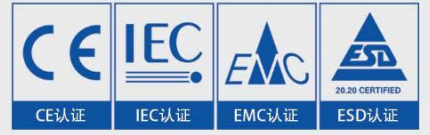
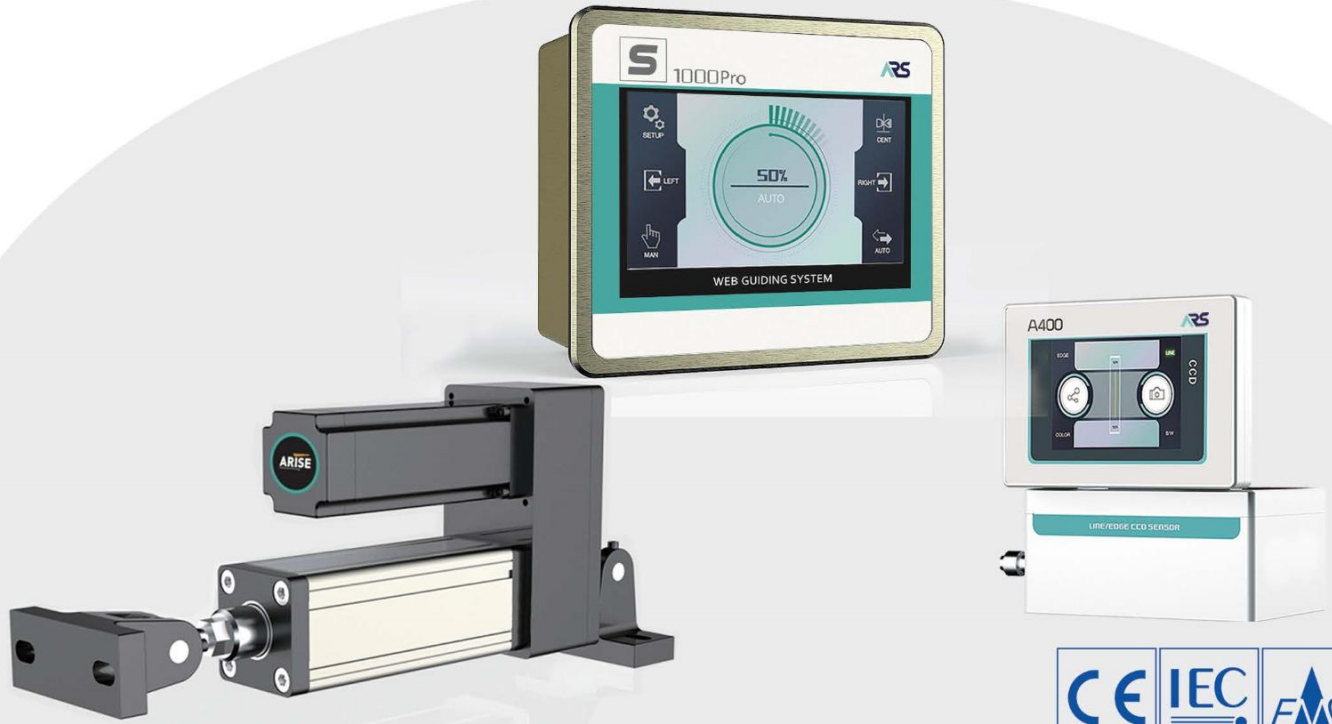


# User Manual

## S1000PRO



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## Solemnly Declare

First of all, we sincerely thank our valued customers for choosing products from Chongqing Arise Technology Co., Ltd. To ensure optimal performance of the equipment, please make sure to carefully read this user manual before operation. Kindly store this manual in a designated location for quick access when needed. While this manual is designed for easy reference, if there are any unclear points, errors, or omissions, please feel free to contact us. We do not assume responsibility for any outcomes unrelated to the proper use of this manual. Thank you for your understanding.

## Safety Instructions

To ensure the safe use of this product, please carefully read this manual before installation and operation. Follow all safety precautions and adhere to the instructions. This web guiding controller, controlled by a CPU, is designed to correct web material deviation. Compliance with electrical equipment standards is required during handling, installation, operation, and maintenance.

Before starting the web guiding controller, ensure all preparations are complete, including installation, wiring, and trial runs. Regular maintenance is essential to ensure proper functioning and extend the equipment's lifespan.

### WARNING

#### 1. Installation Process

- ★ Ensure that installation work is carried out with the power off to avoid electric shock.
- ★ Do not drop the equipment or subject it to strong impacts.
- ★ Do not place heavy objects on the equipment or use it as a step stool to prevent damage, malfunction, and potential injury.
- ★ Do not insert screws, metal fragments, or other conductive or flammable objects into the equipment to prevent short circuits or fire, which could cause damage and malfunction.
- ★ Please use the equipment in the environment specified in the manual to avoid the risk of electric shock, fire, or malfunction.
- ★ Please follow the manual for installation and wiring. Incomplete installation may lead to malfunctions.
- ★ This device is not explosion-proof. Do not use it in environments where explosion protection is required.

#### 2. Wiring Process

- ★ Wiring should be carried out by a qualified electrician following the guidelines in the manual to avoid accidents.
- ★ Please implement Type D grounding (formerly Type 3) to avoid electric shock.
- ★ Do not damage, over-tighten, crush with heavy objects, or pinch the connecting wires to avoid electric shock.
- ★ Do not connect the terminal wires incorrectly to avoid electric shock.
- ★ Connect only to the specified voltage. Incorrect connection may cause fire, equipment damage, and malfunction.

## 1.Product Introduction

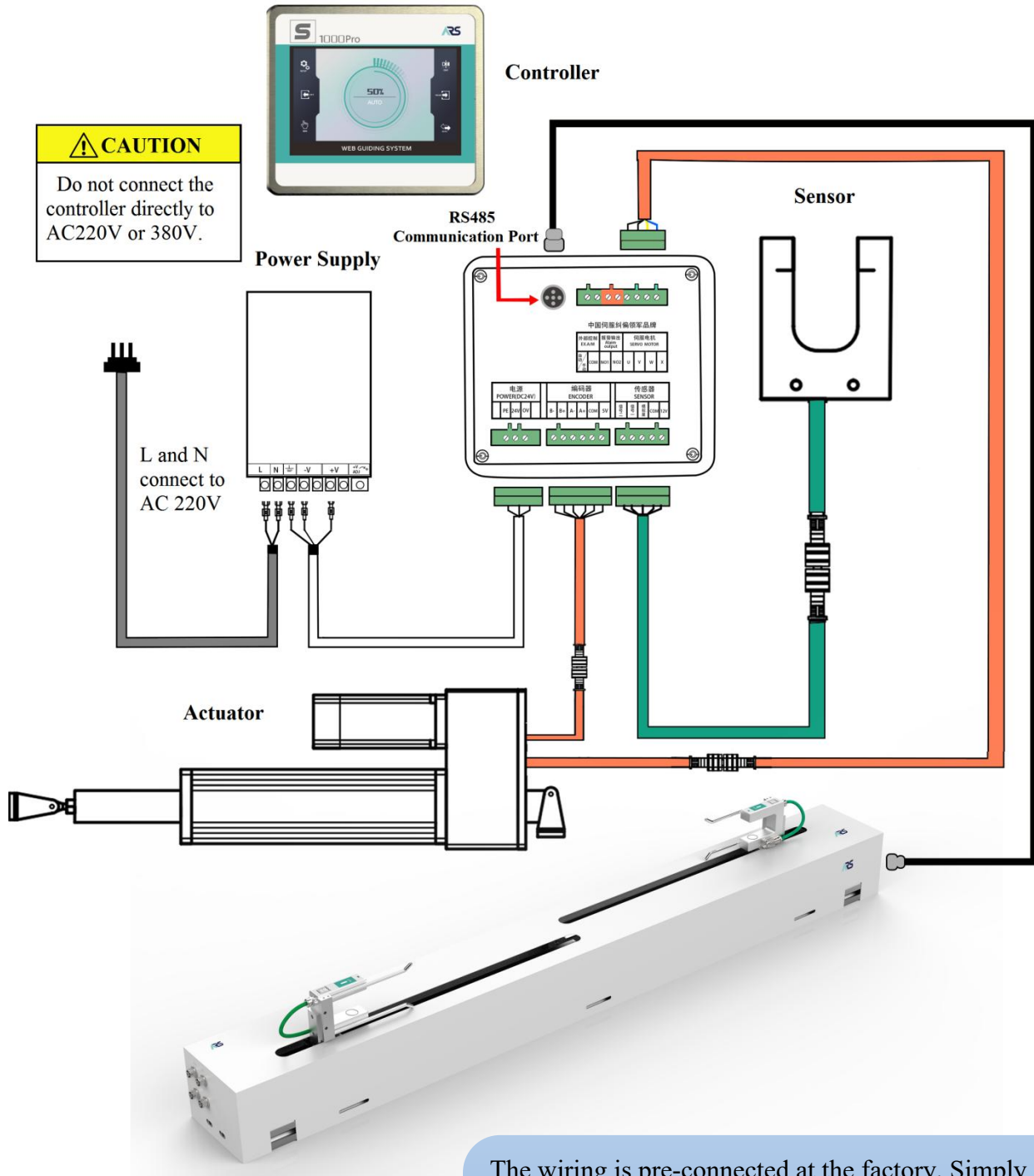
The S1000Pro is a high-performance servo web guiding controller with a full touch-screen interface, designed for edge tracking, line tracking, and contrast detection. It is suitable for automatic control in material unwinding, rewinding, and intermediate guiding applications. Using ultrasonic, infrared, or CCD sensors to detect signals, it calculates material deviation and drives the servo motor with encoder feedback for precise correction. The system also features automatic single-side edge tracking.

## 2.Main Functions and Features

Item	S1000Pro	Other Brand Products
CPU	32-bit dual-core (FPGA + ARM)	C51/PIC/AVR...8-bit SCM
Operating Frequency	210MHz	8MHz
Motor	Closed-loop servo motor	Relay-driven AC synchronous or DC motor (open-loop)
Response Time	0.02ms	Above 10ms
Encoder	1000-line imported encoder	None
Accuracy	0.004mm	Above 0.5mm
Motor Speed Control	Adjustable motor speed (automatic speed change)	AC synchronous motor, no speed adjustment
Sensor Interface	Ultrasonic sensor, CCD line-tracking sensor	Supports single/double photoelectric sensors only
Interference Resistance	Metal shell, strong interference resistance	Plastic shell
Commutation	Electronic commutation	Resistor-capacitor or carbon brush commutation
Reliability	High	Normal
Maintenance Cost	Maintenance-free	Requires resistor-capacitor or carbon brush replacement
Anti-Static	30,000V	500V-5000V
Safety	Sparkless commutation	Commutation spark

### 3. Installation Environment and Wiring

#### 3.1. Basic Wiring Instructions



The wiring is pre-connected at the factory. Simply plug in the corresponding connectors for proper operation. Avoid disconnecting wires unless necessary; if extending wires, keep track of the wiring order.

**Note:** Ensure the controller is properly grounded.

### 3.2. Installation Environment Requirements

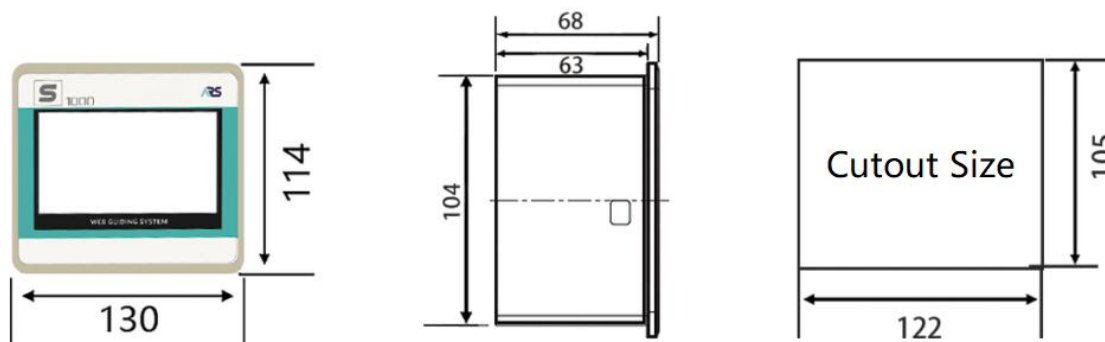
Environment	Requirements
Ambient temperature	0°C to 40°C (no freezing)
Relative humidity	Below 80% RH (no condensation)
Environment	1. Indoor (avoid direct sunlight) 2. Avoid corrosive, flammable gases, oil mist, and dusty areas. 3. Well-ventilated environment
Other	Avoid installation in vibrating environments. Ensure sufficient space for installation to facilitate good heat dissipation.

## 4. Specifications and Installation Dimensions

### 4.1. Standard Specifications

Item	Specifications	
Power supply	Operating power input	DC24V, with a current of at least 4A (150W recommended)
	Operating power output	DC12V for sensors, with a maximum output current of 1A
	Motor output	Control output PWA pulse for servo motor control

### 4.2. Exterior and Installation Dimensions



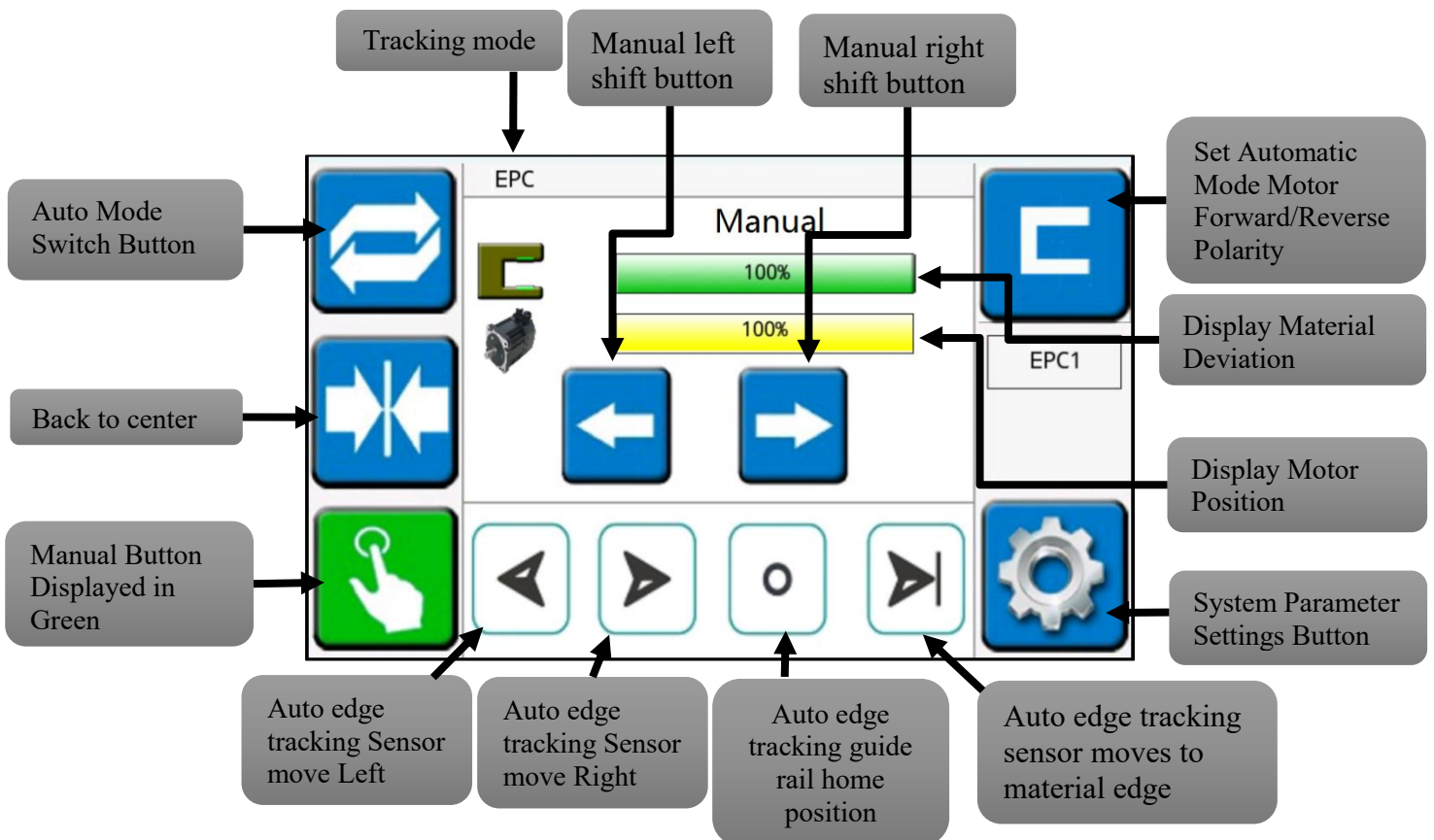
## 5. Operating Interface and Parameter Settings

### 5.1. Startup Interface



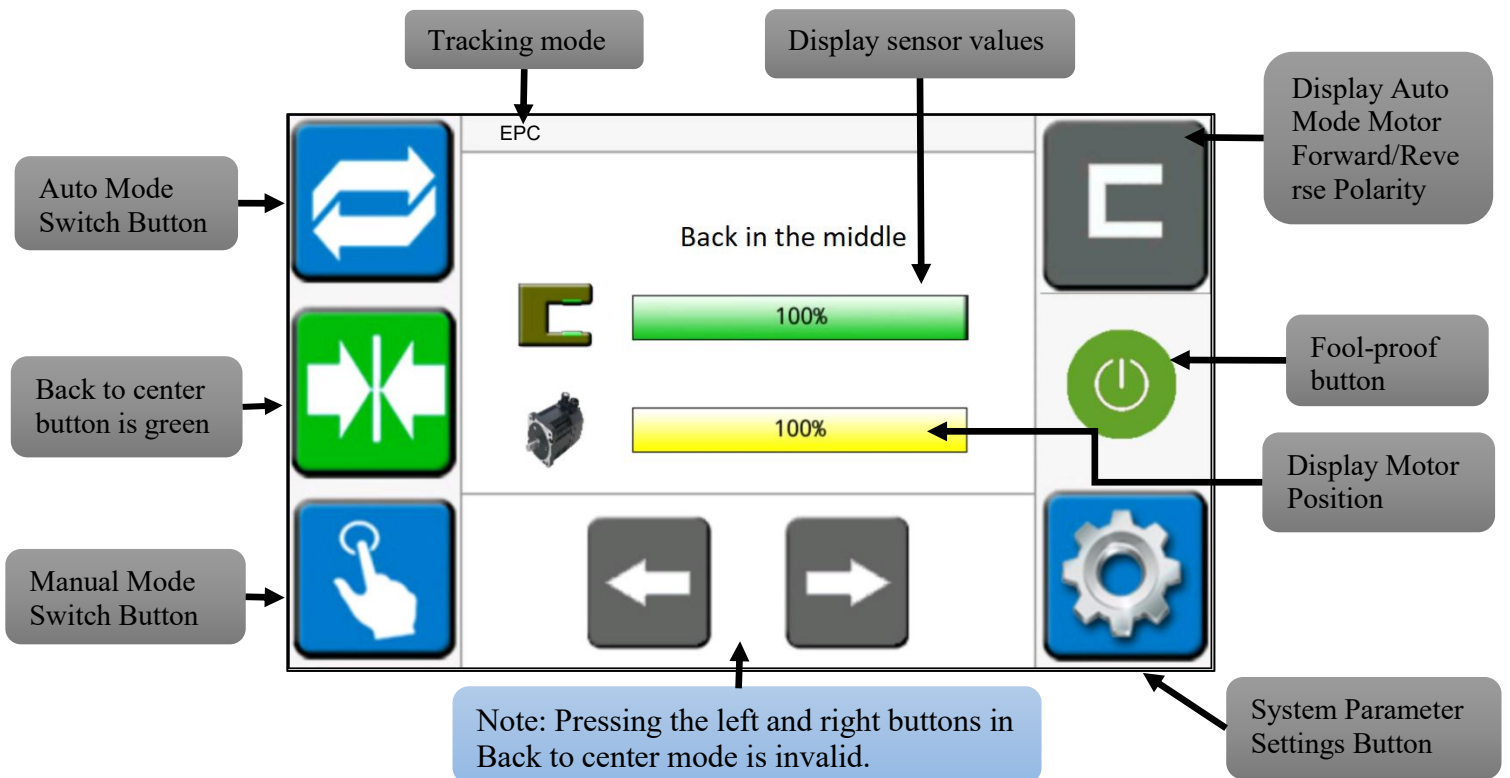
The controller performs system loading, device scanning, and data initialization.

### 5.2. Manual Mode Interface

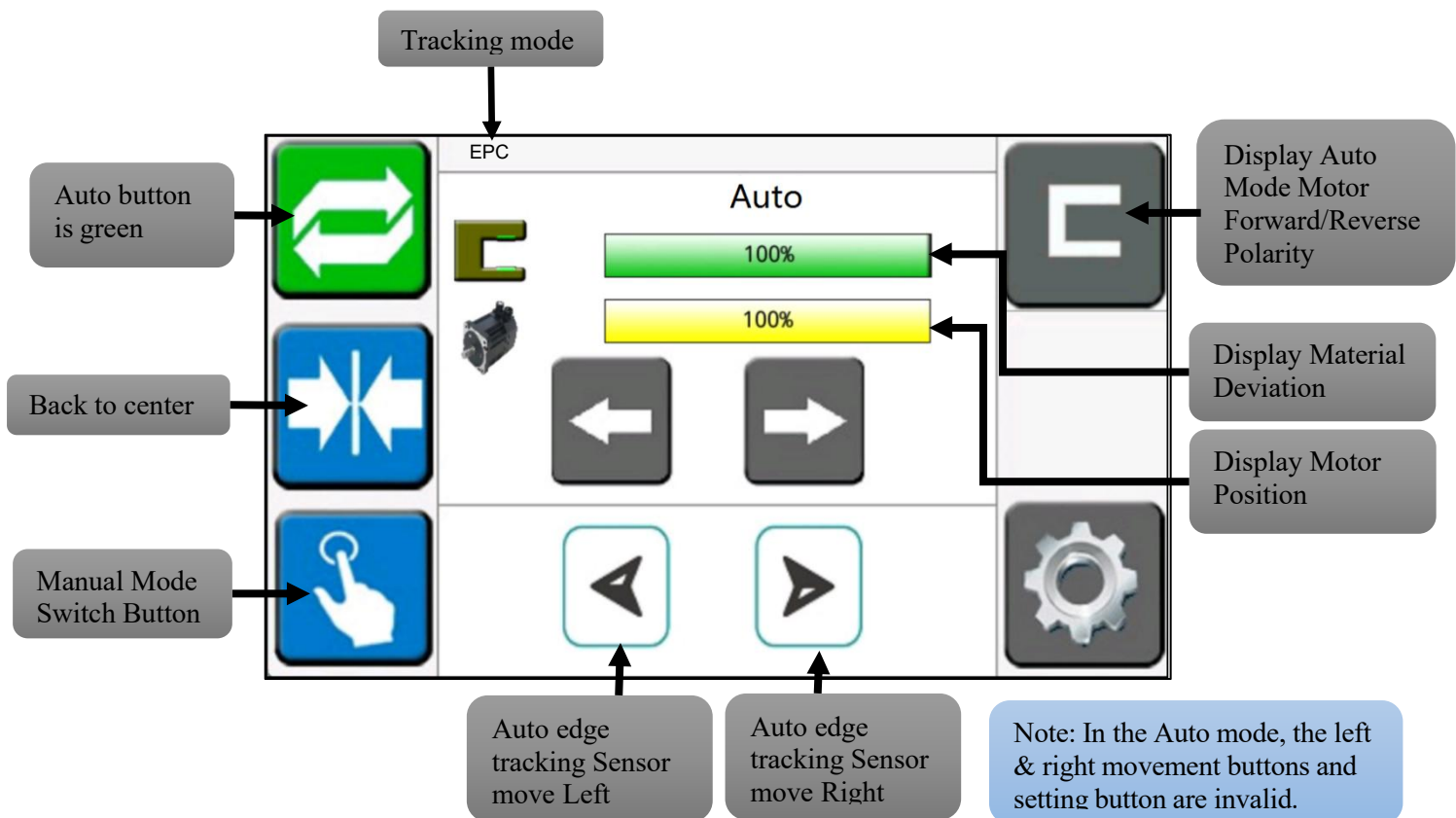




### 5.3. Auto back to center mode interface



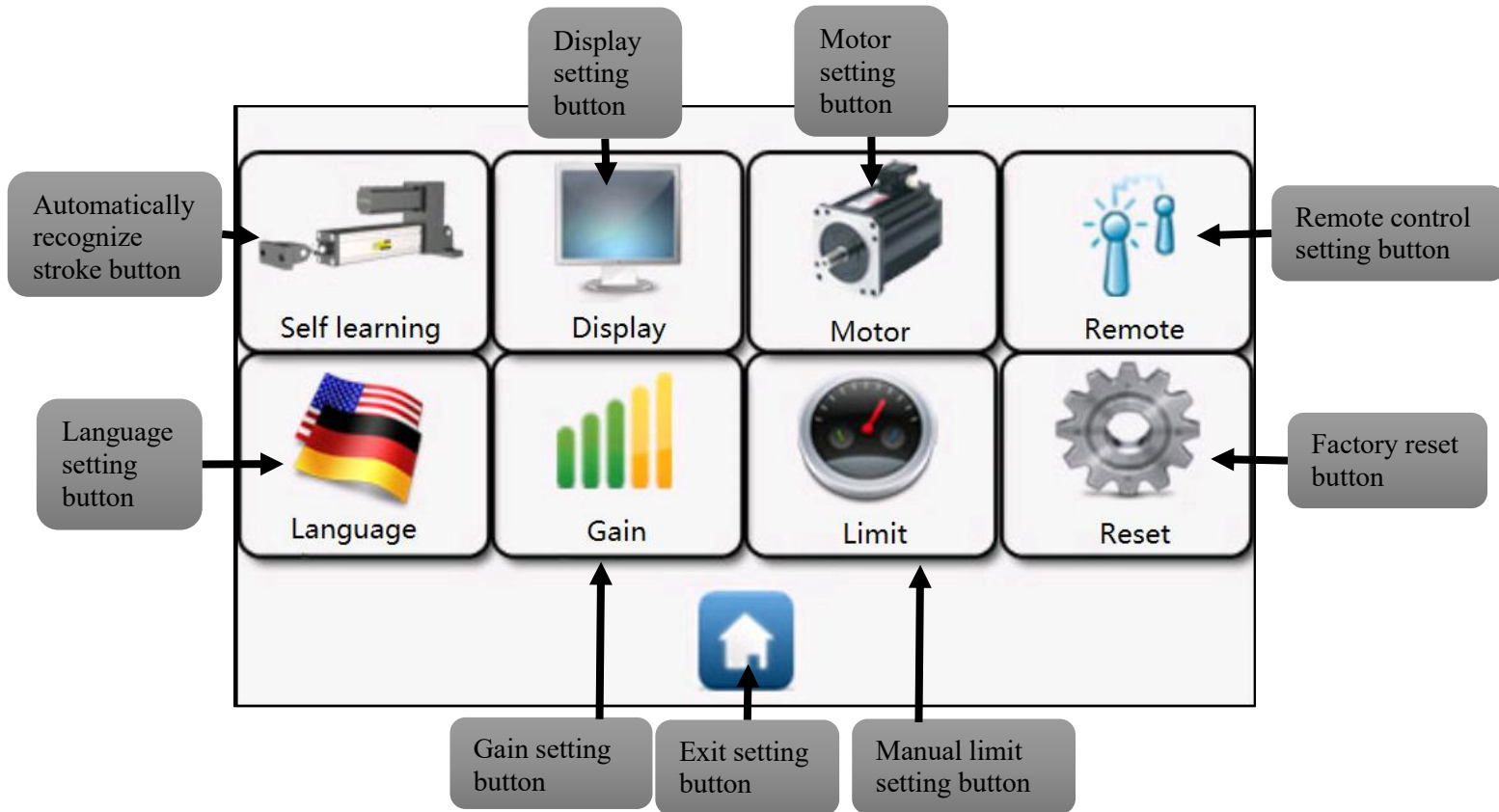
### 5.4. Auto mode interface





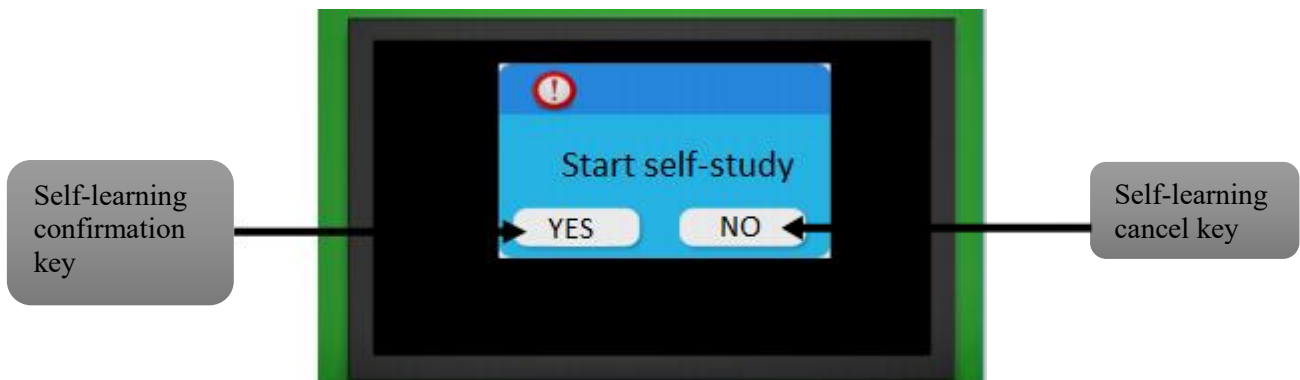
### 5.5. System parameter setting main interface

Click the "Setting button" to enter the main interface of system parameter setting.

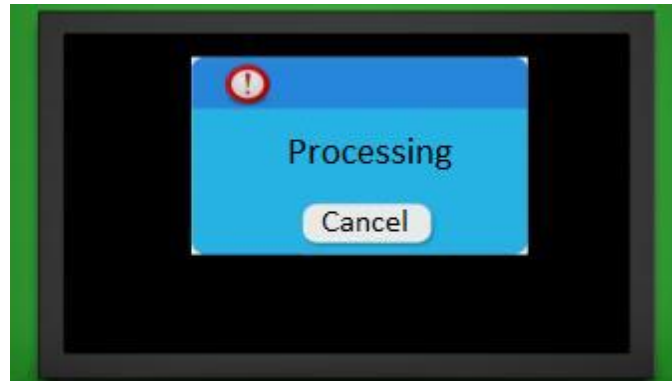


#### 5.5.1. Automatically recognize stroke application

(1) Touch the automatic stroke recognition button, and the following interface will pop up on the display screen. .



(2) After confirming self-learning, the following interface will appear.



(3)The controller is identifying the left and right limit strokes of the actuator, and will automatically return to the manual mode interface after the identification is completed.

### 5.5.2.Display Setting Interface

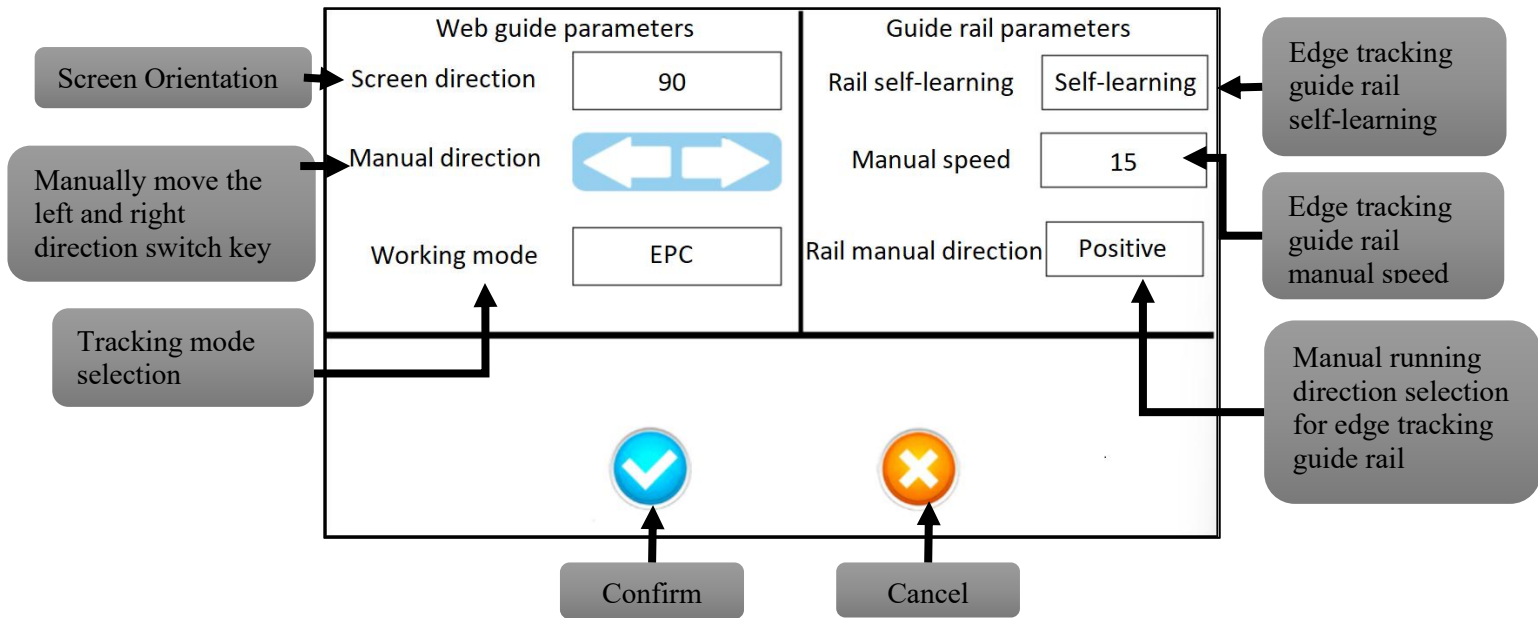
(1) Click "Display Settings Button" to enter this interface.



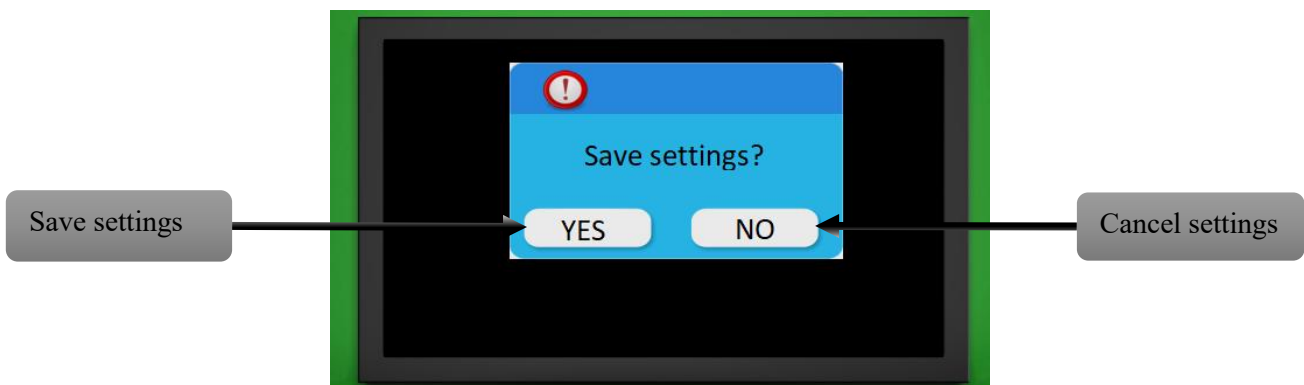
"Display interface" is used to set the brightness of the touch screen to adapt to different light environment requirements. That is to say, reduce the screen brightness to protect the screen and extend the service life of the screen. You can set the corresponding parameters by sliding the slider.

### 5.5.3.Motor Setting Interface

(1) Click the "Motor Setting Button" to enter this setting interface.



(2)Click "Confirm" to enter the parameter saving settings interface.



**Screen Orientation:** This parameter configures the rotation angle of the controller's main interface display, with options of 0° and 90° (currently unavailable).

**Manual Direction:** Sets the movement direction of the actuator when operating in manual mode, controlled by the left and right buttons.

**Working Mode:** Defines the correction mode, including Edge Position Control (EPC), Center Position Control (CPC), and Snake Pattern Correction (SPC).

**EPC Mode:** Requires connecting the sensor's analog signal to the analog input port of the correction controller's sensor interface.

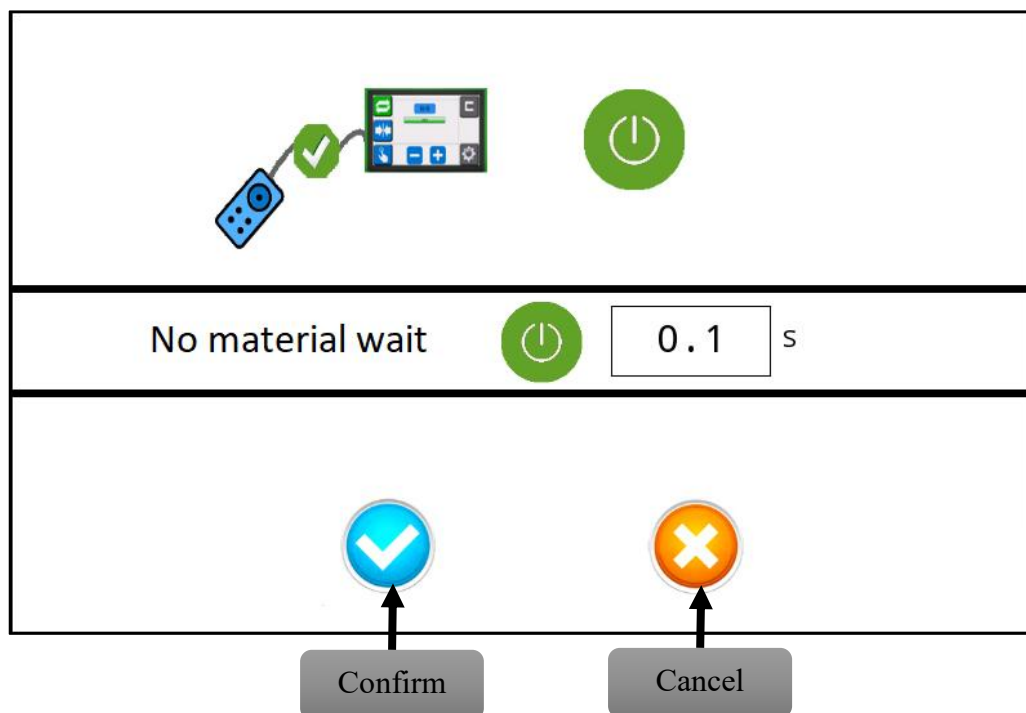
**Guide Rail Self-Learning:** The motorized guide rail runs back and forth once, with the encoder recording the left and right limit values to complete self-learning.

**Manual Speed:** Used for fine-tuning the edge detection speed. The smaller the value, the slower the speed, with a maximum value of 200 (recommended range is 15-30).

**Guide Rail Manual Direction:** Allows selection of the manual movement direction of the guide rail to match the actual installation orientation and sensor alignment.

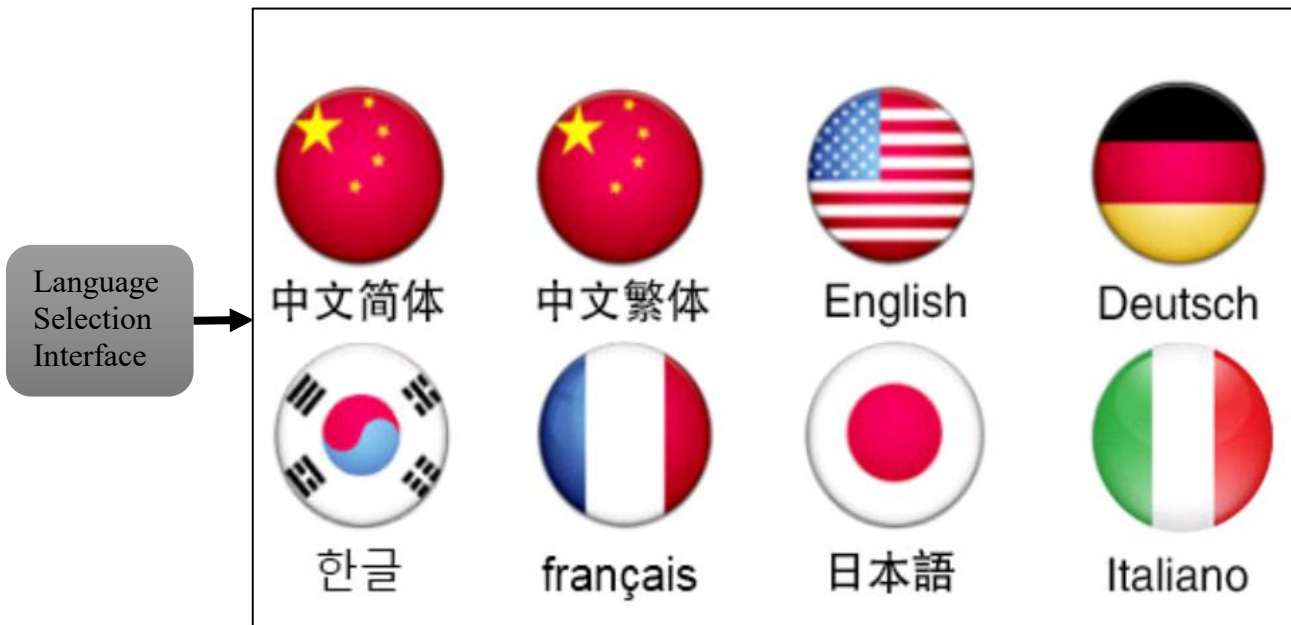
#### 5.5.4.Remote Control Settings Interface

(1) Click the "Remote Control Settings" button to enter this interface.



### 5.5.5. Language setting interface

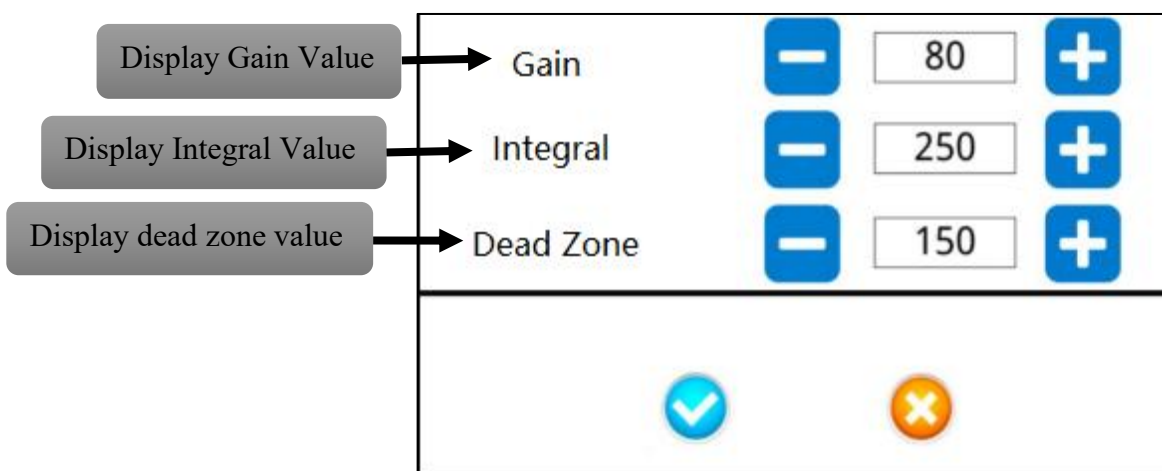
(1) Click the "Language Setting Button" to enter this interface.



The controller offers eight operating languages for customers to choose from, with Simplified Chinese set as the default. Selecting a language will change all interface text to the chosen language.

### 5.5.6. Gain setting interface

(1) Click the "Gain Setting Button" to enter this interface.



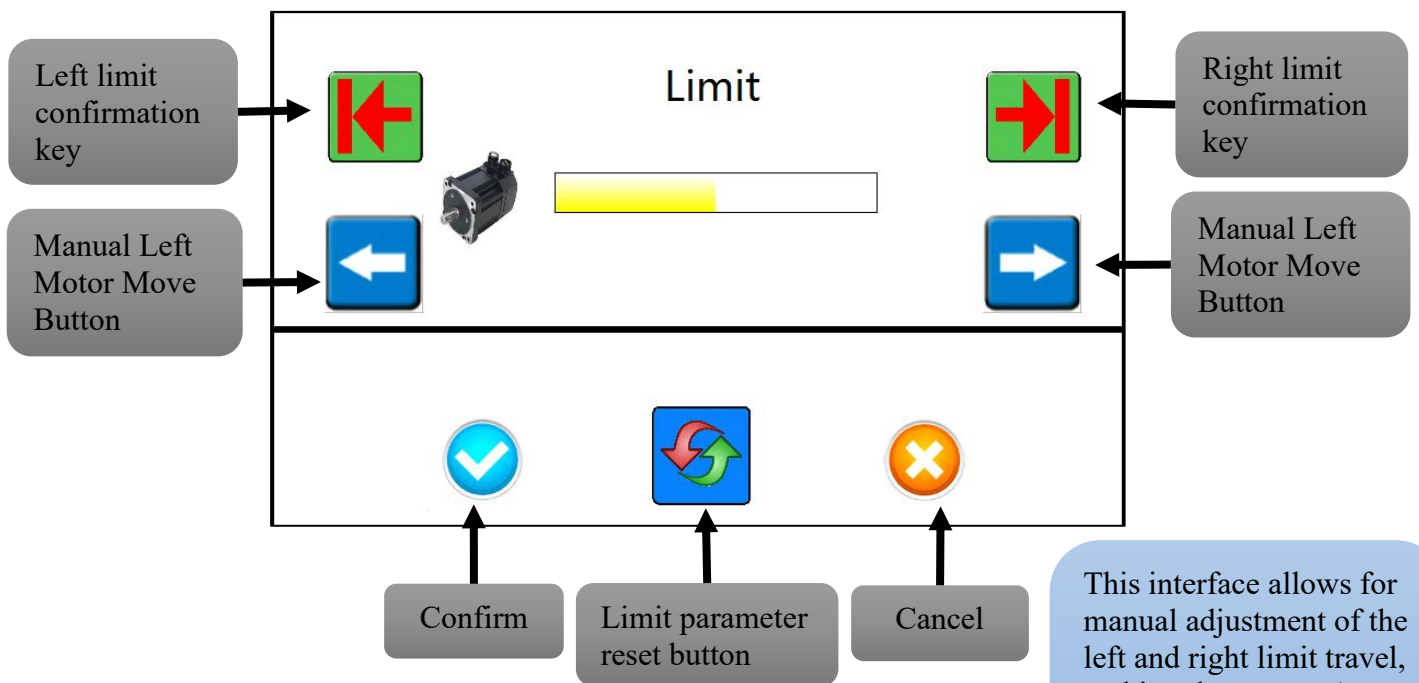
**Gain:** This parameter sets the system's response speed and precision. In automatic mode, the actuator motor's speed depends on the product of the edge deviation relative to the sensor detection distance and the gain (i.e., deviation \* gain). Larger deviations result in higher actuator speeds. For a given deviation, the gain determines the system's speed. Different sensors require different gain settings due to varying detection ranges, and the gain should be set as high as possible while maintaining system stability. The maximum gain setting is 90. Values above 90 may cause material vibration. Recommended range: 30-90.

**Integral:** This parameter defines the precision of the system's operation. In automatic correction mode, the integral helps fine-tune adjustments when the system approaches the sensor's dead zone, ensuring correction stability. It should be adjusted in conjunction with the gain. Higher integral values result in smoother operation but slower correction response. Recommended range: 120-300.

**Dead Zone:** This parameter specifies a small area near the sensor detection point where the actuator stops working when the material enters it. The actuator resumes operation only when the material leaves this designated zone. Adjustment range: 0-600.

### 5.5.7.Limit setting interface

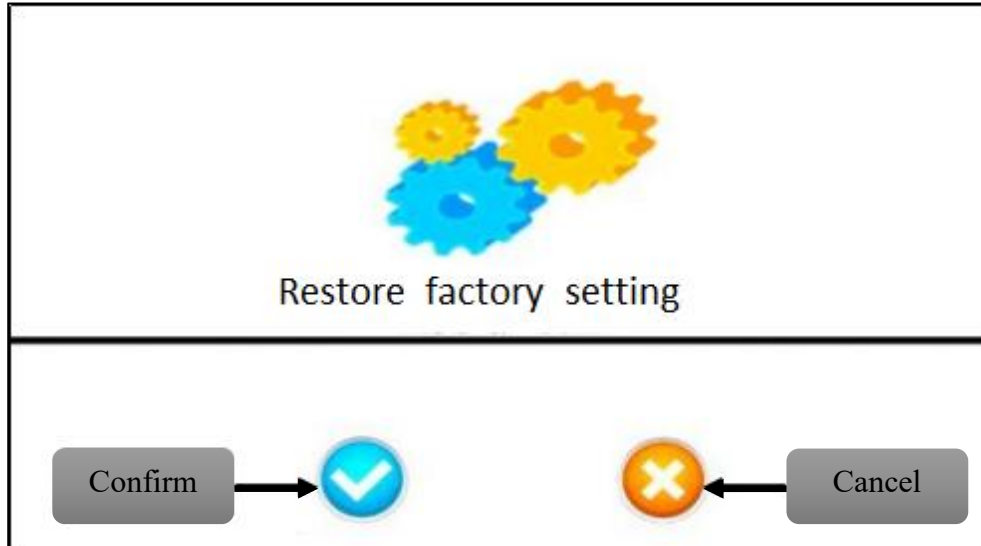
(1) Click the "Manual Limit Setting Button" to enter this interface.



This interface allows for manual adjustment of the left and right limit travel, making the actuator's limit settings more flexible and convenient based on specific needs.

### 5.5.8.Restore factory settings interface

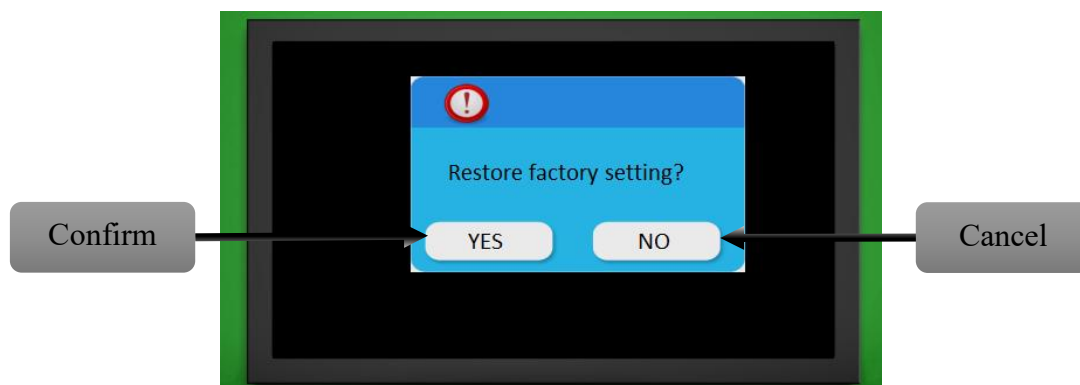
(1) Click the "Restore factory setting Button" to enter this interface.



**! WARNING**

Proceed with caution when performing this operation!

(2) Click the "Confirm button" to enter the factory reset interface  
(password: 62319036)



When the controller parameter settings are confusing, you can restore the factory settings and re-debug the parameters.



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## 6. Operating Steps

### 6.1. Servo Motor Self-Learning:

On the first startup, enter manual mode and tap the "System Parameter Setting Switch" to access the system parameter settings menu. Click the "Self-learning" button to initiate self-learning. The motor will move back and forth to learn the load and travel range for optimal performance. After completion, the controller returns to manual mode.

### 6.2. Guide Rail Self-Learning:

After completing the previous step, perform self-learning for the guide rail. Tap the "System Parameter Setting Switch" again to enter the system parameter settings menu, then click "Motor" to start guide rail self-learning. The sensor will move back and forth along the rail, learning the load and travel range. Afterward, the controller will return to manual mode automatically.

### 6.3. Manual Adjustment:

In manual mode, pressing "Left" moves the correction left, and "Right" moves it right. If the direction is incorrect, enter the "System Parameter Settings" menu and click "Motor Settings" to switch the manual direction. Exit the settings menu to apply the changes.

### 6.4. Guide Rail Manual Control:

Pressing the "Left" button moves the guide rail sensor left, and "Right" moves it right. If directions are reversed, switch the manual direction in the "System Parameter Settings" menu. Alternatively, press "Auto Guide Rail Home" to return the guide rail to its origin. When material is present under tension, press "Auto Edge Move" to automatically align the sensor to the material's edge.

### 6.5. Automatic Correction Mode:

Verify if the automatic direction is correct. If not, switch to manual correction mode, and adjust the motor's direction via the "Motor Polarity Setting." Fine-tune the sensor position using the left or right buttons if needed.

### 6.6. System Operation:

The web guiding system is now ready for normal use. In manual correction mode, adjust sensitivity settings as needed, but avoid extreme values.

### 6.7. Extended Functions:

**6.7.1. Error-Proofing Control:** This feature toggles between "Auto" and "Manual" based on external signals. When "Auto" and "COM" are shorted, the system switches to automatic mode; when disconnected, it reverts to manual mode. Enable this function in the remote control settings.

**6.7.2. Alarm Output:** In cases of limit, overload, or overcurrent errors, the relay closes to provide an external stop signal.

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## Appendix: Common Issues and Solutions

### 1. No Response After Power On, Display Does Not Light Up

- (1) Check if the DC24V power output is normal.
- (2) Inspect the power cable for integrity.
- (3) Ensure the power plug makes good contact and verify correct wiring polarity.
- (4) Reconnect the power plug.

### 2. Actuator Cannot Limit

- (1) Check if wiring is correct and connectors are properly seated.
- (2) In manual mode, press the "System Parameter Setting Switch" and observe if the "Display Motor Position" bar graph changes.
- (3) Press the "Self-learning" button to start self-learning for the servo motor.

### 3. Actuator Does Not Work

- (1) Verify the sensor wiring.
- (2) Check for loose couplings or synchronous wheels, and ensure the belt is intact.
- (3) Disconnect the actuator from the frame and check for mechanical obstructions or inadequate thrust.

### 4. Manual Operation Works, Automatic Only Moves in One Direction

- (1) Block the sensor with material to see if it changes direction; if so, switching the polarity may resolve it.
- (2) Inspect for loose or broken sensor wires.
- (3) Confirm the correct sensor type is used:
  - Ultrasonic AE-210 for materials without mesh.
  - Infrared AE-100 for materials with mesh (avoid direct sunlight).
  - Color mark photoelectric AE-90 for low-speed edge detection.
  - CCD image AE-400 for medium-speed applications.
- (4) If the actuator vibrates excessively, reduce the gain value in the settings.

### 5. Web Guiding Roller Swings Excessively or Responds Slowly

- (1) Check if the material slips on the roller; increase tension or friction.
- (2) Adjust the gain settings.
- (3) Position the sensor closer to the swinging roller.
- (4) Ensure tight connections between the actuator and mechanical parts.

### 6. Equipment Works Normally Before Startup, Fails After Starting

- (1) In manual mode, block the sensor and check if the material offset value increases.
- (2) Check if there are high-power interference sources near the controller and sensor; isolate and retest.
- (3) Ensure proper grounding of the device and product.

- (4) Separate the sensor and actuator cables from high-power motor cables for testing.
- (5) Check for damaged insulation or poor contact in cables.
- (6) Inspect the power supply for short circuits between V- and PE.
- (7) If static electricity is significant, ground both the sensor and controller. Position the sensor centrally on the material, and consider adding static elimination devices.

### **7. Anomalies with Edge Tracking Guide Roller**

- (1) Ensure RS485 communication line is functioning.
- (2) Check if the guide rail motor indicator shows an alarm.
- (3) Inspect the integrity of the sensor cable.
- (4) Verify if the motor speed is normal.
- (5) Attempt guide rail self-learning to check for motor response.

Note: If the above solutions do not resolve the issue, please contact us via our official website at [www.arisewebguiding.com](http://www.arisewebguiding.com).