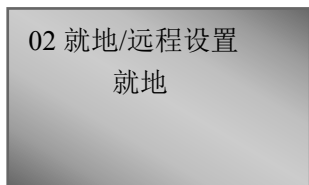
Actuator action and no feedback, confirm whether the alarm output wiring is normal.

4.5 其他菜单设置项介绍/ Introduction to other menu settings

4.5.1 就地/远程设置/Remote & Local setting

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.基本设置▶02就地/远程设置”，按“ENT”键，进入“02就地/远程设置”界面，屏幕显示如下：

Press the “ENT” button on the main interface to enter the menu, select “1.Parameter Set ▶ 1.Basic Set ▶ 02Local/Rem Set”, press “ENT” to enter the “02Local/Rem Set” interface, the screen displays as follows:



第二行“就地”表示当前执行机构的控制模式。

The second line "Local" indicates the current actuator's control mode.

远程手动设置项值：就地和远程。

The item values of remote manual setup: Local and remote .

按“R/L”按钮可取消设置并返回上级菜单，按“OP/↑”或“CL/↓”按钮进行上下切换菜单项，按“ENT”按钮保存设置并返回上级菜单。

Press the "R / L" button to cancel the setting and return to the previous menu. Press the "OP/ ↑ " or "CL/ ↓ " button to switch menu items up and down. Press the "ENT" button to save the setting and return to the previous menu.

4.5.2 死区范围设置/Dead zone setting

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.基本设置▶05死区范围设置”，按“ENT”键，进入“05死区范围设置”界面，屏幕显示如下：

Press “ENT” in the main interface to enter the menu, select “ 1.Parameter Set ▶ 1.Basic Set ▶ 05Dead Zone”, press “ENT” key to enter “ 05Dead Zone” interface, the screen displays as follows:

第二行“01.5%”表示当前所设置的死区范围。

The second line "01.5%" indicates the currently set dead zone.

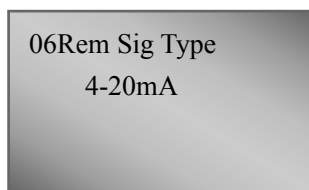
此数值在出厂试验时已调整到最优，一般无需调整。按“R/L”按钮可取消设置并返回上级菜单。按“OP/↑”或“CL/↓”按钮进行数值调整。调整后，按“Ent”按钮保存并进入下一位设置。

This value in the factory test has been adjusted to the best, generally do not need to adjust. Press the "R / L" button to cancel the setting and return to the previous menu. Press the "OP/ ↑ " or "CL/ ↓ " button to adjust the value. After adjustment, press the "Ent" button to save and enter the next setting.

4.5.3 信号类型/ Signal Type

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.基本设置▶06信号类型”，按“ENT”键，进入“06信号类型”设置界面，屏幕显示如下：

Press the “ENT” key on the main interface to enter the menu, select “ 1.Parameter Set ▶ 1.Basic Set ▶ 06Rem Sig Type”, press “ENT” key to enter the “ 06Rem Sig Type” setting interface. The screen displays as follows:



第二行“4-20mA”表示当前所选择的信号类型。

The second line "Maintain" indicates the type of signal failure currently selected.

The second line "4-20 mA" indicates the currently selected signal type.

信号类型项值：4-20mA、电平信号、脉冲信号、两线制常开和两线制常关。

Signal type item value: 4-20mA, level Mode, pulse Mode, two Line Open and two Line close.

4.5.4 信号故障位置/Signal error types

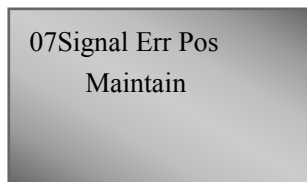
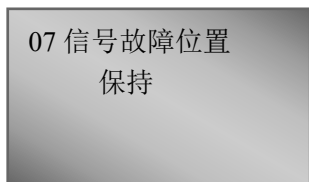
信号故障类型的作用是在当执行机构出现给定信号故障时，执行机构所采取的动作。

The purpose of the signal error type is to act on the part of the actuator when a given signal failure occurs at the actuator.

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.基本设置▶07信号故障位置”，按“ENT”键，进入“07信号故障位置”界面，

屏幕显示如下：

In the main interface, press “ENT” to enter the menu, select “ 1.Parameter Set ▶ 1.Basic Set ▶ 07Signal Err Pos”, press “ENT” key to enter “ 07Signal Err Pos” interface, the screen displays as follows:



第二行“保持”表示当前所选择的信号故障位置。

The second line "Maintain" indicates the type of signal failure currently selected.

信号故障位置项值：全开、全关、保持、指定位置和关闭。

The item values of “Sign err type”: Full Open, Full Close, Maintain, Specify Pos and Not Set.

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；

Full 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；

Full 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 Pos: In case of signal fault, the actuator operates to the preset position.

5. 关闭：禁用此功能。

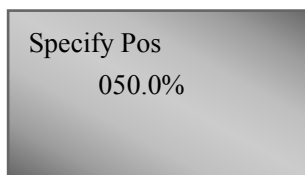
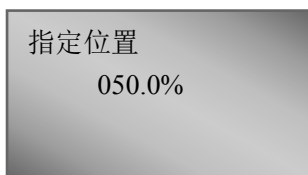
Not Set: Disable this feature.

按“R/L”按钮可取消设置并返回上级菜单，按“OP/↑”或“CL/↓”按钮进行上下切换菜单项，按“ENT”按钮保存设置并返回上级菜单。

Press the "R / L" button to cancel the setting and return to the previous menu. Press the "OP/ ↑ " or "CL/ ↓ " button to switch menu items up and down. Press the "ENT" button to save the setting and return to the previous menu.

当信号故障类型选择为“指定位置”时，屏幕显示如下：

When signal failure type is "Specify Pos", this function works.



第二行“050.0%”表示当故障发生时，执行机构停止的位置。

The second line "050.0%" indicates where the actuator stopped when a fault occurred.

按“R/L”按钮可取消设置并返回上级菜单。按“OP/↑”或“CL/↓”按钮进行数值调整。调整好后，按“ENT”按钮保存并返回。

Press the "R / L" button to cancel the setting and return to the previous menu. Press the "OP/ ↑ " or "CL/ ↓ " button to adjust the value. After adjustment, press the "ENT" button to save and enter the next setting.



警告：该项设置的出厂默认值为“保持”，根据实际工艺所需要的阀位由用户自行设定或告知调试服务人员进行现场设置。

Warning: The factory default value of the item is “Current1(Maintenance)”; according to the process demand, the user sets up the valve position by itself or notifies the commissioning personnel for on-site setup.

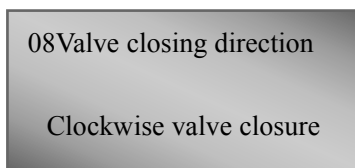
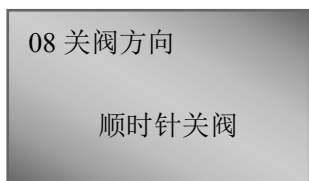
4.5.5 关阀方向/Valve closing direction

在电动执行机构安装过程中,可能会遇到阀门的作用方向和执行机构的作用方向不一致,这时需要对此项设置进行修改。

During the installation of the electric actuator, the direction of action of the valve and the direction of action of the actuator may be inconsistent. This setting needs to be modified.

在主界面按“ENT”键进入菜单,依次选择“1.参数设置▶1.基本设置▶08正反作用”,按“ENT”键,进入“08正反作用”界面,屏幕显示如下:

Press the “ENT” key on the main interface to enter the menu, select “1.Parameter Set ▶ 1.Basic Set ▶ 08Pos/Neg Action”, press “ENT” key to enter the “08Pos/Neg Action” interface, the screen displays as follows:



本项设置默认“正作用”。

This setting defaults to "positive action"

按“R/L”按钮可取消设置并返回上级菜单,按“OP/↑”或“CL/↓”按钮进行上下切换菜单项,按“ENT”按钮保存设置并返回上级菜单。

Press the "R / L" button to cancel the setting and return to the previous menu. Press the "OP/ ↑ " or "CL/ ↓ " button to switch menu items up and down. Press the "ENT" button to save the setting and return to the previous menu.



警告: 在执行机构调试前,如果发现执行机构与阀门的作用方向不一致,一定要先将此设置调整,再进行基本设置,尤其是开阀位置和关阀位置的设定。若是因此种原因造成的阀门或执行机构损坏, D+R 不予保修。

Warning: In case of different effect direction between the valve and actuator before commissioning of the actuator, the setup must be adjusted before basic setup, especially Valve opening position and Valve closing position. In case of any damage against the valve

and actuator due to such reason, D+R does not bear maintenance and servicing responsibilities.

4.5.6 设备地址/Device address

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.基本设置▶09 设备地址”，按“ENT”键，进入“09 设备地址”设置界面，屏幕显示如下：

Press the “ENT” key on the main interface to enter the menu, select “1.Parameter Set ▶ 1.Basic Set ▶ 09Device Add”, and press “ENT” to enter the “09Device Add” interface. The screen displays as follows:



第二行“00001”表示当前执行机构的设备地址。

The second line "00001" indicates the current actuator's device address.

按“R/L”按钮可取消设置并返回上级菜单。按“OP/↑”或“CL/↓”按钮进行数值调整。调整后，按“ENT”按钮保存并进入下一位设置。

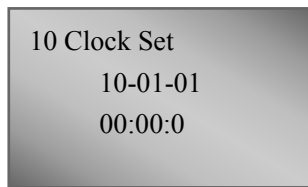
Press the "R / L" button to cancel the setting and return to the previous menu. Press the "OP/ ↑ " or "CL/ ↓ " button to adjust the value. After adjustment, press the "ENT" button to save and enter the next setting.

4.5.7 时钟设置/Clock setting

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶1.基本设置▶10 时钟设置”，按“ENT”键，进入“10 时钟设置”界面，屏幕显示如下：

In the main interface, press “ENT” to enter the menu, then select

“ 1.Parameter Set ▶ 1.Basic Set ▶ 10Clock Set”, press “ENT” to enter the “ 10Clock Set” interface, the screen displays as follows:



第二行 “10-01-01” 表示日期：年-月-日。

The second line "10-00-00" indicates the date: year-month-day.

第三行 “00:00:0” 表示时间：时：分：十秒。

The third line "00:00:0" means time: hour: minute: ten seconds.

按 “R/L” 按钮可取消设置并返回上级菜单。按 “OP/↑” 或 “CL/↓” 按钮进行数值调整。调整好以后，按 “ENT” 按钮保存并进入下一位设置。

Press the "R / L" button to cancel the setting and return to the previous menu. Press the "OP/ ↑ " or "CL/ ↓ " button to adjust the value. After adjustment, press the "ENT" button to save and enter the next setting.

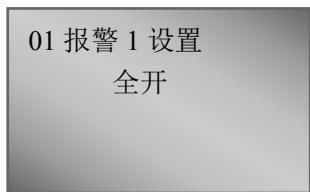
4.5.8 报警功能/Alarm function

接线端子有 5 个报警端口，每个端口的报警设置可以通过“报警 x 设置”进行设定。可以对每个端口的报警分别设置。

Terminals have 5 alarm ports, each port alarm settings can be set by the "alarm Set". You can set the alarm for each port separately.

在主界面按 “ENT” 键进入菜单，依次选择 “1.参数设置▶1.报警设置▶01 报警 1 设置”，按 “ENT” 键，进入 “01 报警 1 设置” 界面，屏幕显示如下：

Press “ENT” in the main interface to enter the menu, select “ 1.Parameter Set ▶ 2.Alarm Set ▶ 01Alarm 1 Set”, press “ENT” key to enter “ 01Alarm 1 Set” interface, the screen displays as follows:

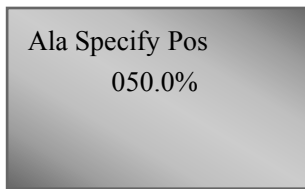
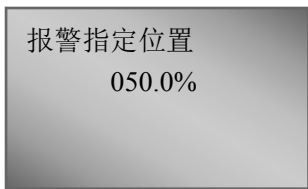


报警功能项值：全开、全关、综合报警、给定信号故障、指定位置、远方、就地、开过力矩、关过力矩、过力矩和禁止。

Alarm Function Item Value: Full Open, full Close, Complex Alarm, Given Sig Break, Specify Add, Remote, Local, Open OverTorq, Close OverTorq, Over Torq and Prohibit Alarm.

当报警设置选择为“指定位置”时，屏幕显示如下：

When signal failure type is " Specify Add ", this function works.



第二行“050.0%”表示当执行机构运行至此位置时在指定报警端口输出。

The second line "050.0%" indicates that the actuator will be output at the specified alarm port when it is in this position.

按“R/L”按钮可取消设置并返回上级菜单。按“OP/↑”或“CL/↓”按钮进行数值调整。调整后，按“ENT”按钮保存并返回。

Press the "R / L" button to cancel the setting and return to the previous menu. Press the "OP/ ↑ " or "CL/ ↓ " button to adjust the value. After adjustment, press the "ENT" button to save and enter the next setting.

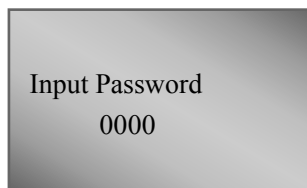
其他报警设置，请参考“01 报警 1 设置”。

For other alarm settings, please refer to "01 Alarm 1 Settings".

4.5.9 高级设置/ Advanced Settings

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶3.高级设置”，按“ENT”键，屏幕显示如下：

In the main interface, press the “ENT” button to enter the menu, select “ 1.Parameter Set ▶ 2.Advanced Set”, and press the “ENT” button. The screen displays as follows:



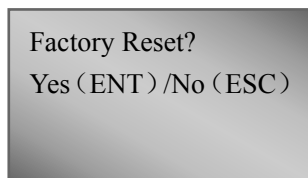
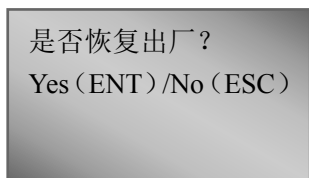
高级设置主要设置执行器配置相关的参数，此参数已在出厂时已设定完成。若要进入高级设置，需向 D+R 相关人员索取密码。

The advanced settings mainly set the parameters related to the actuator configuration, which have been set at the factory. To access the advanced settings, you need to ask your D+R personnel for your password.

4.5.10 恢复出厂设置/ Restore factory settings

在主界面按“ENT”键进入菜单，依次选择“1.参数设置▶4.恢复出厂”，按“ENT”键，进入“4.恢复出厂”界面，屏幕显示如下：

Press the “ENT” key on the main interface to enter the menu, select “ 1.Parameter Set ▶ 4.Restore Fact”, press “ENT” key to enter the “ 4.Restore Fact” interface. The screen displays as follows:



若要恢复出厂，请按“ENT”键；取消，请按“R/L”键。

To restore the factory, press the “ENT” button; to cancel, press the “R/L” button.

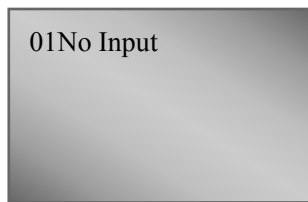
4.5.11 报警查询/ Alarm Query

报警查询主要记录当前的报警信息。

The alarm query mainly records the current alarm information.

在主界面按“ENT”键进入菜单，选择“2.报警查询”，按“ENT”键，进入“2.报警查询”界面，屏幕显示如下：

In the main interface, press “ENT” to enter the menu, select “2.Alarm Query”, press “ENT” to enter “2.Alarm Query” interface, the screen displays as follows:



“01 信号断线”为当前报警信息。当有报警时，故障灯会同时亮起且为红色。

“01NO Input” is the current alarm information. When there is an alarm, the fault light will illuminate at the same time and be red.

按“R/L”按钮可返回上级菜单。按“OP/↑”或“CL/↓”按钮可进行查看其他报警信息。

Press the “R/L” button to return to the previous menu. Press the “OP/↑” or “CL/↓” button to view other alarm messages.

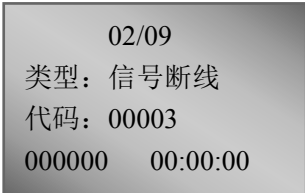
4.5.12 事件查询/Event query

事件查询中主要记录了近期所发生的报警事件，以便查询和处理各种异常情况。

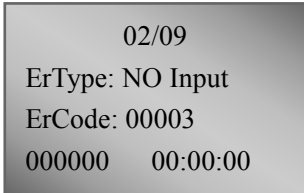
The event query mainly records the recent alarm events in order to query and deal with various anomalies.

在主界面按“ENT”键进入菜单，选择“3.历史事件▶01事件查询”，按“ENT”键，进入“01事件查询”界面，屏幕显示如下：

Press the “ENT” button on the main interface to enter the menu, select “3.Event Rec ▶ 01Event Query”, press “ENT” button to enter the “01Event Query” interface, the screen displays as follows:



02/09
类型：信号断线
代码：00003
000000 00:00:00



02/09
ErType: NO Input
ErCode: 00003
000000 00:00:00

按“R/L”按钮可返回上级菜单。按“OP/↑”或“CL/↓”按钮可进行查看其他报警记录。

Press the “R/L” button to return to the previous menu. Press the “OP/↑” or “CL/↓” button to view other alarm records.

4.5.13 事件清零/Event Clear

主要是可清除事件查询中的相关记录信息。

Mainly to clear the relevant record information in the event query.

在主界面按“ENT”键进入菜单，选择“3.历史事件▶02事件清零”，按“ENT”键，进行清除事件，并返回。

Press the “ENT” key on the main interface to enter the menu, select “3.Event Rec ▶ 02Event Clear”, press “ENT” key to clear the event and return.

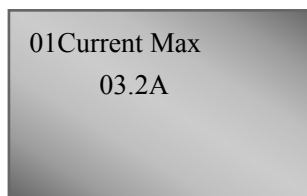
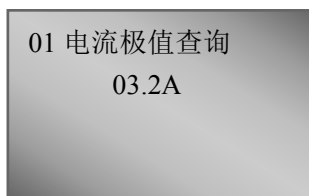
4.5.14 电流极值查询/ Current Extreme Value Query

主要是记录运行时所出现的最大电流。

The main thing is to record the maximum current that occurs during operation.

在主界面按“ENT”键进入菜单，选择“4.极值记录▶01 电流极值查询”，按“ENT”键，进入“01 电流极值查询”界面，屏幕显示如下：

In the main interface, press “ENT” to enter the menu, select “ 4.Extreme Rec ▶ 01Current Max”, press “ENT” key to enter “ 01Current Max” interface, the screen displays as follows:



按“R/L”按钮可返回上级菜单。

Press the “R/L” button to return to the previous menu.

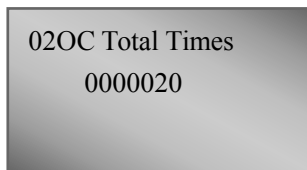
4.5.15 开关总次数/ Total number of switches

主要是记录执行器开关的总次数。

Mainly to record the total number of actuator switches.

在主界面按“ENT”键进入菜单，选择“4.极值记录▶02 开关总次数”，按“ENT”键，进入“02 开关总次数”界面，屏幕显示如下：

In the main interface, press “ENT” to enter the menu, select “ 4.Extreme Rec ▶ 02OC Toltal Times”, press “ENT” key to enter “ 02OC Toltal Times” interface, the screen displays as follows:



按“R/L”按钮可返回上级菜单。

Press the “R/L” button to return to the previous menu.

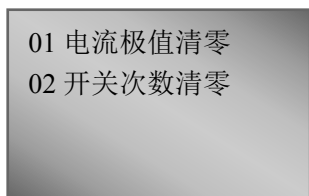
4.5.16 极值清零/Extreme Clear

主要是清空“01 电流极值查询”和“02 开关总次数”中的值。

Mainly clear the values in "01 Current Extreme Value Query" and "02 Total number of switches".

在主界面按“ENT”键进入菜单，选择“4.极值记录▶03 极值清零”，按“ENT”键，进入“03 极值清零”界面，屏幕显示如下：

In the main interface, press “ENT” to enter the menu, select “4.Extreme Rec ▶ 03Extreme Clear”, press “ENT” key to enter “03Extreme Clear” interface, the screen displays as follows:



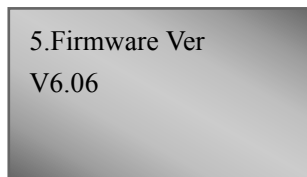
按“R/L”按钮可取消并返回，按“OP/↑”或“CL/↓”按钮进行上下切换选择“01 电流极值清零”或“02 开关次数清零”，按“ENT”键清零相应的项并返回。

Press the “R/L” button to cancel and return. Press the “OP/ ↑ ” or “CL/ ↓ ” button to switch up and down to select “01Cur Extr Reset” or “02 Switch Times Reset”, press “ENT” The key clears the corresponding item and returns.

4.5.17 版本信息/ Version Information

在主界面按“ENT”键进入菜单，选择“05 版本信号”，按“ENT”键，进入“05 版本信号”界面，屏幕显示如下：

Press the “ENT” button on the main interface to enter the menu, select “05 version signal”, press “ENT” button to enter the “05 version signal” interface, the screen displays as follows:



按“R/L”按钮可返回。

Press the “R/L” button to return.

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.

请按照序号对应内容，分别接入电缆）。

强烈建议采用屏蔽电缆，电源和信号线分孔进入，以免造成干扰。

Please connect the cable according to the serial number.

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

5.1 端子接线定义/Definition of wiring terminal

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

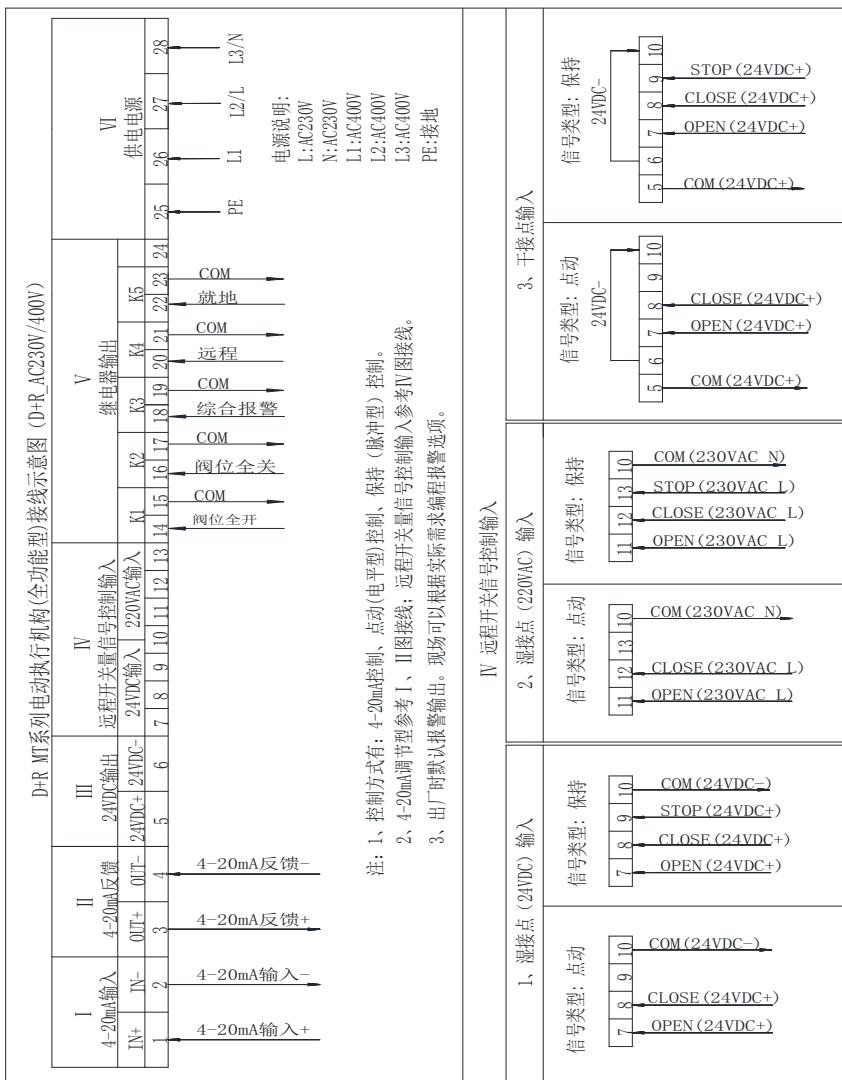
1	4-20mA 输入+	1	4-20mA input +
2	4-20mA 输入-	2	4-20mA input -
3	4-20mA 输出+	3	4-20mA output +
4	4-20mA 输出-	4	4-20mA output -
5	24VDC 输出+	5	24VDC output +
6	24VDC 输出-	6	24VDC output -
7	开关量-开 (24VDC+)	7	Digital-OPEN (24VDC+)
8	开关量-关 (24VDC+)	8	Digital-CLOSE(24VDC+)
9	开关量-停 (24VDC+)	9	Digital-STOP (24VDC+)
10	开关量-公共端 (24VDC-/230VAC-N)	10	Digital-COM(24VDC-/230VAC-N)
11	开关量-开 (230VAC-L)	11	Digital-OPEN (230VAC-L)
12	开关量-关 (230VAC-L)	12	Digital-CLOSE(230VAC-L)
13	开关量-停 (230VAC-L)	13	Digital-STOP (230VAC-L)
14	继电器输出 K1-NO	14	Relay feedback output K1-NO
15	继电器输出 K1-COM	15	Relay feedback output K1-COM
16	继电器输出 K2-NO	16	Relay feedback output K2-NO
17	继电器输出 K2-COM	17	Relay feedback output K2-COM
18	继电器输出 K3-NO	18	Relay feedback output K3-NO
19	继电器输出 K3-COM	19	Relay feedback output K3-COM
20	继电器输出 K4-NO	20	Relay feedback output K4-NO
21	继电器输出 K4-COM	21	Relay feedback output K4-COM
22	继电器输出 K5-NO	22	Relay feedback output K5-NO
23	继电器输出 K5-COM	23	Relay feedback output K5-COM
24	继电器输出 K5-NC	24	Relay feedback output K5-NC
25	PE	25	PE
26	L1	26	L1
27	L2/L	27	L2/L
28	L3N	28	L3N



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.

5.2 接线图/Complete wiring diagram



5-2-1 接线示意图 (230/400VAC)

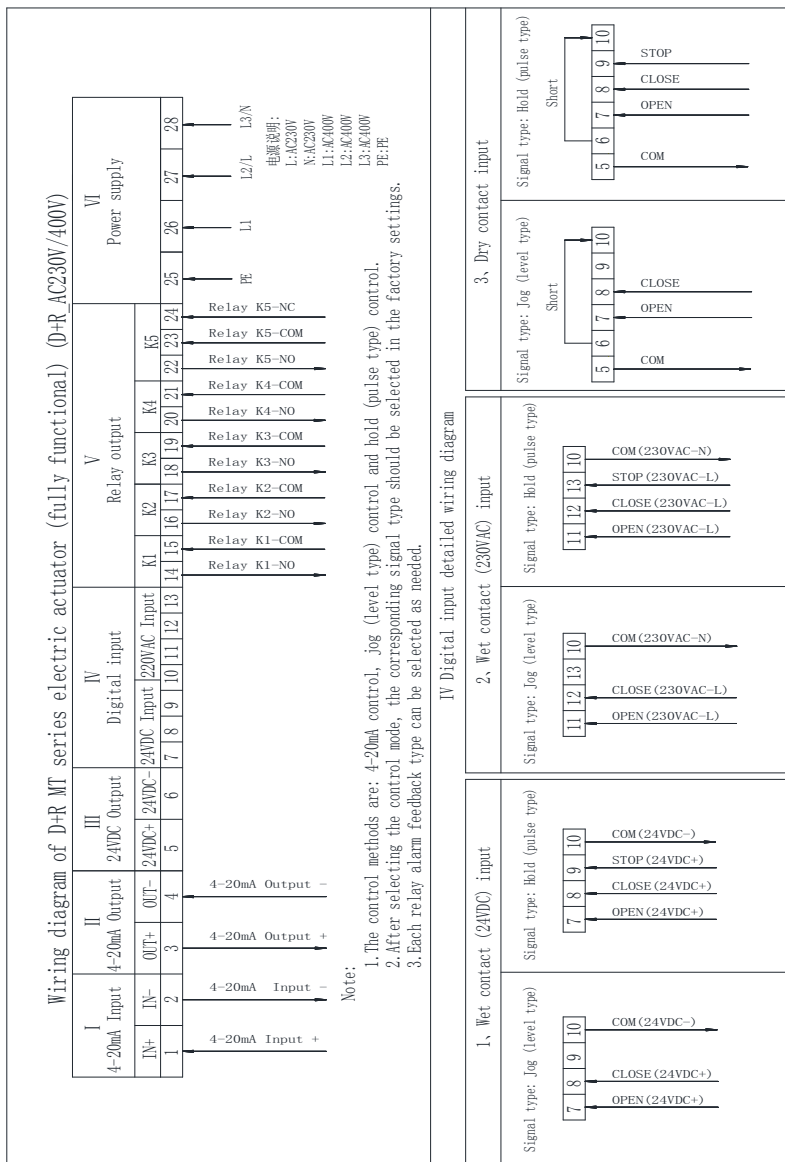


Figure 5-2-1 Wiring diagram (230/400VAC)

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+R MT 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+R MT 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+R MT 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。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+R MT series electric actuator does not require for additional lubrication within the whole use life. 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 LCD 不显示） It can not be started (indicating light or LCD 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	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	维修或更换 Repair or replace



operation, the actuator has no operation or suffers from operation difficulty.	co-axial.	
	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 IS09001 质量体系 and IS05211 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 IS09001 quality system and IS05211 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 (S、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 (S、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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