

Electric Actuator

User Manual

Baumann

Baumann GmbH

www.baumannchina.com

I 、 Main technical features and indicators

1. Power Supply:

Three-Phase AC 380V $\pm$ 20% 50/60Hz

Single-Phase AC 220V $\pm$ 20% 50/60Hz

2. Use advanced absolute encoder for position detection, No deadzone.
3. Support infrared remote control and rotary knob, A truly non-intrusive operation is possible.
4. Humanized Menu is easy for user debug, support password protection.
5. The relay contact output function can be programmable.
6. Analog Input: 4-20mA .
7. Analog Output: 4-20mA.
8. Digital Input: Passive dry contact input. Provides 24V power for switch signal input.
9. The input and output signals are isolated

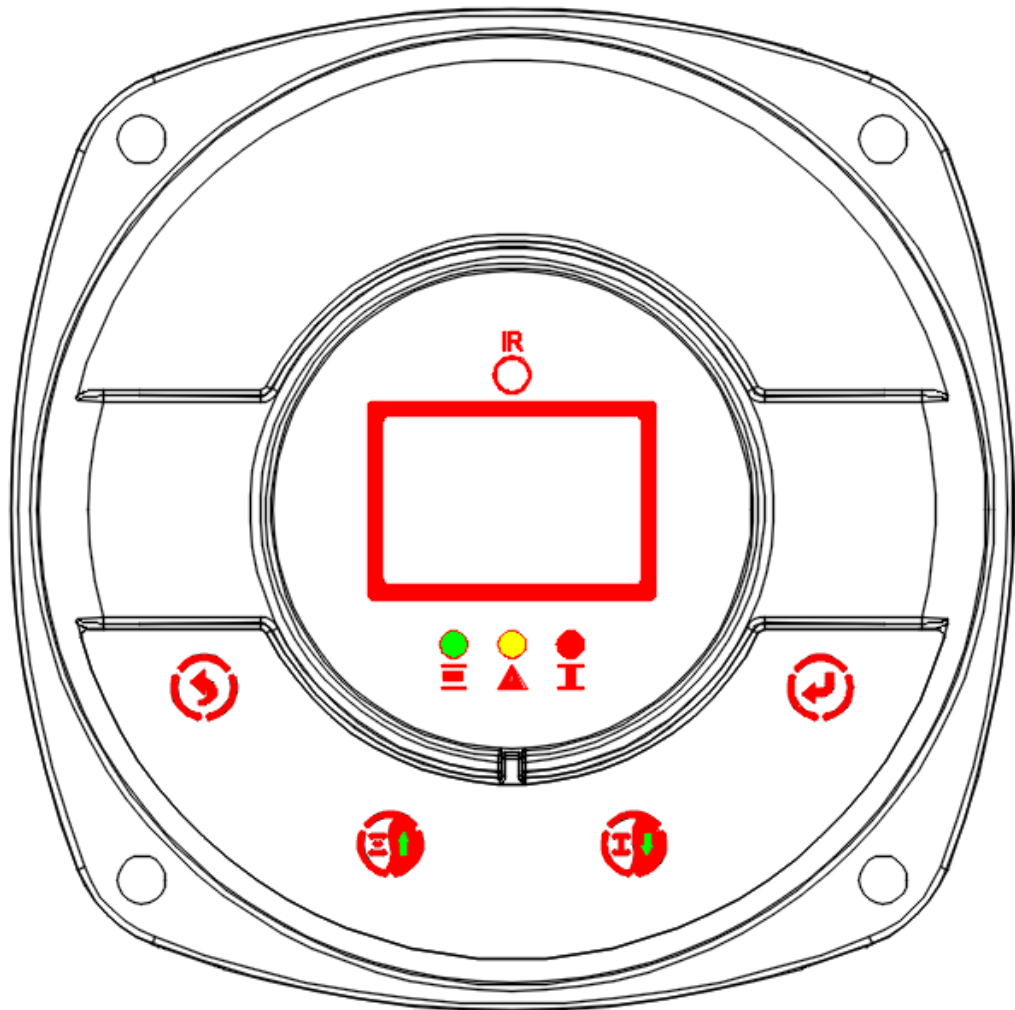
technical parameters	
Content	parameter
Power Supply	Three-phase Three-wire System AC 380V $\pm$ 20% 50/60Hz Single-phase Two-wire System AC 220V $\pm$ 20% 50/60Hz
Work Mode	switch-type: continuous work, S2-15min adjust-type: uncontinuous work, S4-25%, Work Times $\leq$ 1200 times per hour
Input Signal	Analog: 4-20mA DC input impedance 250 Ω Digital: Pulse Width $\geq$ 200ms Fieldbus: Modbus、Profibus-DP and other industrial fieldbus.
Output Signal	Analog: 4-20mA DC output impedance $\leq$ 600 Ω Digital: 5-circuit passive normally open contact output (5A 30VDC/250VAC) , 1-circuit normally open and normally closed contact output (3A 30VDC/250VAC) , All contacts are configurable. Fieldbus: Modbus、Profibus-DP and other industrial fieldbus.
Dead Zone Range	0.5%-9.9%
EMC	In accordance with GB/T 17626 standard
Working Temperature	-30 $^{\circ}$ C $\sim$ 70 $^{\circ}$ C

Note1: If you have other performance requirements, please contact us and we will try our best to meet your technical needs.

II. Introduction to human-computer interaction

2.1 Introduction to rotary knob

There are four magnetic attraction points on the actuator cover, as shown in the figure below:



The four magnetic points from left to right are defined as: Return, Plus / Valve-Open, Minus / Valve-Close, Confirm. Place the magnetic stylus on the corresponding magnetic point to trigger the corresponding magnetic key function.

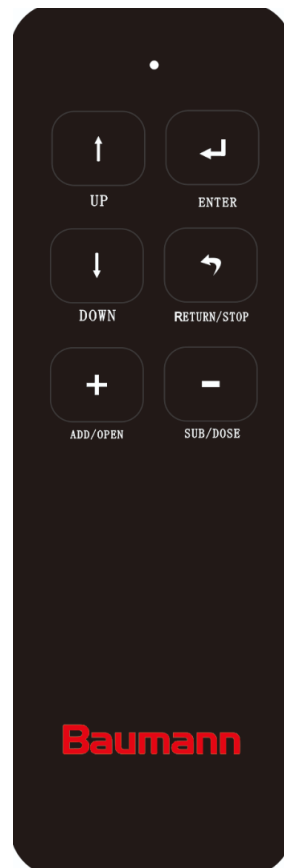
In field mode, the Plus / Valve-Open and Minus / Valve-Close points can be used to perform valve-opening, valve-closing and stop operations for the actuator.

On the main page, press and hold the Confirm key for more than 5 seconds to enter the password input interface. Enter the correct password using the Plus / Valve-Open key, Minus / Valve-Close key and Confirm key to

access the parameter interface. After entering this interface, parameters can be viewed and modified.

2.2 Infrared Remote Control

The infrared remote control for electric actuators has 6 buttons: up button, down button, add/open valve button, sub/close valve button, enter button, and return/stop button. Please refer to the following image:



In the local mode, the actuator can be operated to open/close the valve and stop by using the add/open button, sub/close button, and return/stop buttons. In the stop mode, long press the enter button for 5 seconds or more to enter the password input interface. Input the correct password through the add/sub button and up/down buttons, and press the enter button to enter the parameter interface. After entering this interface, you can use the infrared remote control to view and modify parameters.

Note1: After entering the valve position learning parameter settings, the mode button must be rotated to the local position before the operation button or remote control can be used to switch the valve for valve position learning operation.

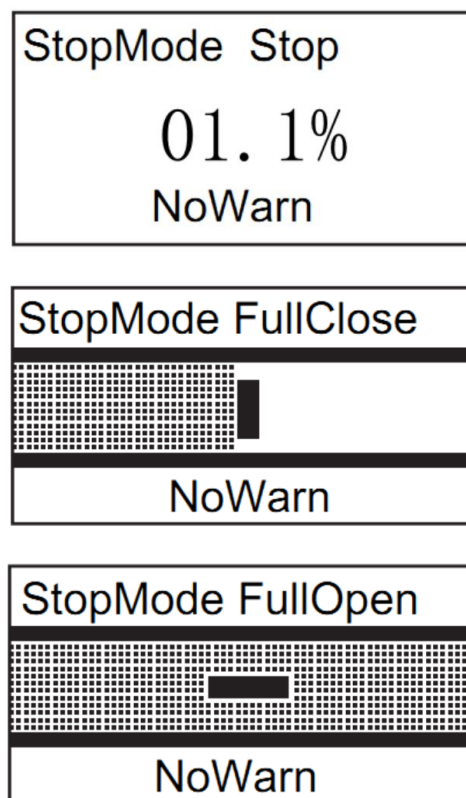
Note2: Only in the stop mode can the parameter interface be entered to view and modify parameters. In other modes, it is not possible to enter the parameter interface.

2.3 Introduction To LCD Display

The actuator is equipped with a 128*64 dot LCD panel and 3 LED indicators, which can display the status information and parameter information of the actuator.

2.3.1 Main Page

The main page includes valve status, valve position, operation mode, and warning information, as shown in the following image.



Valve Status:

Opening, closing, stop, IntOpening(intermittent open valve), IntClosing(intermittent close valve).

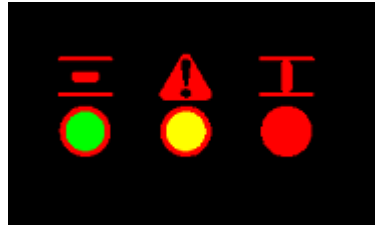
Valve Position:

FullOpen, FullClose, 0.1%-99.9%

Operation Mode:

StopMode, LocalMode, RemHold, RemJog, RemAnalog, RemBus

2.3.2 LED indicator



Green LED:

Led Flashing indicates that the valve is opening, and Led On indicates that it is fully open.

Yellow LED:

Led On indicates an warn.

Red LED:

Led Flashing indicates that the valve is closing, and Led On indicates that it is fully close.

2.3.2 Parameter setting interface

The parameter setting is divided into 12 menus: Basic, Ref, Feedback, RemoteAdvance, DOUT, ExDOUT, ESD,Int-Run, OtherS, Diagnostic, Warn Record, and About. Each menu has its related sub-parameters. Please refer to the specific introduction of parameters in the manual for detailed parameters.

Basic Ref Feedback Remote	Advance DOUT ExDOUT ESD
Int-Run Other Diagnostic Warn Record	About

Note1: The parameter menu corresponding to the parameter setting is displayed in reverse, indicating that the cursor is under the menu. Press the Enter button to enter the submenu.

Note 2: In the submenu, the corresponding parameter name is displayed in reverse, indicating that the cursor is on the parameter. Press the Enter button to display the parameter value in reverse, indicating that the parameter is in editable state. After modification, press the Enter button again to successfully modify the parameter and display the message "Saved". If you do not want to modify the parameter, press the return button.

III、 Introduction to Parameter Setting

3.1Enter Menu

Place the mode button in the "Stop" position, rotate the operation button to the "Open Valve" position and hold it for 5 seconds or more, or press and hold the Enter button on the remote control for 5 seconds or more to enter the password input page. Enter the correct password and you will be able to access the parameter menu.

3.2 Menu Overview

Basic
Ref
Feedback
Remote
Advance
DOUT
ExDOUT
ESD
Int-Run
Others
Diagnostic
Warn Record
About

3.2.1 Basic

The basic setting is mainly used for valve position confirmation, torque-related parameters, and remote analog-related parameters.

Parameter	Default	Range
CloseLimit	XXX	XXX
OpenLimit	XXX	XXX
CloseOverTorq	80%	30%-150%
OpenOverTorq	80%	30%-150%
TorqWay	XXX	Mech/Electric/Elec+Mech
Deadband	1.5%	0.5%-9.9%
ActForSigLoss	Hold	Hold/0%-100%

3.2.1.1 CloseLimit

The limit setting sequence is not limited, and users can set the closing position before setting the opening position, or they can set the opening position first and then the closing position, or they can only set

the opening or closing position.

After entering the parameter setting page through remote control or dial, rotate the mode button to the "Local" position. Then, use the knob or infrared remote control to switch the valve to the close limit position, stop the valve operation, and wait for the valve to completely stop. After that, rotate the mode button back to the stop position, or press the Enter button on the remote control, and the LCD screen will display "Saved" to indicate that the actuator has set this position as the closing limit. If you press "Enter" before pressing "Return", the limit will not be set and the closing position confirmation setting will be exited.

3.2.1.2 OpenLimit

The limit setting sequence is not limited, and users can set the closing position before setting the opening position, or they can set the opening position first and then the closing position, or they can only set the opening or closing position.

After entering the parameter setting page through remote control or dial, rotate the mode button to the "Local" position. Then, use the knob or infrared remote control to switch the valve to the open limit position, stop the valve operation, and wait for the valve to completely stop. After that, rotate the mode button back to the stop position, or press the Enter button on the remote control, and the LCD screen will display "Saved" to indicate that the actuator has set this position as the opening limit. If you press "Enter" before pressing "Return", the limit will not be set and the closing position confirmation setting will be exited.

3.2.1.3 CloseOverTorq(Effective in electronic torque mode)

This value is used in electronic torque mode to report "closing over-torque" Warn when the actuator torque exceeds the rated torque calibration during the process of closing the valve (limit closing mode) or to stop closing valve (torque closing mode).

3.2.1.4 OpenOverTorq(Effective in electronic torque mode)

This value is used in electronic torque mode to report "Opening over-torque" Warn when the actuator torque exceeds the rated torque calibration during the process of opening the valve (limit opening mode) or to stop opening valve (torque opening mode).

3.2.1.5 TorqWay

This parameter is used to select the torque mode. Under mechanical torque mode, the mechanical torque limit switch inside the actuator is detected. Under electronic torque mode, the torque current of the actuator and the set over-torque value are detected. Under electronic-mechanical torque mode, both of the above are detected.

Note1: This parameter is set by the manufacturer based on the hardware of the actuator, and it is not recommended for users to modify it. If you want to modify it, you need to consult the manufacturer for communication before making the change, otherwise it may cause errors.

3.2.1.6 Deadband

This parameter is effective in remote analog mode. In this control mode, the actuator calculates the desired valve position based on the given current, and then compares it with the current valve position. If the absolute difference is greater than the dead zone value, the actuator will start to operate.

Note1: Setting a proper dead zone can prevent the actuator from oscillating around the given valve position.

3.2.1.7 ActForSigLoss

This parameter is effective in remote analog mode or remote fieldbus mode. In remote analog mode, when the given current is less than 2mA, the actuator reports a loss of signal and performs the action corresponding to the parameter after the signal loss. "Hold" refers to maintaining the original position, and 0%-100% refers to the actuator running to the designated position after the signal loss. In remote fieldbus mode, when a "fieldbus error" (fieldbus communication loss) occurs, the actuator performs the action corresponding to this parameter. "Hold" refers to maintaining the original position, and 0%-100% refers to the actuator running to the designated position after the signal loss.

3.2.2 Ref

Parameter	Default	Range
AdjustLowEnd	4mA	XXXX
AdjustHighEnd	20mA	XXXX
HighLowSeq	Positive	Positive/Negative

The "Ref Settings" menu is mainly used for linear calibration of the reference signal in remote analog mode and for setting the high and low sequence.

3.2.2.1 AdjustLowEnd

The DCS or PLC controller outputs a low-end 4mA signal to the actuator, and the actuator measures a signal of about 4mA and uses it for the given linear low-end calibration value.

3.2.2.2 AdjustHighEnd

The DCS or PLC controller outputs a high-end 20mA signal to the actuator, and the actuator measures a signal of about 20mA and uses it for the given linear high-end calibration value.

3.2.2.3 HighLowSeq

The external DCS or PLC controller outputs a 4-20mA signal, which is then processed in reverse sequence as the given signal for the actuator.

Note1: When using remote analog control, it is necessary to set the parameters in this menu to ensure accurate control. Otherwise, it may result in inaccurate control.

3.2.3 Feedback

Parameter	Default	Range
AdjustLowEnd	100%	80%-120%
AdjustHighEnd	100%	80%-120%
HighLowSeq	Positive	Positive/Negative

The "Feedback Settings" menu is mainly used for linear calibration of the feedback signal in remote analog mode and for setting the high and low sequence.

3.2.3.1 AdjustLowEnd

After entering the parameter setting, the actuator will output a signal of about 4mA to the external DCS or PLC controller. By modifying the parameter percentage value until the DCS or PLC controller measures a standard 4mA signal, it can be confirmed and saved. The actuator will use this parameter value for the feedback linear low-end calibration value.

3.2.3.2 AdjustHighEnd

After entering the parameter setting, the actuator will output a signal of about 20mA to the external DCS or PLC controller. By modifying the parameter percentage value until the DCS or PLC controller measures a standard 20mA signal, it can be confirmed and saved. The actuator will use this parameter value for the feedback linear high-end calibration value.

3.2.3.3 HighLowSeq

The 4-20mA feedback signal from the actuator to the external DCS or PLC controller is processed in reverse sequence for feedback output.

Note1: When using remote analog control, it is necessary to set the parameters in this menu to ensure accurate feedback. Otherwise, it may result in inaccurate feedback.

3.2.4 Remote

The "Remote Settings" menu is mainly used for parameters related to remote control, including remote manual and automatic control.

Parameter	Default	Range
RemAuto	Analog	Analog/ Modbus/ Modbus-A/ Modbus-R/ DP/

		DP-A/ DP-R
RemManual	Hold	Hold/NonHold
TwoWireCtrl	No	No/ SigOpenNoSigClose/ SigCloseNoSigOpen

3.2.4.1 RemAuto

This parameter is effective in remote automatic mode. First, the mode button needs to be set to the "remote" position, and the external AUTO terminal signal is effective. The main page mode displays "RemAnalog".

"Analog" refers to remote analog control, which is 4-20mA given control switch valve.

"Modbus" (optional) refers to controlling a switch valve through the Modbus bus.

"ProfibusDP" (optional) refers to controlling a switch valve through the DP bus.

Other customizable field bus include ModbusTcp, Canopen, Canbus, Ethercat, etc.

Note1: Modbus and DP with "-A" indicate that when a communication error occurs, the external 4-20mA analog signal can still be used for control.

Note2: Modbus and DP with "-R" indicate dual-channel redundant control, which requires a redundant control communication expansion card.

3.2.4.2 RemManual

This parameter is effective in remote manual mode. First, the mode button needs to be set to the "remote" position, and the external AUTO terminal signal is invalid. If the parameter is set to "Hold", the main page mode displays "RemHold". If the parameter is set to "NonHold", the main page mode displays "RemJog".

Under the "remote hold" function, the external "open valve" terminal gives a signal to control the opening of the valve. The signal needs to be given for more than 100ms, and even if the signal is invalid, the valve will still execute the opening action. The external "close valve" terminal gives a signal to control the closing of the valve. The signal needs to be given for more than 100ms, and even if the signal is invalid, the valve will still execute the closing action. The external "stop valve" terminal gives a signal to control the stopping of the valve. The signal needs to be given for more than 100ms, and even if the signal is invalid, the valve will still execute the stopping action.

Under the "remote jog" function, the external "open valve" terminal gives a signal to control the opening of the valve. The signal needs to be given for more than 100ms, and if the signal is invalid, the

valve will stop its action. The external "close valve" terminal gives a signal to control the closing of the valve. The signal needs to be given for more than 100ms, and if the signal is invalid, the valve will stop its action. The external "stop valve" terminal is ineffective at this time.

Note1: Under the "remote hold" function, if a "close valve" signal is given during the opening process, the valve will automatically stop for 2 seconds before executing the closing action. Similarly, if an "open valve" signal is given during the closing process, the valve will automatically stop for 2 seconds before executing the opening action.

Note2: If both the external "open valve" terminal and "close valve" terminal give signals simultaneously, it will report "RemOpenClose", and the valve will be prohibited from moving under the "remote hold" and "remote jog" functions. Under other functions, this alarm only provides a prompt without affecting the valve action.

3.2.4.3 TwoWireCtrl

This parameter is used to set the "two-wire control" function. When the two-wire control function is effective, only the external "open valve" terminal signal is needed to switch the valve. The "close valve" and "stop valve" terminals are invalid.

"Signal open, no signal close" refers to when there is a signal at the external "open valve" terminal, the valve executes the opening action; when there is no signal, the valve executes the closing action.

"Signal close, no signal open" refers to when there is a signal at the external "open valve" terminal, the valve executes the closing action; when there is no signal, the valve executes the opening action.

3.2.5 Advance

Advanced settings are mainly used for configuring parameters related to switch valve drive control.

Parameter	Default	Range
CloseWay	Limit	Limit/Torque
CloseDir	CW	CW/CCW
BrakeTime	10ms	0-150ms
StopTime	50ms	0-250ms
StopWay	Brake	Brake/Dec/Ahead/Auto
DecPos	0.5%	0.1%-5%
DecRate	10%	10%-90% (10% step)
AheadStopPos	0.5%	0%-9.9%

3.2.5.1 CloseWay

"Limit" refers to the action of the actuator stopping at the limit when receiving a closing signal.

"Torque" refers to the action of the actuator continuing to move until it reaches the limit of torque, then stopping to ensure the valve is completely closed. This feature is optional.

3.2.5.2 CloseDir

"CW" refers to the valve opening in a clockwise direction and closing in a counterclockwise direction.

"CCW" refers to the valve closing in a clockwise direction and opening in a counterclockwise direction.

Note1: After modifying this parameter, it is necessary to confirm the switch position again.

3.2.5.3 StopWay

- (1) "Brake" :refers to the actuator performing a brief reverse braking action when it reaches the target position to dissipate the inertia of the actuator's movement, thereby improving accuracy.

Dependence parameters: StopTime, BrakeTime.

Note1: If the " brake" is not effective, it can be solved by modifying the StopTime and BrakeTime.

- (2) "Ahead": refers to the actuator executing an early stop action when approaching the target position, relying on the inertia of the actuator's movement to reach the target position.

Dependence parameters: AheadStopPos.

- (3) "Dec" refers to the actuator executing a controlled thyristor braking action when approaching the target position, that is, by rapidly switching the thyristor switch duty cycle to allow the motor to slow down.

Dependence parameters:DecPos,DecRate.

Note1: If the motor inertia is large, the slow deceleration rate may cause the motor to be unable to start. In this case, the deceleration rate needs to be increased.

- (4) "AUTO" refers to the actuator automatically learning the motor inertia during the process of switching the valve, and then executing an early stop action before reaching the target position minus the inertia position. The actuator relies on the inertia of the motor to move to the target position. If the motor does not reach the target position after the inertia, the actuator adjusts its position through controlled thyristor braking to ultimately reach the target position.

Dependence parameters: DecRate, Inertia Value.

Note1: The "AUTO"mode may not produce a good shutdown effect during the first few valve switching processes because the correct inertia value has not been learned. In this case, switching the valve repeatedly several times allows the actuator to accurately learn the inertia value before achieving accurate shutdown.

Note2: If the actuator's movement amplitude is too large or too small or even non-functional during the fine-tuning process, the deceleration rate can be modified to solve the issue.

3.2.5.4 StopTime

"StopTime" refers to the period of time during which the actuator stops before executing the braking action. This allows the system to stabilize and prepare for the braking operation.

Note1: Before the stopping time, the actuator has executed sufficient stop time to ensure the reliability of the power devices.

3.2.5.5 BrakeTime

"BrakeTime" refers to the time it takes for the actuator to execute the braking action. If the braking effect is not satisfactory, it can be solved by modifying the corresponding parameter.

3.2.5.6 DecPos

"DecPos" refers to the point when the actuator, in the process of executing the deceleration and stopping mode, approaches the target position minus the deceleration position and begins to execute the deceleration and stopping action.

3.2.5.7 DecRate

"DecRate" refers to the rate at which the actuator decelerates during the execution of the deceleration and stopping mode.

3.2.5.8 AheadStopPos

"AheadStopPos" refers to the point when the actuator, in the process of executing the ahead stop mode, approaches the target position minus the ahead stop position and begins to execute the ahead stop action.

3.2.6 DOUT、ExDOUT

DOUT is a standard contact, ExDOUT need to be customized. The contact output is a set of relay output-type contacts used to indicate the valve status. It can execute switch output actions when parameter setting items occur. OUT1-10 comes with default parameters, and the output contact function can also be modified through parameter settings, as shown in the following figure.

Parameter	Default	Range
OUT1	ON-FullClose	ON-FullClose, OFF-FullClose, ON-FullOpen, OFF-FullOpen, ON-CloseOverTorq, OFF-ClosOverTorq, ON-OpenOverTorq, OFF-OpenOverTorq, ON-OverTorq, OFF-OverTorq, ON-Closing,
OUT2	ON-FullOpen	
OUT3	ON-CloseOverTorq	
OUT4	ON-OpenOverTorq	
OUT5	ON-RemMode	
OUT6	ON-Warning	
OUT7	ON-Closing	
OUT8	ON-Opening	
OUT9	ON-LocalMode	
OUT10	ON-StopMode	

		OFF-Closing, ON-Opening, OFF-Opening, ON-Running, OFF-Running, ON-RemMode, OFF-RemMode, ON-LocMode, OFF-LocMode, ON-StopMode, OFF-StopMode, ON-Warning, OFF-Warning
--	--	---

3.2.7 ESD

ESD settings mainly configure the action of external ESD signals.

Parameter	Default	Range
ActiveFlag	No	Yes/No
Action	Hold	Hold/0%-100%
ActiveLevel	Low	High/Low
BeyondOverHeat	No	Yes/No
BeyondStopMode	No	Yes/No
BeyondInt-Run	No	Yes/No
BeyondOverTorq	No	Yes/No

3.2.7.1 ActiveFlag

This refers to whether to perform the ESD action when the external ESD signal is effective.

Note1: If the parameter value is "No", the ESD signal is effective, and the ESD action is performed. Otherwise, the ESD signal is only used for alarm prompting without affecting the valve action.

3.2.7.2 Action

"Hold" refers to the state where the valve remains in a prohibited action state when the ESD is effective.

0%-100% refers to the valve executing the action to the designated position when the ESD is effective.

3.2.7.3 ActiveLevel

High: It refers to the external ESD terminal being given a high-level signal to become effective.

Low: It refers to the external ESD terminal being given a low-level signal to become effective.

3.2.7.4 BeyondOverHeat

It refers to the situation where the ESD action is also executed when an overheat warn occurs in the motor.

3.2.7.5 BeyondStopMode

It refers to the actuator executing the ESD action even when in stop mode.

3.2.7.6 BeyondInt-Run

It refers to the actuator executing the ESD action even during intermittent running.

3.2.7.7 BeyondOverTorq

It refers to the situation where the ESD action is also executed when an over-torque warn occurs.

3.2.8 Int-Run

It refers to the actuator's movement process being discontinuous, with stops and starts in between. This operation is set for valves that require intermittent movement during the process to prevent hydraulic shock and fluid turbulence.

Parameter	Default	Range
ActiveFlag	No	Yes/No
OpenDirStartPos	10%	0%-100%
OpenDirEndPos	80%	0%-100%
CloseDirStartPos	80%	0%-100%
CloseDirEndPos	10%	0%-100%
OpenDirActPos	10%	0%-100%
CloseDirActPos	10%	0%-100%
OpenDirStopTime	20S	1-255S
CloseDirStopTime	20S	1-255S

3.2.8.1 ActiveFlag

Whether to enable interrupted operation.

3.2.8.2 OpenDirStartPos

The initial position of the interrupted operation when valve is opening .

3.2.8.3 OpenDirEndPos

The ending position of the interrupted operation when valve is opening .

3.2.8.4 CloseDirStartPos

The initial position of the interrupted operation when valve is closing .

3.2.8.5 CloseDirEndPos

The ending position of the interrupted operation when valve is closing .

3.2.8.6 OpenDirActPos

The action distance of each interrupted operation during the valve opening process.

3.2.8.7 CloseDirActPos

The action distance of each interrupted operation during the valve closing process.

3.2.8.8 OpenDirStopTime

The action time of each interrupted operation during the valve opening process.

3.2.8.9 CloseDirStopTime

The action time of each interrupted operation during the valve closing process.

Note1: Int-Run is only effective in the local and remote manual modes. It will not be executed even if it is set in other modes.

3.2.9 Other

Parameter	Default	Range
CommAddr	1	1-254
ReduencedAddr	2	1-254
Baudrate	9600bps	9600/19200/38400/115200bps
Parity	None	None/Odd/Even
CommTimeout	10S	1-60S
Password	0	0-255
BacklightTime	Max	Max/1-60min
RestoreFactory	No	Yes/No
DisplayReverse	No	Yes/No

3.9.1CommAddr

The slave address of the actuator bus communication.

3.9.2ReduencedAddr

Redundant address of slave station for actuator bus communication.

3.9.3 Baudrate

The baud rate of the actuator Modbus slave communication.

3.9.4 Parity

The parity of the actuator Modbus slave communication.

3.9.5 CommTimeout

Timeout time for actuator bus communication.

3.9.6 Password

Modify the password required to enter parameter settings for the actuator."

3.9.7 Backlight Time

The time the LCD panel backlight is on when there is no operation.

3.9.8 Restore Factory

The actuator parameters are restored to the factory settings.

3.9.9 Display Reverse

Whether the LCD panel is inverted and upside down.

3.2.10 Diagnostic

Used for diagnosing the quality of external terminal wiring and hardware.

Parameter	Meaning
ModeButt	Stop/Loc/Rem
OpenButt	Open/Close/Nop
RemOpenSig	Yes/No
RemClosSig	Yes/No
RemStopSig	Yes/No
RemAutoSig	Yes/No
RemESDSig	Yes/No
Iref	4-20mA Reference Current
T-motor	Ok/OH
T-dev	Current Temperature
PhaseVol	Input phase voltage of actuator
Ifeedback	4-20ma Feedback Current
OpenMechTorq	Yes/No
ClosMechTorq	Yes/No
StopInertia	X.X%
BrakeInertia	X.X%

3.2.11 Warn Record

"This page records 32 historical warn records for users to view."

3.2.12 About

Dev: S-Phase S-Turn
S-Phase M-Turn
T-Phase S-Turn
T-Phase M-Turn

Version: Fireware version

Module: SCR KM

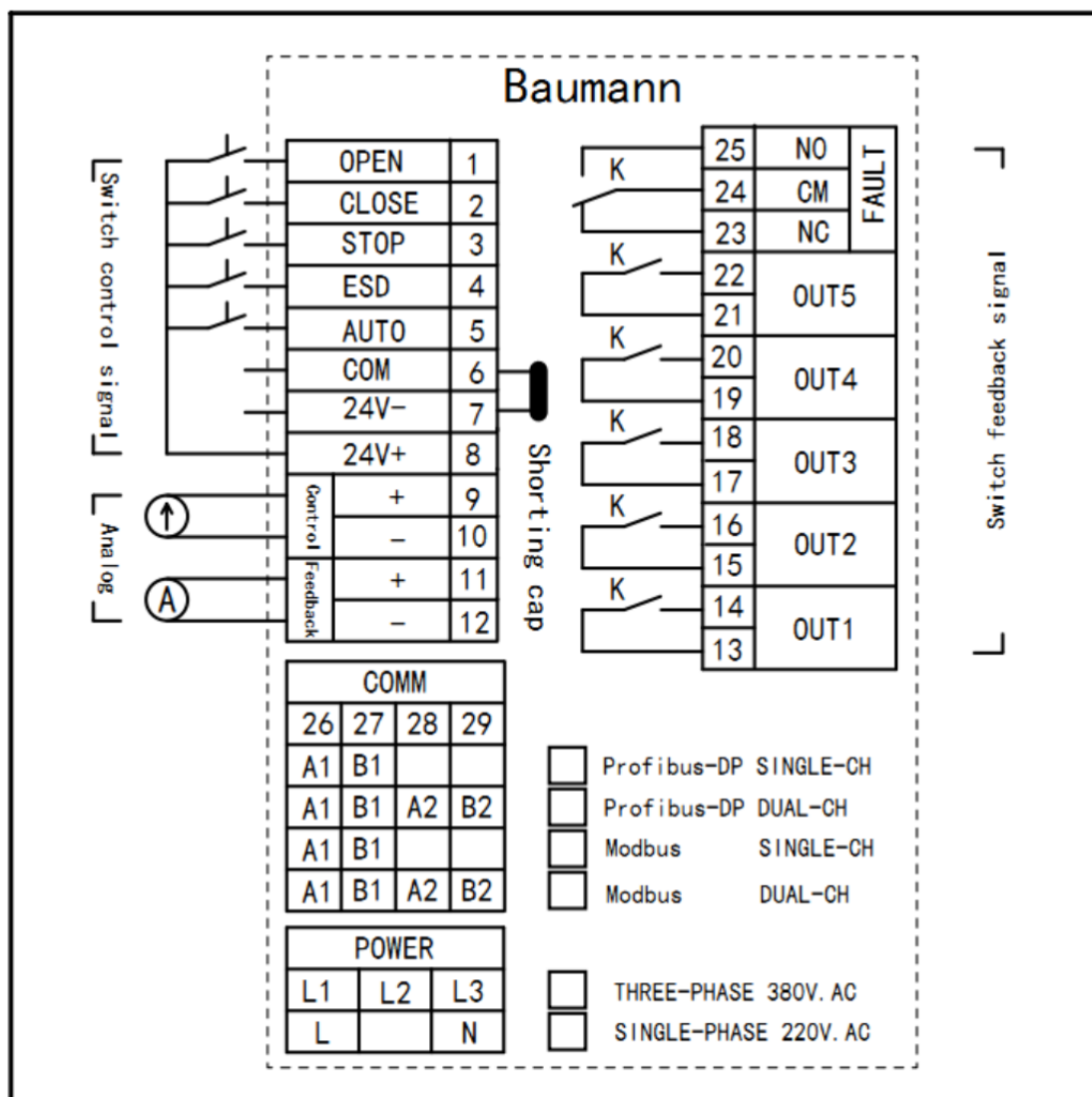
IV. Warn Information

Warn Info	Reason	Solution
CloseOverTorq	valve closing process, If the torque value exceeds the closing torque value under electronic torque mode, If there is a mechanical torque signal under mechanical torque	Release the warn by using the handwheel or electric reverse to open the valve.

	mode,	
OpenOverTorq	valve opening process, 1. If the torque value exceeds the opening torque value under electronic torque mode, 2. If there is a mechanical torque signal under mechanical torque mode,	Release the warn by using the handwheel or electric reverse to close the valve.
LackPhase	Three-phase power input phase loss	Please check the three-phase power input wiring.
IrefLoss	In remote analog mode, the 4-20mA signal is less than 2mA.	Please check the external analog signal input.
RemOpenClose	The external open valve terminal signal and the close valve terminal signal exist simultaneously.	Please check the signal input of the external open valve terminal and close valve terminal.
OverLimit	The valve position exceeds the valve limit value by 10%.	Reverse operation valve warn release.
ESD	External ESD signal exists.	Please check the external ESD terminal signal.
MotorOverHeat	The motor temperature has exceeded the threshold set by the built-in temperature detection switch of the motor.	Stop the machine and wait for the motor to cool down naturally.
LockRotor	During the process of open valve or close valve, the encoder valve position has not changed within 5 seconds.	Stop the machine to check whether the valve is stuck or blocked.
DevOverHeat	The equipment temperature is reported as overheated at 85	Stop the machine and wait for it to cool down naturally.

	degrees Celsius and returns to normal at 75 degrees Celsius.	
EncErr	encoder may be loose or encoder damage	Inspect the encoder wiring for loose connections or encoder damage.
CommErr	Motherboard and display board communication error.	check the motherboard and display board interfaces for loose connections, and try powering them on again.
BusErr	Bus communication error.	Check the external communication signal and wiring for any issues.
EepErr	EEP operation error.	Enter the parameter settings to reset the parameters. If there are multiple errors, it may be due to EEPROM damage. Please contact the manufacturer for repair.
ZeroPointErr	The zero point signal does not exist.	Hardware error, please contact the manufacturer for repair.

V . Hardware Wiring



Note1: The single-phase actuator power input is connected to L1 and L3, while the three-phase actuator power input is connected to L1, L2, and L3.

Note2: The DC+ and DC- of the switch control signal input terminal are the 24V+ and GND signals provided by the actuator internally for external use. Customers can choose to use or not use this power signal.

VI. Notice to Users

The following reasons for product failure are not covered by the manufacturer's free warranty service:

- (1) Users do not operate the product according to the correct procedures outlined in the product manual;
- (2) Users repair or modify the product without communicating with the manufacturer;
- (3) Product components experience abnormal aging or malfunction due to poor environmental conditions;

- (4) Users exceed the standard range of product usage;
- (5) Product damage caused by unforeseeable forces such as earthquake, fire, water and wind disaster, lightning, abnormal voltage, or other natural disasters;
- (6) Hardware damage caused by human factors such as falling or transportation after purchase.

VII. Disclaimers

From any perspective of contract, warranty period, negligence, civil infringement, strict liability or any other legal theory, the manufacturer, its suppliers and distributors shall not be responsible for the special, indirect, and consequential losses resulting from the use of the equipment. These losses include but are not limited to losses of profits and income, losses of use of the equipment and related equipment, expenses of funds, expenses of substitute equipment, tooling costs and service fees, downtime expenses, delays, and losses of customers or any third parties. In addition, unless the user can provide strong evidence, the company and its suppliers shall not be responsible for certain allegations such as problems caused by the use of unqualified raw materials, incorrect design or non-standard production. The right to interpret belongs to our company. If you have any questions about the actuator, please contact our company or its office. The technical data, information, and specifications are the latest information at the time of publication. The company reserves the right to make changes without prior notice and will not be responsible for any losses caused by this. The right to interpret belongs to our company.

Baumann GmbH

www.baumannchina.com