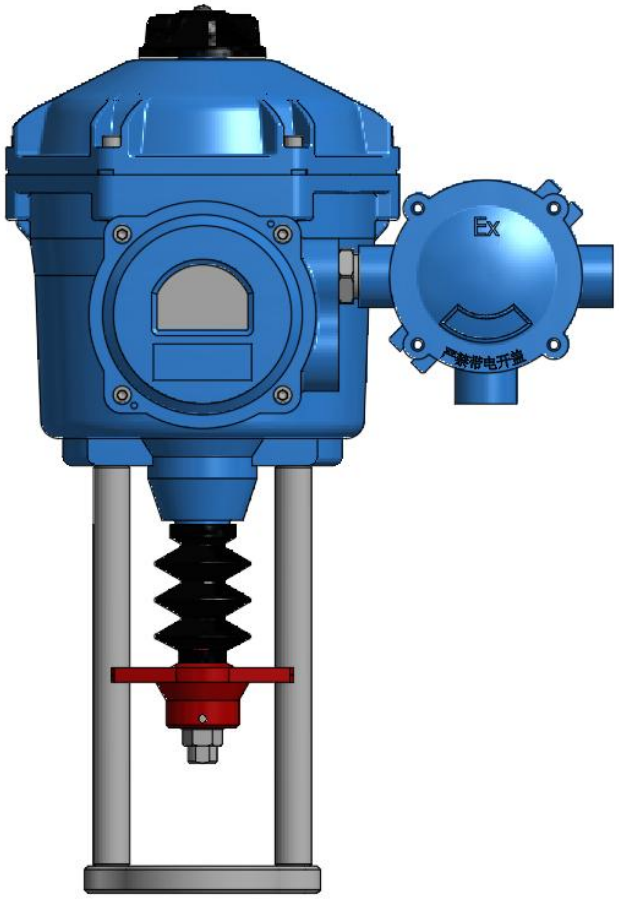
XSL-4XX Series

Explosion-Proof Linear Electric Actuator

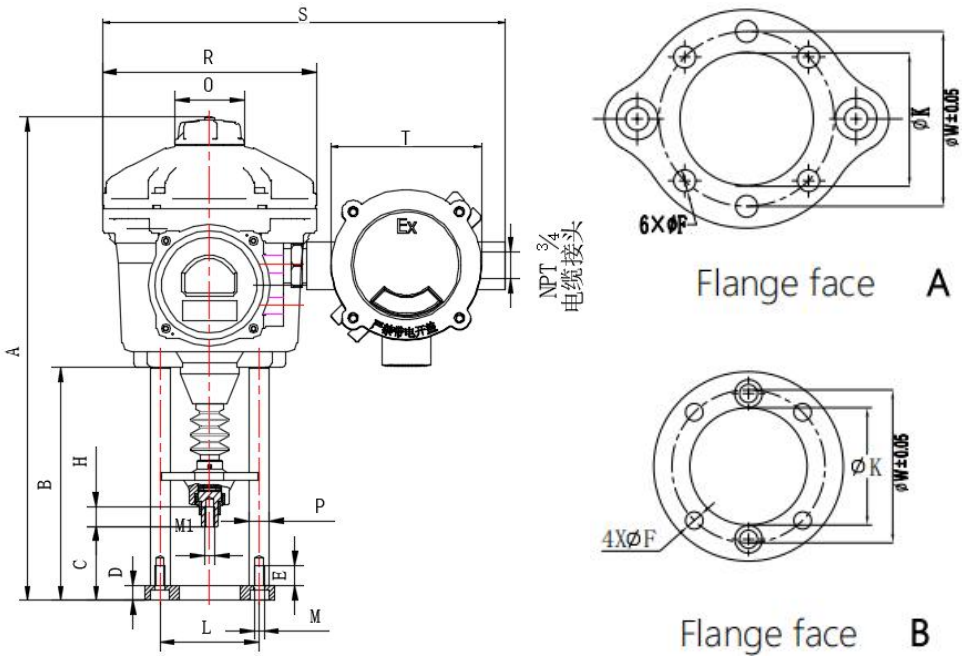
Instruction Manual



1、Product Overview

The XSL-4xx series electric actuators, integral to the DDZ series of electric units, work in tandem with regulating valve bodies to form electric regulating valves widely used in industrial process measurement and control systems. These actuators are suitable for a wide range of industries, including petroleum, chemical, water treatment, maritime, papermaking, power generation, heating, building automation, and light industry. They support 24VAC (or 220VAC) and 24VDC power supplies and accept 4-20mA or 0-10V DC control signals, enabling precise valve positioning for automated control.

2、Dimensions



MODEL	Dimensions														
	A	B	C	D	E	F	H	O	L	M	P	R	M1	S	T
XSL402	490	235	75	15	20	40	20	φ70	100	M10	φ20	φ216	M10	338	φ160
XSL404															
XSL408	535	290	80	25	20	60	25	φ100	118	M12	φ20	φ268	M12	380	φ160
XSL410															

W:402-Φ80;408-Φ105;

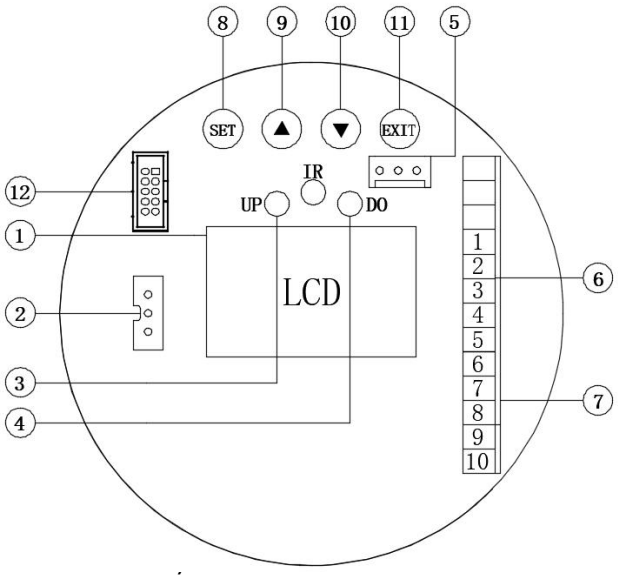
Φk:402-Φ60;408-Φ80;

3、Specifications

MODEL	XSL-402	XSL-404	XSL-408	XSL-410
Input Voltage	AC：220V/50Hz、24V/50Hz；DC 24V；		AC： 220V/50Hz； DC 24V；	
Input Signal	4-20mA、0-10V；			
Feedback Signal	4-20mA、0-10V；			
Communication Interface	RS485 MODBUS protocol； HART protocol；		RS485 MODBUS protocol	
Power Consumption VA	10	15	25	40
Thrust kN	2	4	8	10
Stroke mm	40		60	
Torque Protection	Yes			
Manual override	Yes			
Protection Rate	Ex d II BT4； Ex d II CT4；			
Remote Control	Yes			
Speed s/mm	1			
Cable Interface	2- NPT3/4			
Control Accuracy	0.2%～±5% （Note: Values may vary with installation conditions and is expressed as a percentage of the rated stroke.）			
Hysteresis Adjustment	0.1%～5.0%			
Ambient Temperature	-20℃～60℃ (special mention required for use within -45°C to -20°C)			
Weight	10	10	15	15

4、Electrical Wiring

4.1 Wiring Diagram



①、LCD Display

②、Potentiometer Signal Input

③、Actuator Output Shaft Closed Indicator(Red)

④、Actuator Output ShaftOpen Indicator(Green)

⑤、Motor Control Signal Output

⑥、220V Power Supply Input Terminal

⑦、Signal Input/Output, RS485, Alarm Wiring Termina

⑧、Parameter Setting Button（Menu Navigation、Sele

⑨、Data "+" Button (Also for Local Open Operation , u

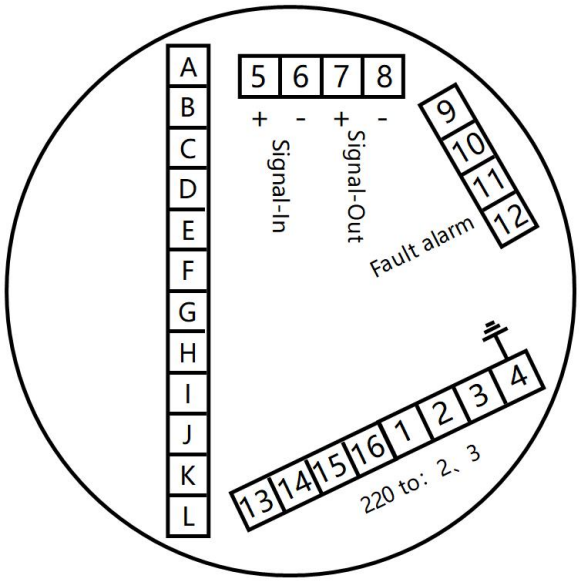
⑩、Data "-" Button (Also for Local Close Operation)

⑪、Menu Exit Button (also for "Local"/"Remote" mode switching)

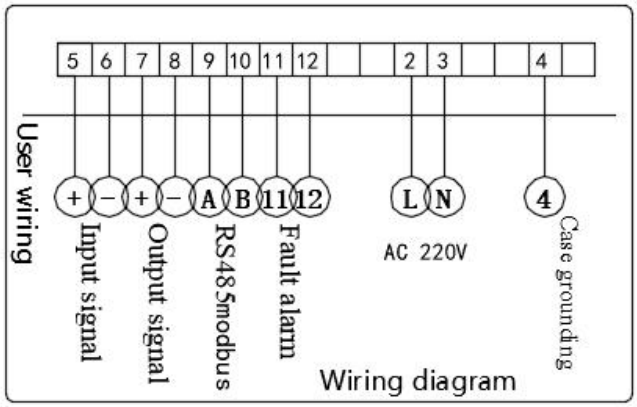
⑫、Control Switch Interface (Exclusive to DC Control Boards)

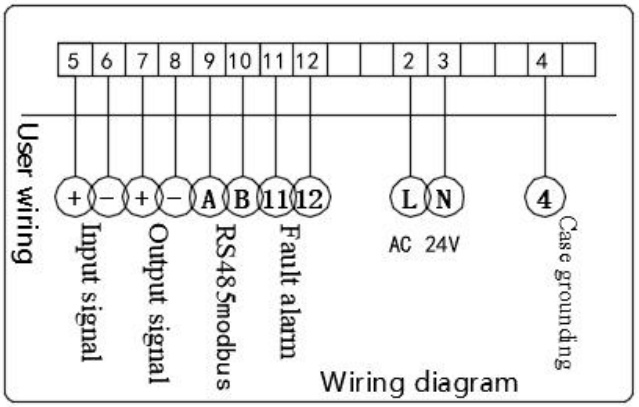
4.2 Wiring Guide (AC/DC Diagrams):

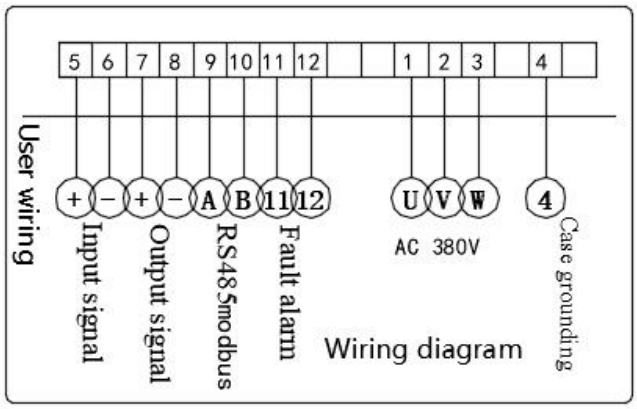
The actuator accepts analog inputs 4-20mA and 0-10V, including non-standard signals, with corresponding analog signal feedback. Digital 485 signals using MODBUS protocol require customization. The default setup supports 4-20mA I/O. For additional signals, contact our sales department.

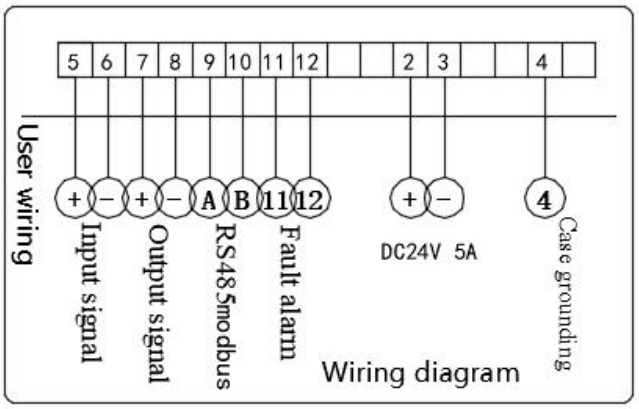


Wiring Instructions for External Explosion-Proof Terminal Box









Note: Wiring functions can be combined as needed, and power specifications are adjustable.

4.3、Remote Control Instructions:

The actuator comes standard with a non-explosion-proof remote control, allowing users to adjust the actuator and valve connections and stroke calibration without opening the viewing window.

1、Menu/Exit Button (also for "Local"/"Remote" mode switching)

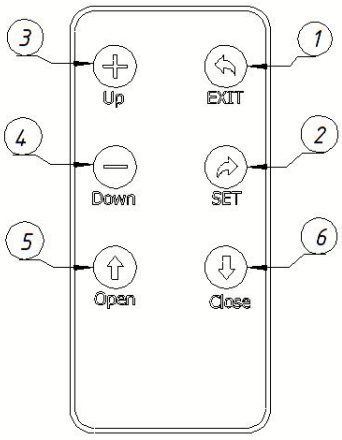
2、Parameter Setting Button (for menu navigation, selection, confirmation)

3、Data "+" (also for local open operation, unlock screen)

4、Data "-" (also for local close operation)

5、Hold to continuously operate opening actions locally;

6、Hold to continuously operate closing actions locally.



5、Parameter Settings

Functions of Control Panel Buttons：

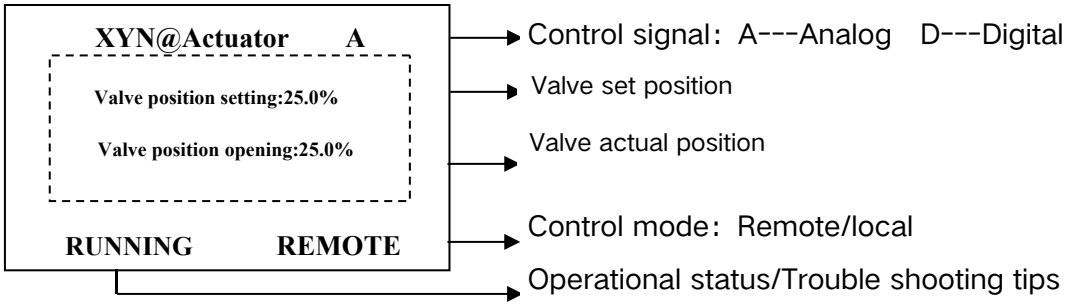
“SET” Enter menu or confirm selections.

“▲” Navigate to the previous menu item, increase input values, or unlock the screen.

“▼” Navigate to the next menu item or decrease input values.

“EXIT” Exit and return to the operational state or the previous menu level.

5.1 Normal Operation LCD Display



5.2 Menu Structure

NO.	Main Menue	Submenu	Remarks
1	01-Device information	01-NO.	Product factory identity
2		02-Hardware version	Control board hardware
3		03-Software version	Software version
4		04-Protocol version	Communication protocol version
5	02-Valve position verification	01-Automatic stroke calibration	Automatic adjustment of valve stroke
6		02-Stroke manual calibration	Manual adjustment of valve stroke
7	03-Sensor calibration (Permission Control)	01-Analog input checksum	The company's internal parameter debugging and testing are not open to the public
8		02-Analog output check	
9		03-Valve position sensor adjustment	

10		04-TrvK_10mm/90°	
11		05-XYN_EEP_MAIN	
12	04-Control performance (Permission Control)	01-Cut on the stroke	Please read carefully: 7.3 stroke limit and cutting under the parameter setting of electric actuator
13		02-Cut under stroke	
14		03-Cut under stroke	Cut under stroke
15		04-Hysteresis error spread	Control accuracy
16		05-Motor reversal delay	Motor response signal change time
17		06-Flow characteristics	Valve flow control characteristics
18		07-Direction of action of the valve	Actuator off direction
19		08-Rated torque compensation	When the torque is low, a certain value can be modified to increase the torque
20	05-Control signal(Permission Control)	01-Control signal selection	You can set the control signal type
21		02-Restart the control mod	Please read carefully: 7.3 Valve position setting control signal selection under electric actuator parameter setting
22		03-Upper limit of analog quantity	
23		04-Lower limit of analogue	
24		05-Signal forward and negative action	Actuator modalities
25		06-Signal fault handling	Actuator state after signal breaking: hold, full on, full off, set; When selecting Settings, press the Settings button to enter the submenu to modify the fault handling location to be set

26		07-Signal fault detection enabled	
27	06-Alarm parking settings (Permission Control)	01-Handwheel switch enabled	Used to set whether to stop the actuator when a fault occurs, but the main interface will still prompt for the failure
28		02-Failure in the direction of operation	
29		03-Memory failure	
30		04-Valve stall failure	
31		05-Torque overload detection	
32		06-Motor overheating detection	
33	07-LCD with communication	01-- Backlight time	LCD screen constant light time adjustment
34		02-Grayscale settings	Sets the display font brightness
35		03-Auto lock screen	Protect the actuator from being operated by unrelated personnel
36		04-Lock screen password	Screen password unlock can be set
37		05-Permission password	You can set a password to lock the main menu
38		06-Local address	The specific model is valid
39		07-Communication baud rate	The specific model is valid
40	08-Language		Chinese/English option

5.3 Parameter Settings

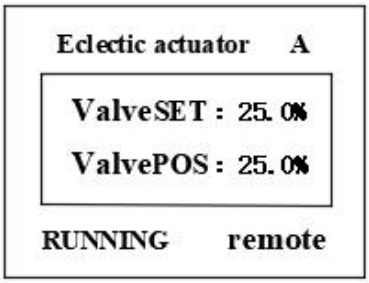
➢ *Accessing the Menu:*

Unlock the screen by pressing the "▲" button when locked.

During normal operation, press the "SET" button to enter the main menu. Navigate through 9 parameter setting functions using the "▼" or "▲" buttons, press "SET" to enter the selected submenu, and press "EXIT" to return to the previous menu. The operation in submenus is similar.

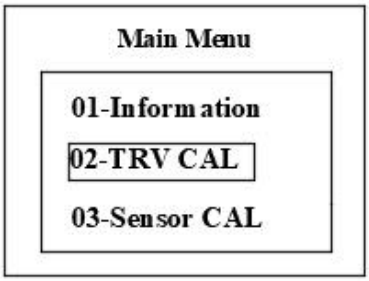
Local/Remote Switching:

Local/Remote Switching: In normal operation, press the "EXIT" button to toggle between "Local" and "Remote" control modes. In "Local" mode, the valve's current position can be adjusted using the "▼" or "▲" buttons. In "Remote" mode, the control signal source (analog signal 4~20mA, digital signal RS485, or other bus interfaces) sets the valve position, and the electric actuator then moves the valve to the corresponding position.

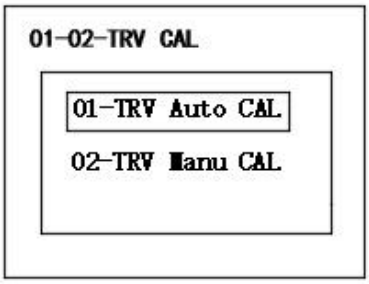


After the actuator and valve are installed, the correct power supply is applied, the valve stroke will be calibrated, and the set button will be pressed to enter the main menu.

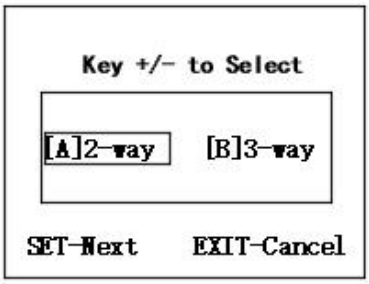
If you need to unlock the screen, press the [+ (Up) buttons to unlock the screen.



Press the setting button to enter the main menu, press the +/- button to select: **02-TRV CAL**, press the Set button to enter.



Press the +/- buttons to select: 01 stroke automatic calibration, press the set button to enter.

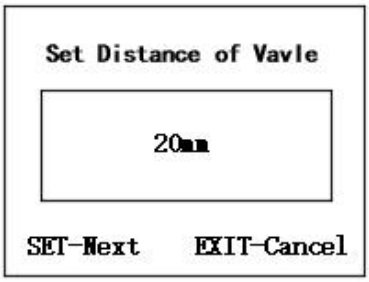


Press the +/- button to select the type of valve installed:

[A] 2-way: The valve closes as the actuator moves down.;

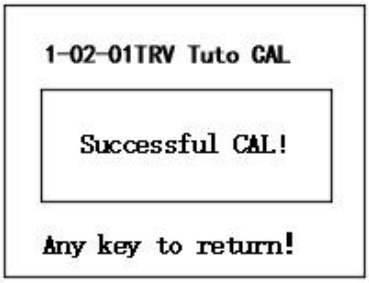
[B] 3-way : means that the valve is closed when the actuator runs up or down.

This step introduces the upper closing valve verification steps, press +/- to select [A] 2-way, press the set button to confirm.



Press the +/- button to set the valve stroke matched by the actuator, and press the set button to enter the next step of automatic valve position verification.

If [B] is selected, the 3-way valve will skip this step directly and perform automatic valve position verification.



The actuator appears in the calibration valve [stroke] The following steps will appear:

[Preparation];

[X11: Find the valve full closing point]; [X21: Look for the valve full opening.]When [Calibration Completed] is displayed, the valve position verification step is complete, press the exit button to return to the main interface.