



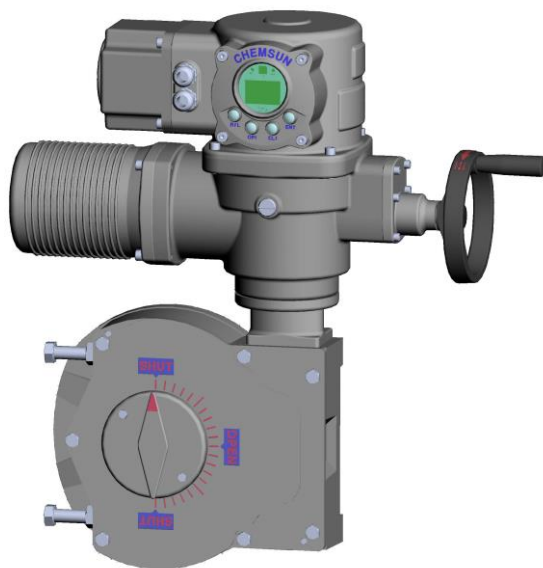
Intelligentize Engineer Solutions



CS.G03 系列智能型电动执行机构

CS.G03-series Intelligent Electric

操作手册 Operation manual



在调试和使用该设备前敬请仔细阅读本手册！

Read the manual carefully before commissioning & using this device, please.

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本手册适用于 CHEMSUN G03 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 CHEMSUN G03-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，CHEMSUN 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. CHEMSUN will not bear any responsibilities for such damage.



警告：在安装、调试、使用和维护 CHEMSUN G03 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 CHEMSUN G03-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.

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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CHEMSUN G03 系列电动执行机构可用显示面板上的按钮或遥控器进行调试、操控、参数设置、修改等。

CHEMSUN G03-series electric actuator can use the Hall button in display panel for commissioning or the remote control, 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



CHEMSUN 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。

CHEMSUN 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《操作手册》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 in the non-invasion design mode, operated by infrared remote controller or Hall 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.



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 G03 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 G03-series actuator.

只有经过培训、有经验的现场仪表工程师才可以对 CHEMSUN 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 CHEMSUN 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 G03 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 CHEMSUN G03 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 G03-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 CHEMSUN G03-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°C 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.



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，CHEMSUN 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; CHEMSUN 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，CHEMSUN 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 CHEMSUN actuator is able to protect the internal electric components except for accidental conditions.

调试 G03 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 G03-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，CHEMSUN 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, CHEMSUN 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.



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.

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.

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)



图 0-1 手柄的折叠和手轮的推拉标志

Drawing0-2 Handle folding and the push-pull mark of the handwheel



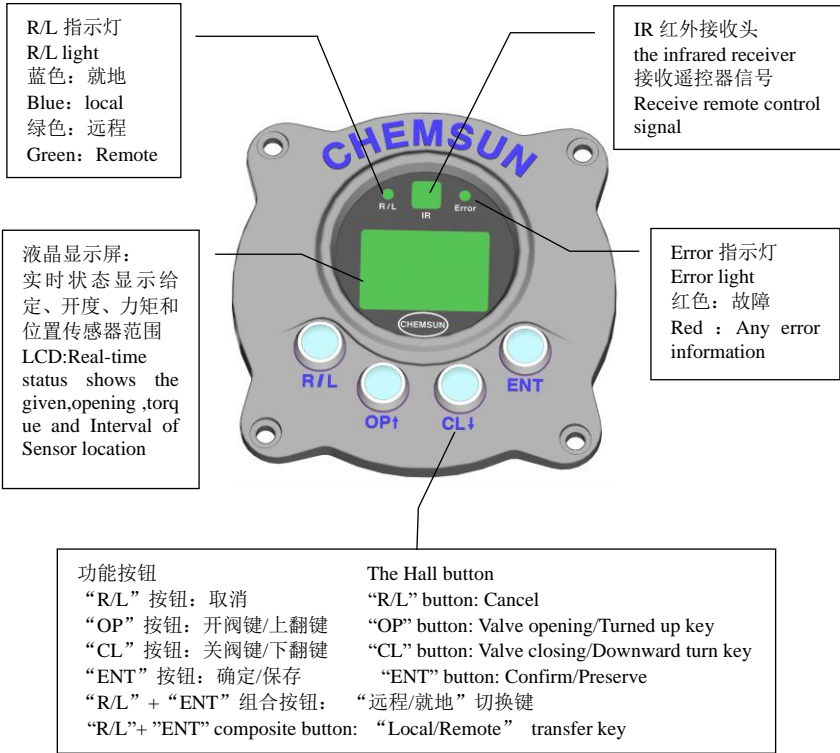
警告：关于电动执行机构的操作，任何情况下不允许使用其它附加工具旋转手轮，这样可能会导致手轮、阀门或电动执行机构损坏。

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

操作面板控制/ The operation panel control

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

The operation panel includes the R/L light, the Error light, the infrared receiver, LCD and the 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"

R/L 指示灯/R/L light

R/L 指示灯 R/L light	
蓝色 Blue	绿色 Green
就地 Local	远程 Remote



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

实时状态显示/Display of Real-time Status

液晶显示屏为 4 行 16 字符的点阵液晶显示屏，可显示中文，中文显示则是 4 行 8 字，所显示信息为字符和形符。

LCD is four lines with 16 characters of the lattice LCD screen, which can show Chinese, and Chinese display is four lines and 8 words, the display information is character and form character.

给定:	50.0	% S
开度:	50.0	%
力矩:	0	Nm
位置:	2000	

InPu:	50.0	% S
Posi:	50.0	%
Torq:	0	Nm
AD:	2000	

G03 系列执行机构支持实时状态显示:

G03-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: 阀位状态显示;

The second line: Display valve position and status.

第三行: 实时力矩值显示。

The third line: Display real time torque value;

第四行: 实时显示 AD 位置值。

The fourth line: Real-time display of AD position values;



按钮功能/Hall Button

“R/L”按钮：在设置过程中为“取消”键

“R/L” button: “Cancel” key in the 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

“R/L”+“ENT”组合按钮：“远程/就地”切换键

“R/L”+“ENT” composite button: “Local/remote” transfer key.

就地/远程操作/Local,Remote Operation

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“R/L”+“ENT”键，或在基本设置-远程手动设置中进行切换。

The user presses Hall button for “local/remote” transfer of the actuator. The composite key of panel operation refers to “R/L”+“ENT” key, or making “local/remote” transfer in the basic setup--remote manual set.



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.

遥控器控制/ The remote control

按“R/L”+“ENT”键，将执行器切换到“就地”状态（蓝色灯亮）。
with “R/L”+“ENT”，the actuator is switched to the "Local" state (Blue lamp)

将遥控器红外发射端朝向执行器面板（选配）。

Make remote infrared emission end toward the actuator panel.

遥控器按键说明:

The remote control button description:

- “R/L”：远程就地切换;
- “R/L”：Switch between Remote or Local;
- “Op/↑”：开阀，增加;
- “Op/↑”：Open valve, increase;
- “CL/↓”：关阀，减小;
- “CL/↓”：Close valve, reduce;
- “Setting”：进入设置;
- “Setting”：Enter setup;
- “Enter”：确认，保存;
- “Enter”：Confirm, save;
- “Cancel”：取消，停止;
- “Cancel”：Cancel, stop;



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.



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.

四线制控制信号为脉冲型信号，信号长度不小于 100 毫秒。三线制控制信号为电平型信号，高电平为有效信号。

Four-wire control signal is a pulse-type signal, the signal length of not less than 100 milliseconds. The three-wire control signal is a level signal and the 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 CHEMSUN 相关人员。

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



调试/Commissioning

概述/Overview

CHEMSUN G03 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)。

CHEMSUN G03-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.

进入执行机构的主菜单/Access Parameter Setup of Actuator

通电开机后，屏幕显示如下：

After power on, the screen displays as follows:

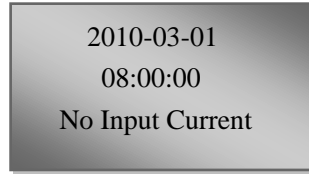
给定:	50.0	% S
开度:	50.0	%
力矩:	0	Nm
位置:	2000	

InPu:	50.0	% S
Posi:	50.0	%
Torq:	0	Nm
AD:	2000	

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:



此时故障指示灯常量(红色)。此故障信息不影响按钮操作。按“R/L”按钮可以忽略故障显示，进入主界面。若为“远程”状态，必须切换到“就地”状态。按“Ent”按钮进入主菜单。

At this point the fault indicator is constant (red). This fault message does not affect the button operation. Press the "R / L" button to cancel the fault display, enter the main interface. If the "remote" state, you must switch to the "local" state. Press the "Ent" button to enter the main menu.

菜单/The menu

主菜单包括参数设置、事件查询和信息浏览。参数设置主要是对执行机构各个参数的设置，事件查询可查看执行器异常时所报警的事件，信息查询主要是查看执行器所设定的参数及软件版本等内容。

The main menu includes parameter settings, event queries and information browsing. The parameter setting is mainly for the setting of the parameters of the actuator. The event query can check the event of the alarm when the actuator is abnormal. The information query mainly looks at the parameters, software version and company information set by the actuator.

参数设置分为基本设置、高级设置、出厂设置和恢复出厂。

The parameter settings are divided into basic settings, advanced settings, factory settings and restore factory values.

基本设置包括语言设置、位置设置、输入校准、输出校准、死区调整、信号故障类型、远程手动设置和时钟设置。

The basic settings include language setting, position setting, input calibration, output calibration, dead zone adjustment, signal fault type, remote

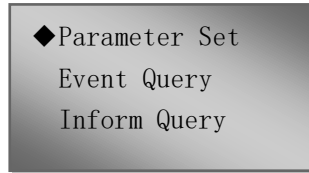
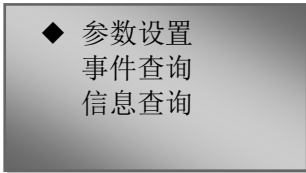


manual setting and clock setting.

高级设置包括正反作用、速度调节、ESD 类型、报警设置和设备地址。

Advanced settings include positive and negative effects, speed adjustment, ESD type, alarm settings and device address.

进入主菜单后，屏幕显示如下：



After entering the main menu, the screen displays as follows:

“◆”表示当前选择的菜单项。按“OP↑”或“CL↓”按钮进行上下菜单项的切换，按“Ent”进入子菜单。

"◆" indicates the currently selected item. Press "OP ↑" or "CL ↓" button to switch up and down the item. Press "Ent" to enter the submenu.



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。

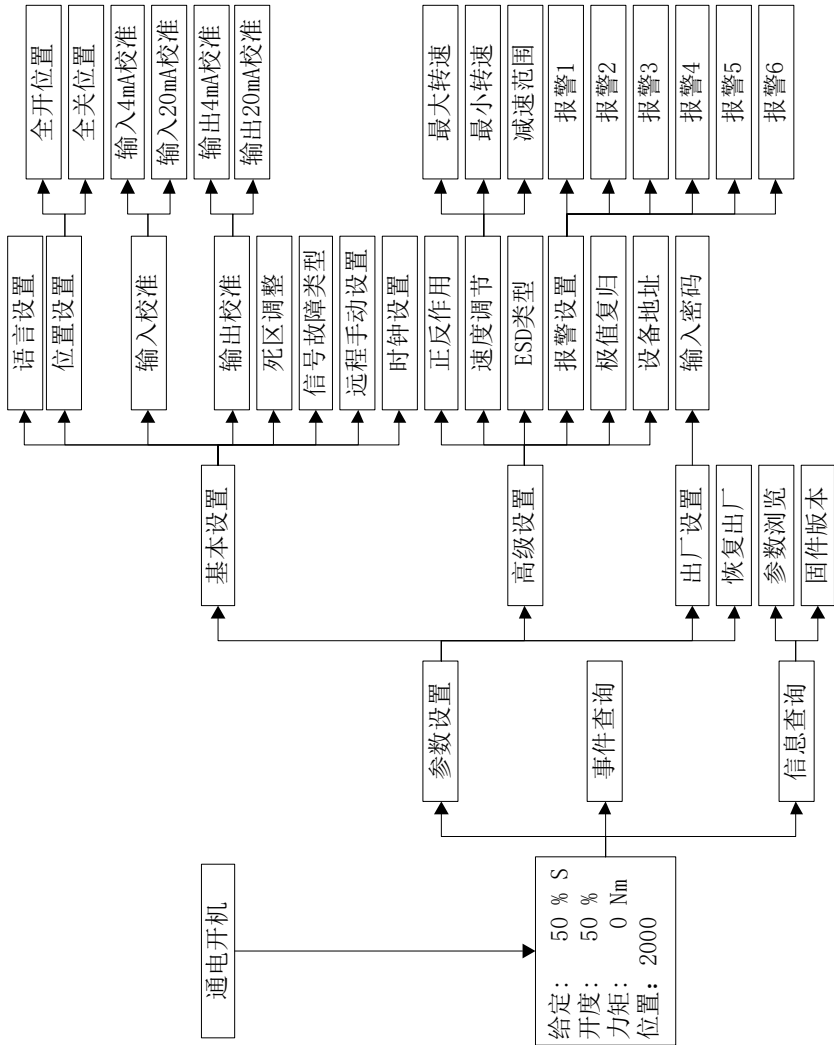
Warning: The default setup must be seriously used according to the actual demands; after leaving the factory, the on-site data setup of actuator is of vital importance to the valve or users.

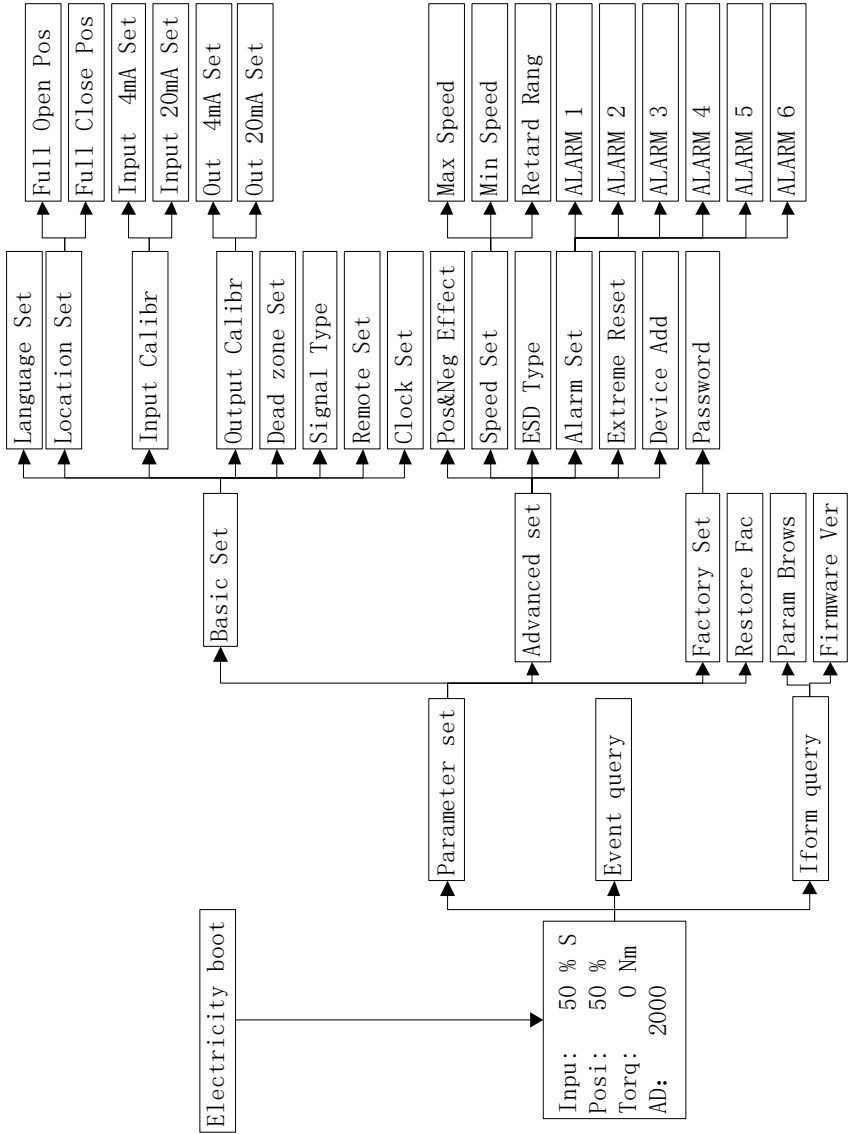


警告：必须先进行基本设置。出厂设置在执行机构出厂后，一般不需要改动。

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

菜单结构图/The menu structure







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：中文和英文，默认为英文。

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

此时“◆”表示当前选择的项值，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，按“Ent”按钮保存。

"◆" indicates the currently selected item value. Press the "R/L" button to cancel the setting and return to the previous menu. Press the "OP ↑ " or "CL ↓ " button to switch up and down. Press the "Ent" button to save.

位置设置/Location setting

位置设置主要是设置执行器全开位置和全关位置。

The position setting is mainly to set the actuator fully open position and the fully closed position.

在主界面，可以点动按钮（“OP↑”或“CL↓”按钮）。当阀位至接近全开位置或全关位置时，松开按键。执行机构停稳后，摇动手轮调整到准确位置（超出上次位置设置范围，只能通过手轮调整）。

In the main interface, push the button (the "OP↑" or "CL↓" button) . When the valve position is close to the fully open position or fully closed position, release the button. After the actuator is stopped, shake the handwheel to the exact position (Beyond the last position setting range, it can only be adjusted by the handwheel).



警告：在调试过程中，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，CHEMSUN 不予保修。

Warning: In the commissioning, when open or closed position of valve is near, rotate the valve by handwheel to the open or closed position (it is forbidden to operate by inching button); otherwise, the valve or actuator may be damaged by passing the position. CHEMSUN does not bear maintenance and servicing responsibilities for the damages against actuator by such reasons.

全开位置设置/Full open position setting

“全开位置”在实际调试过程中，应该对应的是阀门的允许最大开度位置。当调整到全开位置时，进入全开位置设置菜单。屏幕显示：

In the commissioning process, “Full Open Pos” corresponds to the maximum permissible opening position of valve. When adjusted to full open position, enter full open position setting menu. The screen is displayed as follows:



第二行显示 1000 表示上次全开位置设定值。此数值在 50~4000 之间。按“Ent”按钮进入设置状态。

The second line shows 1000 that the last full position set value. This value is between 50 to 4000. Press the "Ent" button to enter into the setup state.



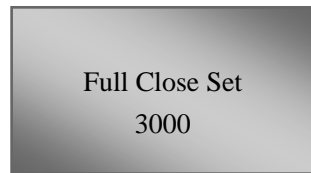
进入设置状态后，屏幕第二行会闪烁并自动显示当前值。按“Ent”按钮进行保存。

When you enter the setup state, the second line of the screen flashes and the current value is automatically displayed. Press the "Ent" button to save.

全关位置设置/Full close position setting

“全关设置”在实际调试过程中，应该对应的是阀门的全关位置。当调整到全关位置时，进入全关位置设置菜单。屏幕显示：

In the commissioning, “Full Close Pos” corresponds with the closed position of valve. When adjusted to the fully closed position, enter the fully open position setting menu. The screen is displayed as follows:



第二行显示 3000 表示上次全关位置设定值。此数值在 50~4000 之间。按“Ent”按钮进入设置状态。

The second line shows 3000 that the last full position set value. This value is between 50 to 4000. Press the "Ent" button to enter into the setup state.



进入设置状态后，屏幕第二行会自动闪烁并显示当前值，按“Ent”按钮进行保存。

When you enter the setup state, the second line of the screen flashes and the current value is automatically displayed. Press the "Ent" button to save.

输入信号校准/Input signal calibration

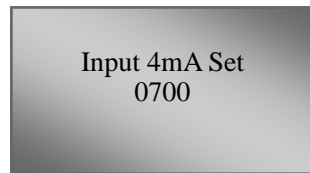
根据现场实际情况，将输入信号线正确接入执行器。再进行校准输入信号。

According to the actual situation of the scene, the input signal line is correctly connected to the actuator. And then calibrate the input signal.

输入 4mA 校准/ Input 4mA calibration

进入“输入 4mA 校准”，屏幕显示：

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



第二行显示上次校准值，按“Ent”按钮进入设置状态

The 2nd line displays the existing calibration value; press “Ent” button to enter into the setup status.



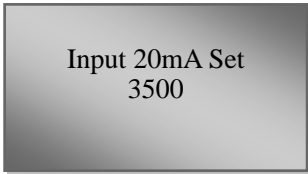
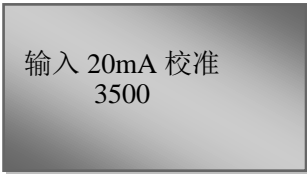
进入设置状态后，屏幕第二行会闪烁并自动显示当前校准值。将输入电流信号调整到4mA，等到显示值稳定。按“Ent”按钮进行保存。

After entering the setup state, the second line of the screen flashes and the current calibration value is automatically displayed. Adjust the input current signal to 4mA until the display value is stable. Press the "Ent" button to save.

输入 20mA 校准/Input 20mA calibration

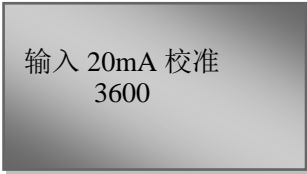
进入“输入 20mA 校准”，屏幕显示：

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



第二行显示当前的校准值，按“Ent”按钮进入设置状态。

The 2nd line displays the existing calibration value; press “Ent” button to enter into the setup status.





进入设置状态后，屏幕第二行会闪烁并自动显示当前校准值。将输入电流信号调整到 20mA，等到显示值稳定。按“Ent”按钮进行保存。

After entering the setup state, the second line of the screen flashes and the current calibration value is automatically displayed. Adjust the input current signal to 20mA until the display value is stable. Press the "Ent" button to save.

输出信号校准/Output signal calibration

根据现场实际情况，将输出信号线正确接入电流表或接入控制室。再进行校准输出信号校准。

According to the actual situation of the scene, the output signal line access to the ammeter or the control room. And then calibrate the output signal.

输出 4mA 校准/Output 4mA calibration

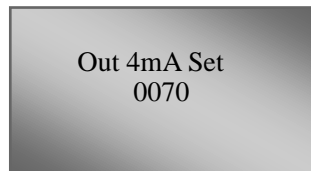
进入“输出 4mA 校准”，屏幕显示：

The screen is displayed as follows upon access into “Out 4mA Set” setup menu:



第二行显示上次校准值，按“Ent”按钮进入设置状态。

The 2nd line displays the existing calibration value; press “Ent” button to enter into the setup status.





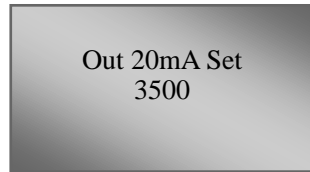
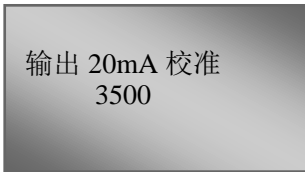
如果反馈信号为 4mA，则无需调整，按“R/L”按钮退出。如果电流表或控制室读数不是 4mA，则需进行微调，直至电流表或控制室的读数为 4mA。微调时，数值设置是从左到右，依次按位设置。按“OP↑”或“CL↓”进行数值调整。调整后，按“Ent”按钮保存并进入下一位设置。

The wiring terminal of feedback signal is connected with a current meter or into the control room to search for the current of output signal: Adjustment is not needed if it is 4mA and press “R/L” button or “Cancel” key for exist; if reading of current meter and control room is not 4mA, need to be fine-tuned. When trimming, the value setting is from left to right, followed by bitwise setting. Press "OP ↑ " or "CL ↓ " to adjust the value. After adjustment, press the "Ent" button to save and enter the next setting.

输出 20mA 校准/Output 20mA calibration

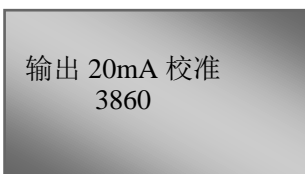
进入“输出 20mA 校准”，屏幕显示：

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



第二行显示上次校准值，按“Ent”按钮进入设置状态。

2nd line displays the existing calibration value; press “Ent” button to enter into the setup status.





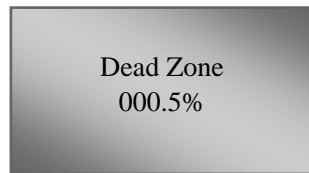
如果反馈信号为 20mA，则无需调整，按“R/L”按钮退出。如果电流表或控制室读数不是 20mA，则需进行微调，直至电流表或控制室的读数为 4mA。微调时，数值设置是从左到右，依次按位设置。按“OP↑”或“CL↓”进行数值调整。调整后，按“Ent”按钮保存并进入下一位设置。

The wiring terminal of feedback signal is connected with a current meter or into the control room to search for the current of output signal: Adjustment is not needed if it is 20mA and press “R/L” button or “Cancel” key for exist; if reading of current meter and control room is not 20mA, need to be fine-tuned. When trimming, the value setting is from left to right, followed by bitwise setting. Press "OP ↑" or "CL ↓" to adjust the value. After adjustment, press the "Ent" button to save and enter the next setting.

死区调整/Dead zone adjustment

死区调整又称灵敏度调整，设置范围为 0.1~9.0，推荐值为 0.3~0.8。进入该项设置，屏幕显示：

Dead zone adjustment is also called Flexibility adjustment; the setup scope is between 0.1~9.0 and recommended scope is between 0.1~0.8. The screen is displayed as follows upon access into the setup item:



此数值在出厂试验时已调整到最优，一般无需调整。通过“Ent”按钮可进入设置状态。调整后，按“Ent”按钮保存。

In the ex-factory test, the value is adjusted to the optimal value; generally, adjustment is not needed; press “Ent” button to enter into the setup status. After adjustment, press “Ent” button to save.



信号故障类型/Signal Fault Types

“信号故障类型”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 “Sign err type”: 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；

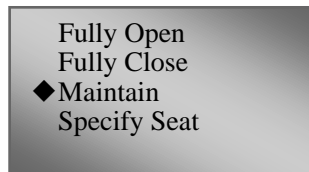
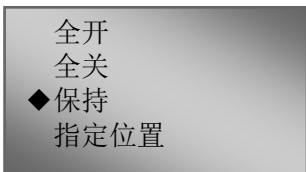
Maintain: In case of signal fault, the actuator maintains in the current position.

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:



当信号故障类型选择为“指定位置”时，屏幕显示：

When the signal fault type is selected as "Specify Seat",The screen is displayed as follows upon access into the setup menu:



第二行显示上次设置的开度。按“Ent”按钮进入设置状态并进行调整位置。当出现信号故障时，执行机构自动运行至此位置。

The second line shows the last setting. Press the "Ent" button to enter the setting state and adjust the position. When a signal fault occurs, the actuator automatically runs to this position.



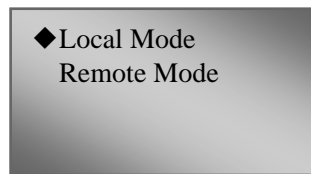
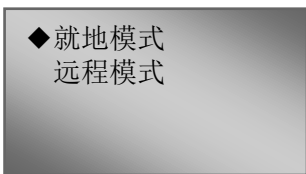
警告：该项设置的出厂默认值为“保持”，根据实际工艺所需要的阀位由用户自行设定或告知调试服务人员进行现场设置。

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.

远程手动设置/Remote manual setting

进入该项设置菜单时，屏幕显示：

The screen is displayed as follows upon access into the “Remote Set” menu:





远程手动设置项值：就地模式和远程模式。

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

时钟设置/Clock setting

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:



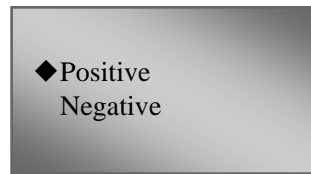
按“Ent”按钮进入设置状态，从左到右，依次按位设置。

Press the "Ent" button to enter the setting state, from left to right, and then press the bitwise setting.

正反作用/Positive and Negative Effect

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:



正反作用项值：正作用和反作用，本项设置的默认值为“正作用”。在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，这时候需要对此项设置进行修改。

The item value of “Pos&Neg Effect”: Positive and negative. In the



installation of actuator, the effect direction of valve may differ from that of actuator; therefore, the setup needs to be revised.



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，CHEMSUN 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, CHEMSUN does not bear maintenance and servicing responsibilities.

速度调节/Speed setting

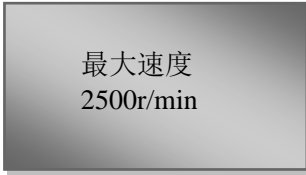
本产品采用的是国际先进的直流无刷电动机，电动机的工作速度是可以调整的。因此通过调整最大速度可改变执行器开阀和关阀的操作时间，通过调整最小速度使执行器停靠更精准，通过调整减速范围使执行机构具有“柔性开启”和“柔性关闭”的功能。

CHEMSUN G03-series actuator collocates the international advanced DC brushless motor; the working speed of motor is adjustable—Therefore, By adjusting the maximum speed, the valve opening or closing time can be adjusted. By adjusting the minimum speed, make the actuator dock more accurate. By adjusting the deceleration range so that the actuator has a "flexible open" and "flexible off" function.

最大速度/Max_Speed (Maximum Valve Opening 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:



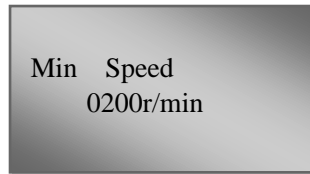
最大速度的设置范围：500-3000r/min。

Maximum speed setting range: 500-3000r/min.

最小速度/Min_Speed(Minimum Speed within Deceleration Range)

最小速度是进入减速范围后可降到的最小速度，此数值在出厂试验时已调整到最优，一般无需调整。进入该设置屏幕显示：

The minimum speed is the minimum speed that can be lowered after entering the deceleration range. This value has been adjusted to the optimum at the factory test, and it is generally not necessary to adjust. The screen is displayed as follows upon access into the setting menu:



最小速度的设置范围：200-800r/min。

Minimum speed setting range: 200-800r / min.

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1%~40%。进入该设置屏幕显示：

The deceleration range is the range in which the actuator starts to



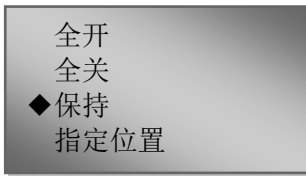
decelerate to the stop. The setting value is adjusted according to the actual situation. adjustable range is 1% to 40%. The screen is displayed as follows upon access into the setting menu:



ESD 功能/ESD Function

进入 ESD 设置，屏幕显示：

The screen is displayed as follows upon access into ESD setup:



ESD 类型包括：全开、全关、保持和指定位置。

The item values of ESD types: Fully Open, Fully Close, Maintain and Specify Seat.

当 ESD 类型选择为“指定位置”时，屏幕显示：

When the ESD type is selected as "Specify Seat", The screen is displayed as follows:





第二行显示上次设置的开度。按“Ent”按钮进入设置状态，进行调整。当按下 ESD 键，执行器将自动运行至此位置。

The second line shows the last setting. Press the "Ent" button to enter the setting state, to adjust. When the ESD key is pressed, the actuator will automatically run to this position.

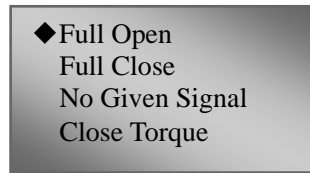
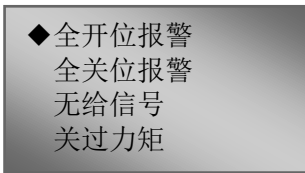
报警功能/Alarm Function

接线端子有 6 个报警端口，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。

Terminals have 6 alarm ports, each port alarm settings can be set by the "alarm Set". You can set the alarm for each port separately.

进入报警设置，屏幕显示：

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



报警功能项值：全开位报警、全关位报警、无给信号、关过力矩、开过力矩、指定位置、综合报警、远方、就地和禁止报警。

The item values of alarm function: Full Open, Full Close, No Given Signal, Close Torque, Open Torque ,Specify Add ,Complex Alarm, Remote, Local and Prohibit Alarm

当报警设置选择“指定位置”时，屏幕显示：

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



第二行显示上次设置的开度。按“Ent”按钮进入设置状态，进行调整。当执行器运行到此位置时，相应的端口有报警输出。

The second line shows the last setting. Press the "Ent" button to enter the setting state and adjust the position. When the actuator is running to this position, the corresponding port has alarm output.

极值复归/Extreme return

极值复归主要是初始化极值查询中记录的各项峰值信息。

Extreme value reset is mainly to initialize the extreme value of the query in the peak information.

设备地址/Device Address

进入设备地址设置，屏幕显示：

The screen is displayed as follows upon access into “Device Add” setup:



按“Ent”按钮进入设置状态进行设置。

Press the "Ent" button to enter the setting state to set.

出厂设置/Factory setting

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 CHEMSUN 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 CHEMSUN related personnel to obtain a password.

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.

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.

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
霍尔故障 Hall Failure	电机霍尔接线问题 Motor hall wiring problem	检查电机霍尔接线 Check the motor Hall wiring
电位计异常 Potentiometer abnormal	全开和全关位置值设置反向 Full and fully closed position values are set in reverse	重新设置全开全关位置 Reset the fully open position
位置开越限 Posit On Limit 位置关越限 Posit Off Limit	超出所设定的行程范围 Beyond the set travel range	通过调节最小速度或加大减速范围 可解决 This can be solved by adjusting the minimum speed or increasing the deceleration range



一级关过力矩保护 One Close Prote 一级开过力矩保护 One open Prote	执行机构所驱动的力, 已经大于所要求的力。 The force driven by the implementing agency is already greater than the force required.	出现一级过力矩时并不会影响执行器的正常运行。 The presence of a momentary torque does not affect the normal operation of the actuator.
二级关过力矩保护 Two Close Prote 二级开过力矩保护 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

信息查询/Information query

信息查询包括参数浏览、极值查询和固件版本。

Information query includes parameter browsing, extreme value query and firmware version.

参数浏览主要是快速查看所设置的各种参数信息, 如全开位置、全关位置等。

Parameter browsing is to quickly view the set of various parameters of information, such as full open position, the whole position and so on.

极值查询主要是查看一级过力矩极值、电压极值和电流极值的信息。

Extreme value query is to view the first-level over-torque extremum, voltage extremum and current extremes of information.

固件版本主要是当前软件的版本信息。

The firmware version is primarily the current version of the software.



执行机构与阀门连接/Connection between Actuator and

Valve

执行机构与阀门连接、调试是非常重要的和专业的工作，必须由专业、经验丰富的人员进行，否则，会造成阀门、执行机构无故的损坏。

The connection between actuator and valve and the commissioning are highly important and professional work and must be executed by professional and experienced personnel; otherwise, the valve and actuator will be damaged.

CHEMSUN 执行机构与阀门的连接法兰遵照 ISO 5210/1 标准。在对接之前，请仔细阅读我方提供的图纸，并以照图纸要求加工连接部件，未经我方同意，不得随意更改执行机构的结构。

The connection flange between CHEMSUN actuator and valve is in accordance with ISO 5210/1 standard. Please carefully read our provided drawings before connection and process connecting components according to the drawing requirements; it is forbidden to change the structure of actuator except for our prior approval.

执行机构与阀门连接支架的材料规格应符合 ISO 8.8 级，抗屈服强度 628N/sq mm。

The materials specification of connecting support between the actuator and valve are in accordance with Level ISO 8.8; the yield strength is 628N/sq mm.

5.1 角行程连接/Part-turn Connection

角行程是将多回转执行机构+齿轮箱的终端输出限定在一定角度范围之内。

Part-turn aims to limit terminal output of multi-turn actuator + gearbox within a certain angle scope.

1.根据扭矩不同和旋转角度不同(90~270°)，G03 系列执行机构输出范为：100~36000Nm。

According to different torque and rotational angle (90~270°), the output scope of G03-series actuator is as follows: 100~36000Nm.

具体配置方式如下:

The collocation methods are as follows:

扭矩(Nm) Torque (Nm)	齿轮箱形式 Gearbox mode	结构 Structure
100 -1200	A 型 Type A	行星齿轮 Planetary gear
1600 -36000	B 型 Type B	蜗轮蜗杆 Worm and gear
36000-13000	C 型 Type C	蜗轮蜗杆 Worm and gear

2.角行程动力输出端口尺寸遵照 ISO5210/1 标准(请向我们索取连接尺寸图):

The overall dimension of part-turn PTO (power take-off) port is according to ISO5210/1 standard (Please ask connection dimension drawing from us).

1) 100 -1200Nm 标准连接端口分为三种形式(图 5-3);

100 - 1200Nm standard connecting port includes three forms (Drawing 5-3).

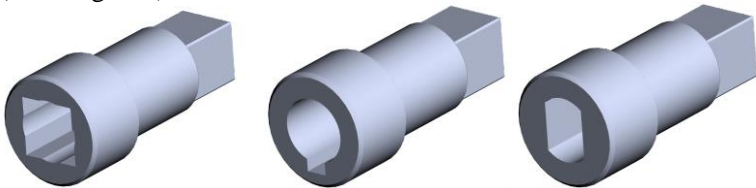


图 5-3 双头连接件

Drawing 5-3 Double-head connecting pieces

2) 1600 - 36000Nm 执行机构厂家只提供待加工连接件, 请遵照标准规定的端口方向正确连接, 确保执行机构的安装方向整齐美观(执行机构垂直或平行于管道)。

1600≥36000Nm actuator manufacturer only provides the connecting pieces for processing; please connect correctly according to the port direction

clearly specified in the standard and assure the tidiness and beauty of installation direction of actuator (the actuator is parallel to or vertical to the pipe).



与阀杆连接件取出。依照阀杆尺寸加工内孔形状。

Remove the connection with the stem. Machining the connecting hole, according to the stem size.

减速机 90° 限位螺丝 (开/关位置) 与阀门连接前, 必须全部旋出该螺丝。当与阀门连接完成, 并确定 90° 位置后, 再旋上该限位螺丝, 并紧螺母。

The 90 ° limit screw (on / off position) of the gear unit must be fully unscrewed before connecting to the valve. When connected with the valve to complete and the 90 ° position is determined, the screw is screwed and the nut is tightened

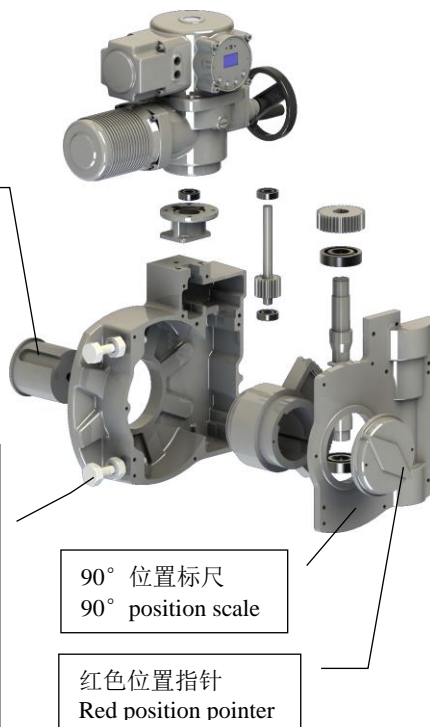


图 5-4 大于 1600Nm 连接图

Drawing 5-4 Greater than 1600Nm connection diagram

3) 当阀门与执行机构确保连接无误后, 通过点动或旋转手轮将执行机构旋转至阀门全关位置(0°)或全开位置(90°), 分别固定好齿轮箱上的行程限位螺栓及螺母 (图 5-4)。

Upon correct connection between the valve and actuator, the user adopts



the inching mode or rotates the handwheel to rotates actuator to the valve closing position (0°) or opening position (90°); fixes up the stroke limitation bolt and nut in the gearbox (Drawing5-4) .

4) 安装方式 (图 5-5) 。

4) Installation Methods(Drawing 5-5) .

对不按规定操作或无机械基础者操作, 造成的损坏 CHEMSUN 不予保修。

In case of any damage due to operation in violation of the stipulations or by unskillful operator, CHEMSUN doesn't bear maintenance and servicing responsibilities.



图 5-5 安装方式

Drawing5-5 Installation methods

5) 电动阀门与管道安装方式/The installation mode of Electric valves and piping

根据原设计方案、减速箱的键槽方向相关参数调整最佳方案。

According to the original design scheme, key direction of the reducer related parameters to adjust the best solutions.

5.2 直行程行程连接/Line-turn Connection

根据阀门实际参数联系 CHEMSUN 公司技术人员。

Contact the CHEMSUN technician according to the actual parameters of the valve.



6) 电动阀门与管道安装方式/The installation mode of Electric valves and piping

根据原设计方案、减速箱的键槽方向相关参数调整最佳方案。

According to the original design scheme, key direction of the reducer related parameters to adjust the best solutions.

5.2 直行程行程连接/Line-turn Connection

根据阀门实际参数联系 CHEMSUN 公司技术人员。

Contact the CHEMSUN technician according to the actual parameters of the valve.

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.

高度集成 CPU 控制模块/High-Integrated CPU Control Module

CHEMSUN G03 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。

CHEMSUN G03-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

接线端子排/Wiring Terminal Block

1. CHEMSUN G03 系列执行器接线端子仓有四个 M20×1.5 进线入口，可根据进线位置自由选择，未使用端口需保留原堵塞不得松动。

CHEMSUN G series actuator terminals have four M20 * 1.5 inlet lines, which can be freely selected according to the line of entry, and the original blockage must be retained without using the port.

2. 请按照序号对应内容，分别接入电缆（表 6 - 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。

Please connect the cable according to the serial number(Table 6 - 3 - 1)。

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。



在完成接线后, 请用防水胶布做防水处理。
After finishing the wiring, please use waterproof tape to do waterproofing.

接线端子定义/Definition of Duty Wiring Terminal

表 6-3-1 接线端子定义

1	电源 A	16	开关量输入-全关
2	电源 B	17	开关量输入-停
3	电源 C	18	开关量输入-ESD
4	零线 N	19	开关量输入-公共端
5	地线 PE	20	K1 常开接点
6	24VDC (内供)	21	K1 常闭接点
7	COM (内供)	22	K2 常开接点
8	4-20mA 输入正	23	K2 常闭接点
9	4-20mA 输入负	24	K3 常开接点
10	4-20mA 输出端子 1	25	K3 常闭接点
11	4-20mA 输出端子 2	26	K4 常开接点
12	4-20mA 输出端子 3	27	K4 常闭接点
13	4-20mA 输出端子 4	28	K5 常开接点
14	4-20mA 输出端子 5	29	K5 常闭接点
15	开关量输入-全开	30	K1-K5 公共端



Table 6 - 3 -1 Definition of Duty Wiring Terminal

1	A-phase (Live Wire)	16	Switch input - close
2	B-phase	17	Switch input - stop
3	C-phase	18	Switch input -ESD
4	N (Naught wire)	19	Switch input- com
5	PE (Protecting Earthing)	20	K1 Normal open contact
6	24VDC (Internal power supply)	21	K1 Normal closed contact
7	COM (Internal power supply)	22	K2 Normal open contact
8	4-20mA input +	23	K2 Normal closed contact
9	4-20mA input -	24	K3 Normal open contact
10	4-20mA output port 1	25	K3 Normal closed contact
11	4-20mA output port 2	26	K4 Normal open contact
12	4-20mA output port 3	27	K4 Normal closed contact
13	4-20mA output port 4	28	K5 Normal open contact
14	4-20mA output port 5	29	K5 Normal closed contact
15	Switch input - open	30	K1-K5 Common port



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 CHEMSUN 不予保修。

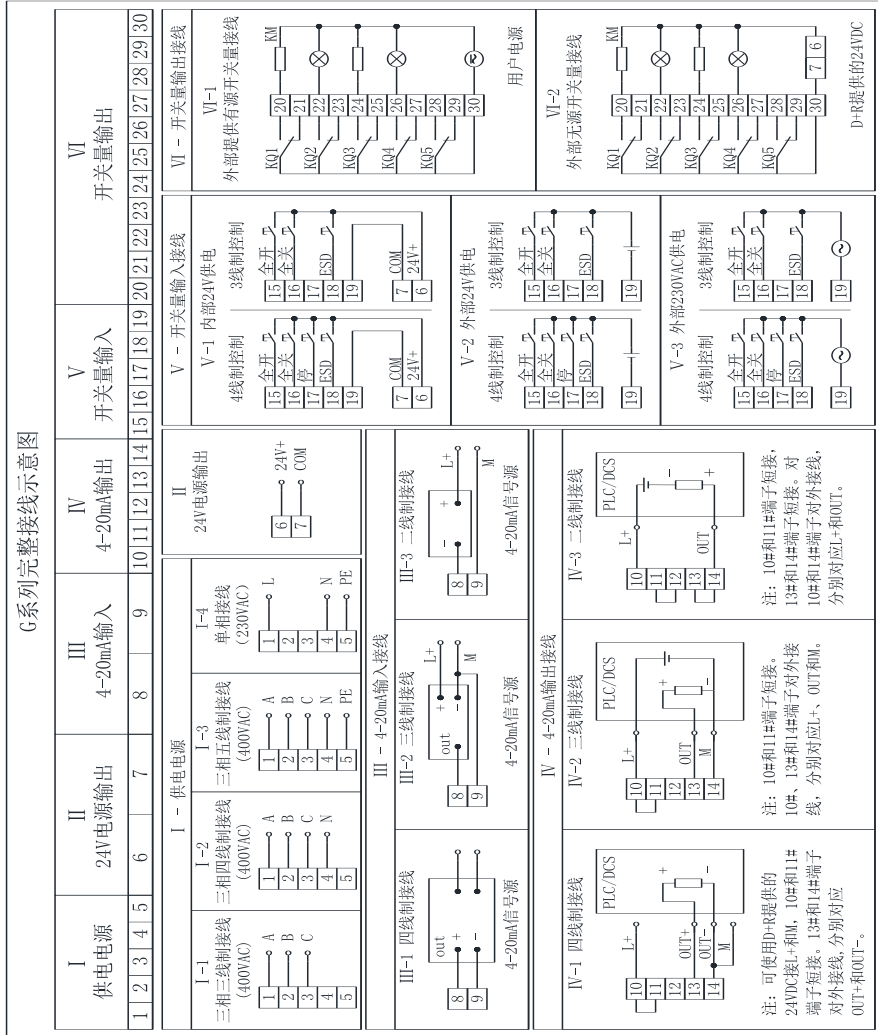
Warning: Please fasten the plug of wiring terminal before wiring to prevent water and humidity; it is forbidden for irrelevant personnel to execute the wiring; otherwise CHEMSUN does not bear maintenance and servicing responsibilities.

以发货时提供的接线图为准，不另行通知。

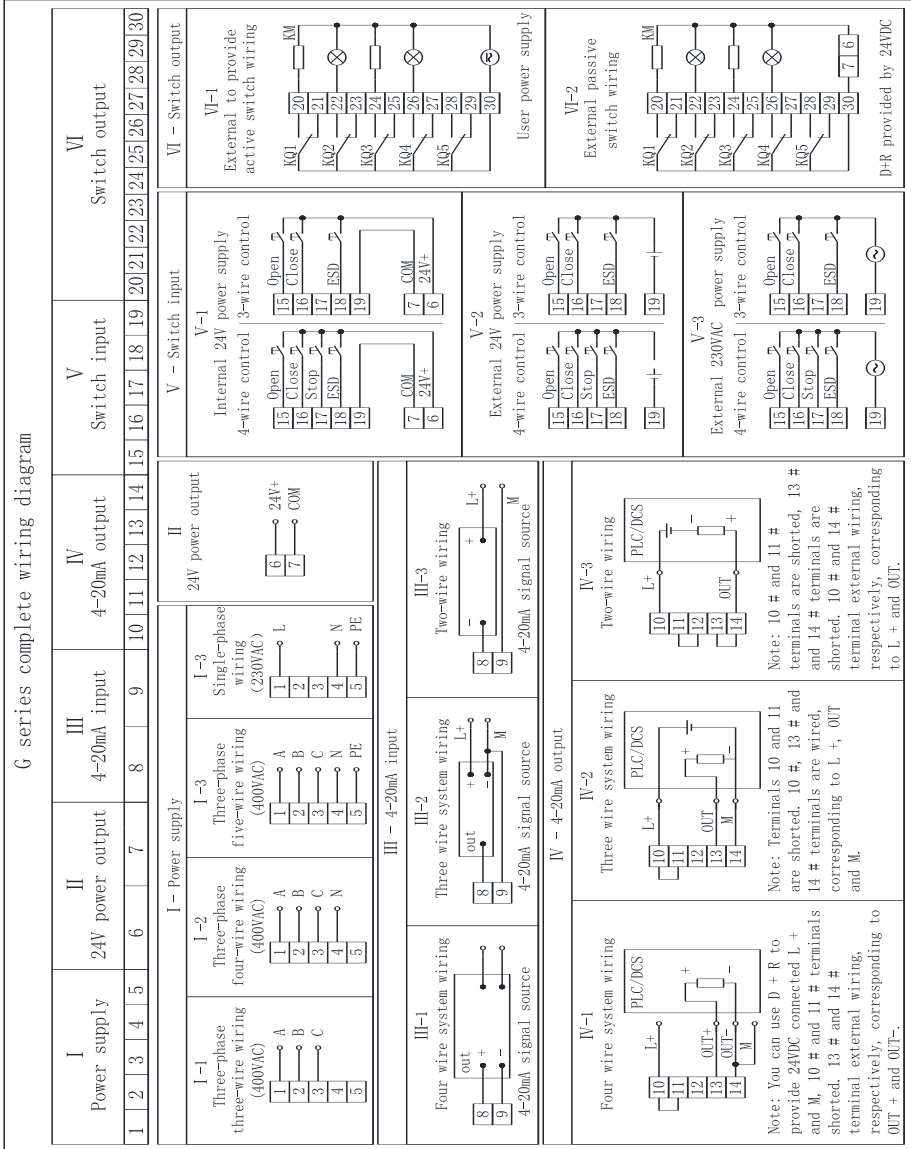
The wiring diagram provided at the time of shipment shall prevail without prior notice.

G03 系列完整接线示意图 / G series complete wiring diagram

6-4-1 G03 系列完整接线图



6-4-1 G series complete wiring





供电电源/Power supply

供电电源: 400VAC $\pm 25\%$ 50/60 Hz 230VAC $\pm 10\%$ 50/60 Hz
Power supply: 400VAC, $\pm 25\%$ 50/60 Hz 230VAC $\pm 10\%$ 50/60 Hz

24VDC 电源输出/24VDC power output of internal

CHEMSUN G03 系列智能型电动执行机构内部提供 24V 直流电源。

CHEMSUN G series intelligent electric actuators provide 24V dc power supply

4-20mA 输入/4-20mA input

4mA 对应量程 0% 的位置，即全关位置；20mA 对应量程 100% 位置，即全开位置。

4mA corresponds to the range of 0% position, that is fully closed position; 20mA corresponds to the range of 100% position, that is fully open position.

四线制接线方法/Four-wire wiring

对于四线制变送器，其供电大多为 230VAC，也有 24VDC。输出信号是 4-20mA。

For the four-wire transmitter, the power supply is mostly 230VAC or 24VDC. The output signal is 4-20mA.

三线制接线方法/Three-wire wiring

对于三线制变送器，其供电大多为 24VDC。输出信号是 4-20mA。

For the three-wire transmitter, the power supply is mostly 24VDC. The output signal is 4-20mA.



二线制接线方法/Two-wire wiring

对二线制变送器，其供电为 24VDC。输出信号是 4-20mA。

For two-wire transmitters, the power supply is 24VDC. The output signal is 4-20mA.

4-20mA 输出/4-20mA output

模拟量输出为 4-20mA 输出。4mA 对应量程 0% 的位置，即全关位置；20mA 对应量程 100% 位置，即全开位置。

The analog output is 4-20mA output. 4mA corresponds to the range of 0% position, that is, the whole position; 20mA corresponds to the range of 100% position, that is fully open position.

四线制接线方法/Four-wire wiring

若需要 CHEMSUN G03 系列执行器提供四线制输出信号时，必须将 6#、10#和 11#短接，7#和 14#短接。此时 13#是反馈输出正（OUT+），14#为反馈输出负（OUT-）。

If the CHEMSUN G03-series actuators are required to provide a four-wire output signal, 6 #, 10 # and 11 # must be shorted, and 7 # and 14 # should be shorted. 13 # is the feedback output positive, 14 # is the feedback output negative.

三线制接线方法/Three-wire wiring

若需要 CHEMSUN G03 系列执行器提供三线制输出信号时，必须将 10#和 11#短接。此时 10#是电源正端（L+），13#是信号输出端（OUT），14#是公共端（M）。

If the CHEMSUN G03-series actuators are required to provide a 3-wire output signal, 10 # and 11 # must short out. 10 # is the power positive terminal



(L+), 13 # is the signal output terminal (OUT), 14 # is the common (M) .

二线制接线方法/Two-wire wiring

若需要 CHEMSUN G03 系列执行器提供二线制输出信号时，必须将 11#和 12#短接，13#和 14#短接。此时 10#是电源正端（L+），14#是信号输出端（OUT）。

If the CHEMSUN G03-series actuators are required to provide a 2-wire output signal, 11 # and 12 # must short out, and 13 # and 14 # must be shorted. 10 # is the power positive terminal (L +), 14 # is the signal output (OUT).

开关量输入/Switch input

开关量输入供电方式有四种，内部 24VDC 供电、外部 24VDC 供电、外部 24VAC 供电和外部 230VAC 供电。

There are four types of input power supply, internal 24VDC power supply, external 24VDC power supply, external 24VAC power supply and external 230VAC power supply.

其他方式供电，请联系 CHEMSUN 相关人员。

In other ways, please contact CHEMSUN.

接线方式有三种：内部 24VDC 供电接线、外部 24VDC/AC 供电接线和外部 220VAC 供电接线。

There are three ways of wiring: internal 24VDC power supply wiring, external 24VDC/AC power supply wiring and external 24VDC/AC power supply wiring.

开关量输出/Switch output

开关量输出：五路单刀双掷继电器。

Switch output: five single pole double throw relays.

接线方式有两种：外部有源开关量接线和外部无源开关量接线。

There are two ways of wiring: External active switch wiring and External passive switch wiring.



若外部为无源时，使用 CHEMSUN 提供的 24VDC。

If the external is passive, Use the Internal 24VDC provided by CHEMSUN.

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

设备维护周期/Equipment Maintenance Cycle

在正常使用情况下，CHEMSUN G03 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, CHEMSUN G 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 CHEMSUN 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.

润滑/Lubrication

CHEMSUN G03 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 CHEMSUN 中国办事处或各级代理商联系。

Under normal usage, CHEMSUN G03-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 CHEMSUN Chinese office or agent at various levels for procurement.

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丝。 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	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	维修或更换



In the manual operation, the actuator has no operation or suffers from operation difficulty.	Valve stem and actuator's output shaft are not co-axial.	Repair or replace
	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

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The operation manual is extracted and translated by Beijing CHEMSUN intelligent controls 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

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