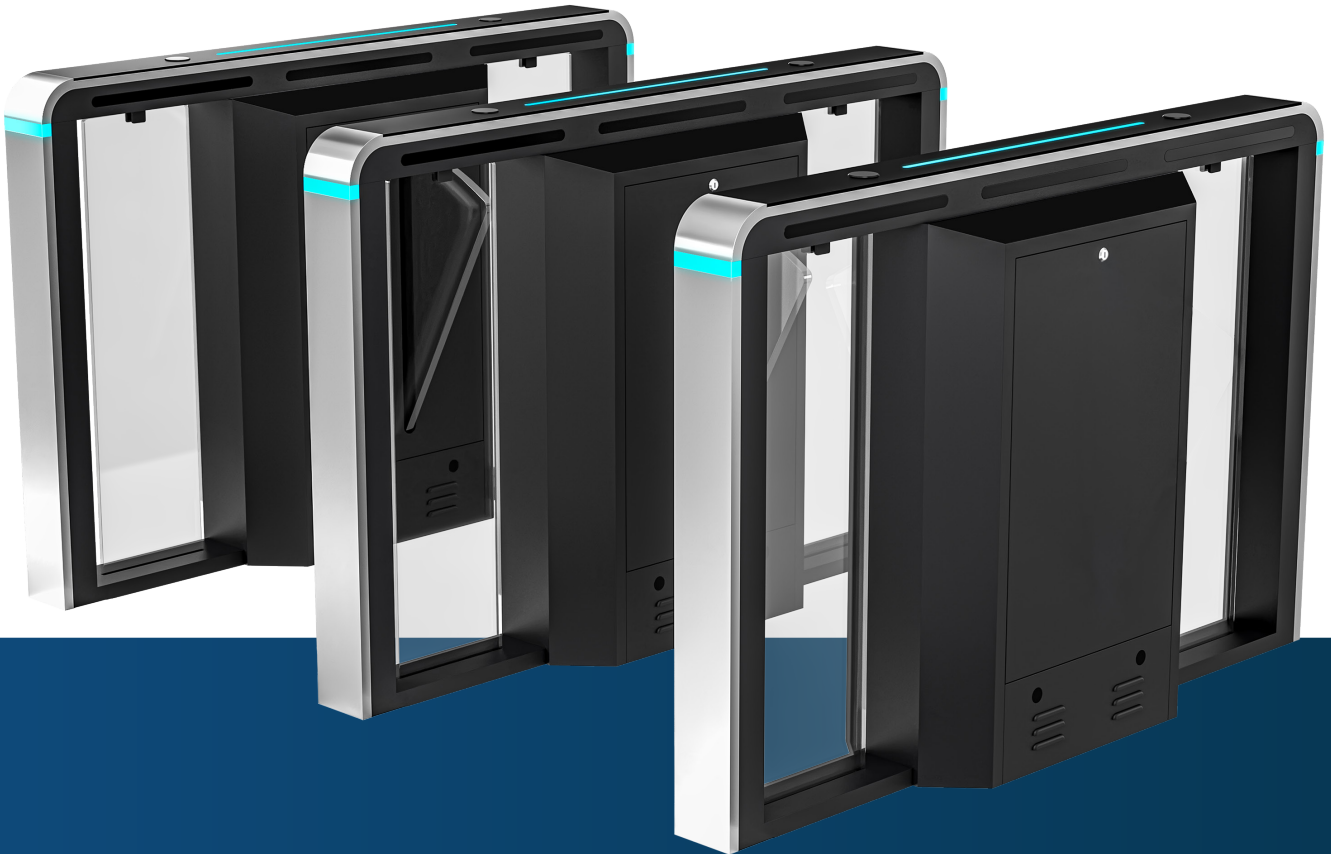




**IBEX**  
ACCESS CONTROL

USER MANUAL  
**FLAP BARRIER**





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## Notes

**Power Safety:** do not connect, plug, or remove any terminals or cables between the machine and the motherboard while the power is on. Doing so may cause permanent damage to the motherboard.

**Factory Wiring:** this product is delivered with all internal wiring completed. Do not modify any internal connections unless explicitly instructed by this manual. The company shall not be held liable for damages resulting from unauthorized modifications.

**Electrical Protection:** the equipment casing must be properly grounded. Additionally, a leakage protection switch (RCD/GFCI) must be installed at the power supply input.

**Operational Safety:** to avoid personal injury, do not open the cabinet door or covers while the pedestrian gate is in operation.



## Key Features and Functions

**Self-Diagnostic Power-On Test:** features a zero-position self-test for easy maintenance and user operation.

**Unauthorized Entry Alarm:** equipped with an audible alarm system to detect and stop illegal entry.

**Anti-Tailgating & Forced Entry Protection:** the swing doors automatically lock or trigger an alarm if forced or if no valid entry signal is received.

**Infrared Anti-Pinch Safety:** integrated infrared sensors prevent the doors from closing on pedestrians during passage.

**Automatic Timeout Reset:** if a user swipes a valid card but does not pass through within the preset time, the system will automatically revoke access and reset.

**Universal Electrical Interface:** features a standardized external interface compatible with various card readers and biometric systems, allowing for remote management via a central computer.





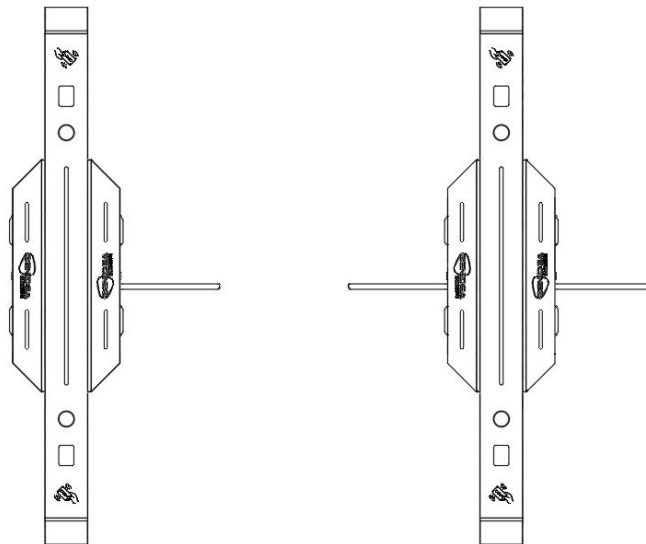
## Technical Specifications

COMPONENT / PARAMETER	SPECIFICATION
Housing Material	304 Stainless Steel
Input Power	AC 110–240V $\pm$ 10%, 50Hz
Operating Voltage	24V DC
Drive Motor	24V DC Motor
Operating Temperature	-15°C to 70°C
Relative Humidity	$\leq$ 90% (Non-condensing)
Opening Signal	Relay Dry Contact
Communication Interface	RS232
Installation Environment	Indoor
Throughput Speed	30–40 people / min



**4.1 Single-Mechanism Swing Gate:** features one drive mechanism installed within the cabinet.

**Dual-Mechanism Swing Gate:** features two drive mechanisms installed within a single cabinet, as shown below.



Single Core

Double Core

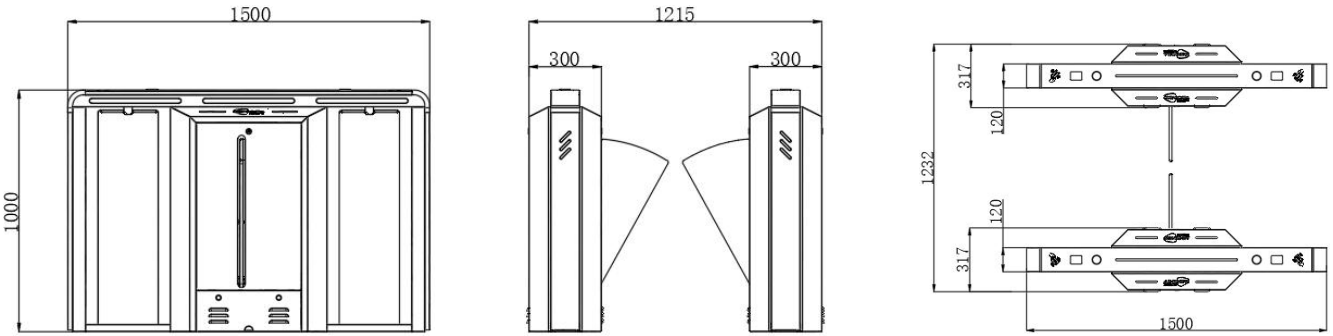
## 4.2 Master and Slave Unit Configuration

In a standard lane setup, the gate units operate in a **Master/Slave** relationship based on the infrared (IR) sensor connections:

- **Master Unit:** the gate unit connected to the **receiving** end of the infrared sensors.
- **Slave Unit:** the gate unit connected to the **transmitting** end of the infrared sensors.
- **Dual-Mechanism Units:** when a dual-mechanism gate is used in a multi-lane configuration, it is internally configured as one Master and one Slave system.

**IMPORTANT:** pay close attention to the installation direction. The units must be aligned correctly to ensure the swing doors operate in the intended direction; reverse installation will cause operational errors.

### 4.3 External Dimensions & Footprint



## 5 System Components and Operating Principles

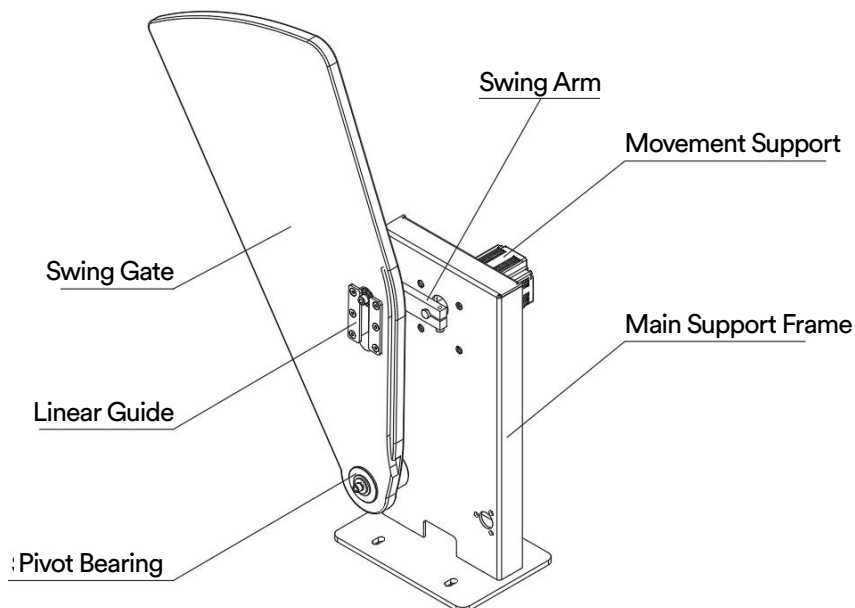
### 5.1 Mechanical System Overview

The pedestrian gate's mechanical system consists of two primary sections: the Cabinet and the Drive Mechanism.

**Cabinet (Housing):** acting as the main protective shell and structural support, the cabinet houses the directional indicators, RFID/biometric readers, infrared safety sensors, and other peripheral devices.

**Drive Mechanism:** the core operational unit, comprising the motor, support frame, transmission shaft, and the swing arm (gate).

#### Structural Design:



## 5.2 Electronic Control System

The electronic control system is composed of the access control system, main control board, infrared sensors, directional indicators, alarm system, and power transformer.

- **Access Control System:** processes entry credentials, such as RFID cards or facial recognition, and transmits a dry contact (switch) signal to the main control board to request passage.
- **Main Control Board:** functions as the system's central processing unit. It receives and analyzes input signals from the card reader and infrared sensors. After processing the input, the main board issues execution commands to the motor, directional indicators, counters, and alarms to complete the operational cycle.
- **Infrared Sensor Array:** monitors pedestrian position in real-time to ensure user safety and prevent unauthorized passage.
- **Directional Indicators:** high-visibility LED signals display current passage status and provide clear guidance for orderly traffic flow.
- **Integrated Alarm:** automatically triggers an audible alert upon detection of unauthorized entry or prohibited movement within the lane.

## 5.3 Product Accessories List

SERIAL NUMBER	NAME	FUNCTION
1	Access Control	RFID: IC/ID card readers. Biometrics: Fingerprint and Facial Recognition. Digital Credentials: QR Code and Barcode scanners. Control Signals: Dry contact input from access control panels. Manual Overrides: Remote control and Push-to-Exit buttons (Optional).
2	Control Panel	The system's main processing unit. It processes signals from card readers and infrared sensors to coordinate the motor, direction indicators, counters, and alarm systems.
3	Infrared Sensor	Monitors pedestrian position to ensure active safety protection and prevent injury.

4	Directional Indicators (LED)	Provides real-time visual status to guide users safely and efficiently through the lane.
5	Alarm	Integrated sensors trigger an alarm if an unauthorized pedestrian is detected or if passage is attempted without valid credentials.
6	Driver Motor	Powers and coordinates the mechanical movement of the barrier for smooth and reliable operation.
7	Switching Power Supply	Provides regulated DC power to the main control board.
8	Master Power Switch	The primary disconnect and startup switch for the entire unit.

#### 5.4 Operating Principle

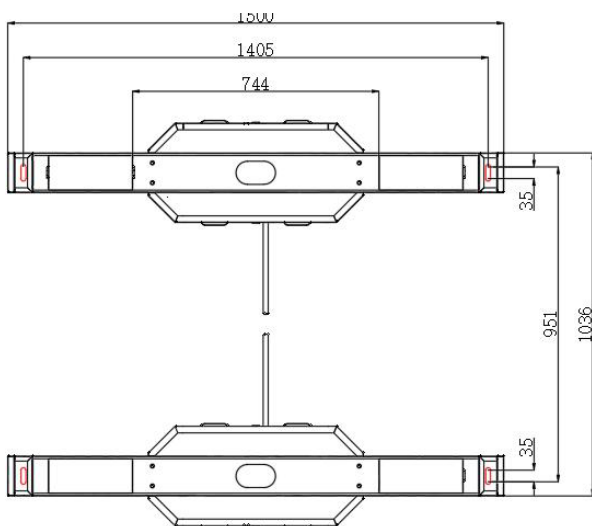
- Upon power-up, the system performs an automatic self-test before entering operational mode.
- When a valid credential is presented, the reader emits an audible notification to confirm successful authorization. The control panel processes the data alongside real-time input from the infrared sensors to trigger the access sequence. Simultaneously, the directional indicators switch to a green arrow, and the motor actuates the barrier to allow passage.
- Users proceed through the lane following the directional indicators. During this process, infrared sensors continuously track the pedestrian's position, providing real-time feedback to the control board until the passage is fully completed.
- If a pedestrian enters the lane without a valid credential or fails to present one, the system will block passage and trigger an audible alarm. The alarm remains active until the individual exits the lane. Once the lane is clear, a valid credential must be presented to authorize passage.



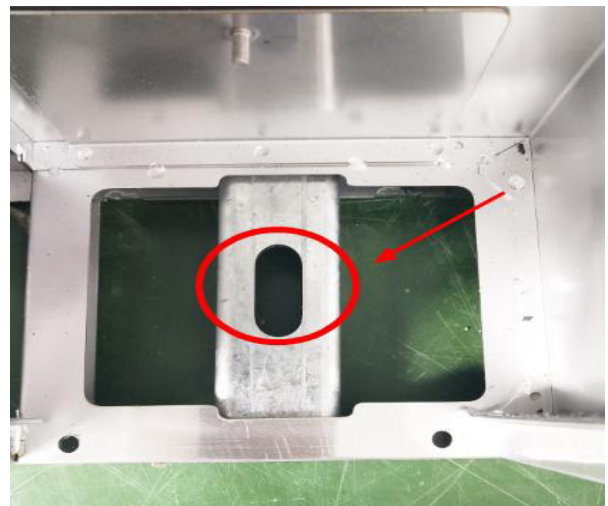
## Installation and Setup

- Gather the required installation tools and verify all components against the provided packing list.
- Once the mounting surface is prepared, position the units and ensure precise horizontal alignment across all lanes.
- Once the hole positions are marked, drill the pilot holes and install the M12 expansion bolts or anchor bolts securely into the foundation.
- Create a conduit trench for cable routing. The high-voltage power cables, factory-supplied synchronization lines, and user-provided network cables must be routed through individual 3/4" PVC pipes. Secure the conduits in their designated positions using cement.
- Reposition the equipment over the mounting holes and secure the pedestal using the factory-supplied washers and expansion bolts.
- Following the wiring diagram, terminate the power, synchronization, and network cables. Connect the system's protective earth (PE) cable to ensure electrical safety and equipment protection.
- Caution: Proceed with functional debugging only after confirming that the initial device status check is successful.

Verify all mains and internal wiring against the electrical schematic. Ensure that the power connections and peripheral cables are correctly seated and terminal-secure before proceeding with system power-up and commissioning.

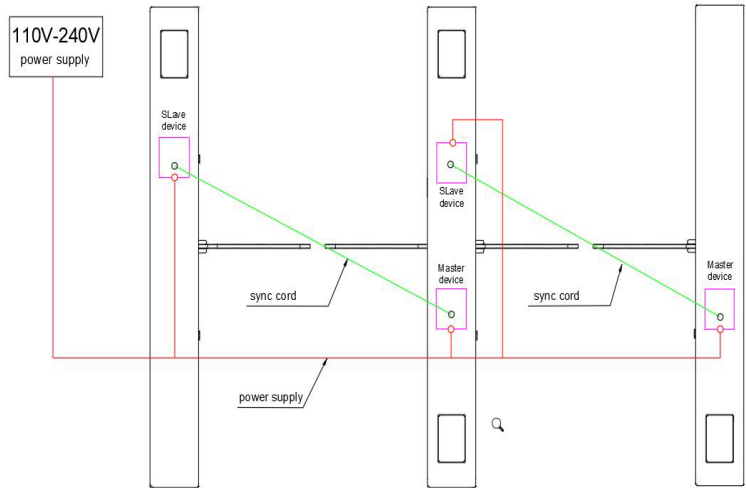
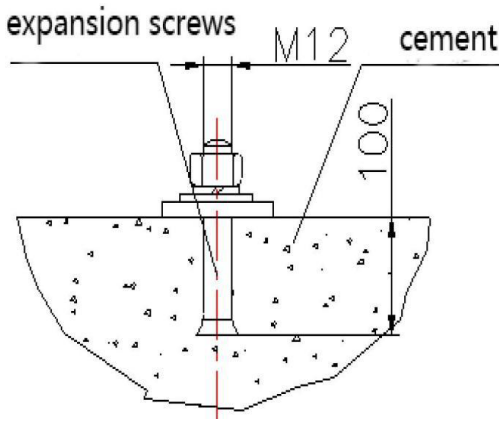


Installation Footprint & Dimensions



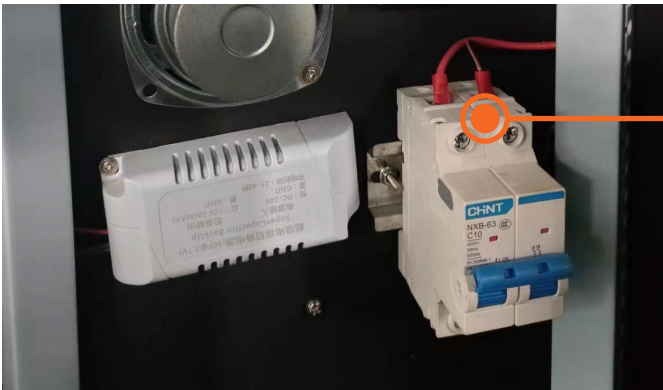
Motherboard Wiring Schematic





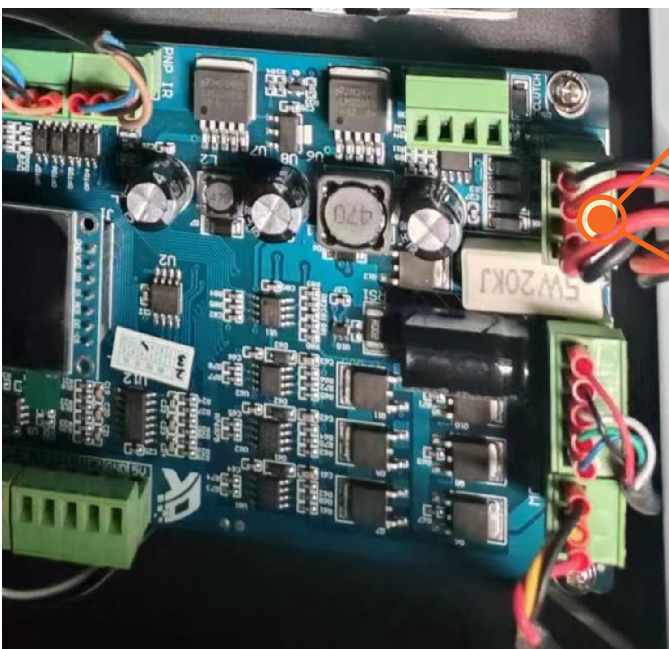
**Internal Mounting Bracket**

**6.1 Connect the AC 110V–240V main power supply.**



● Main Power Input (AC 110V–240V) with RCD Safety Switch.

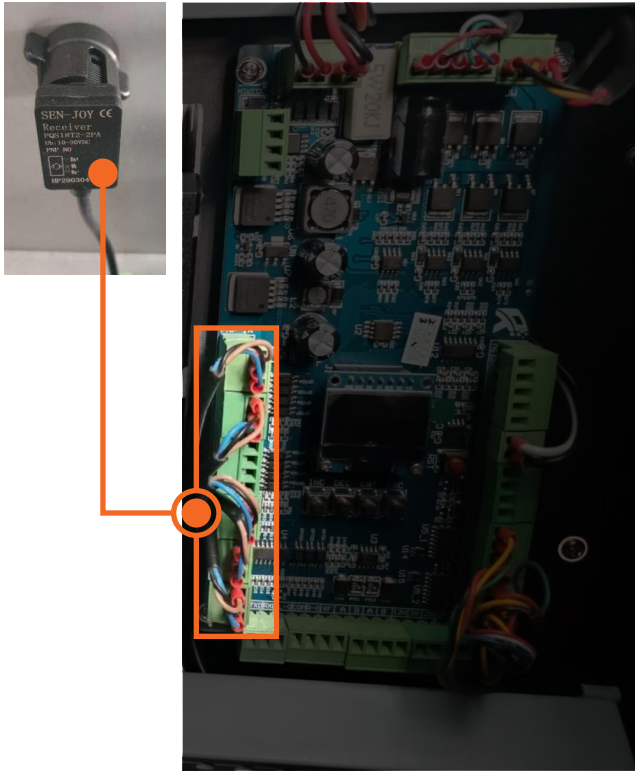
**6.2 Power Supply and Control Board Wiring Schematic.**



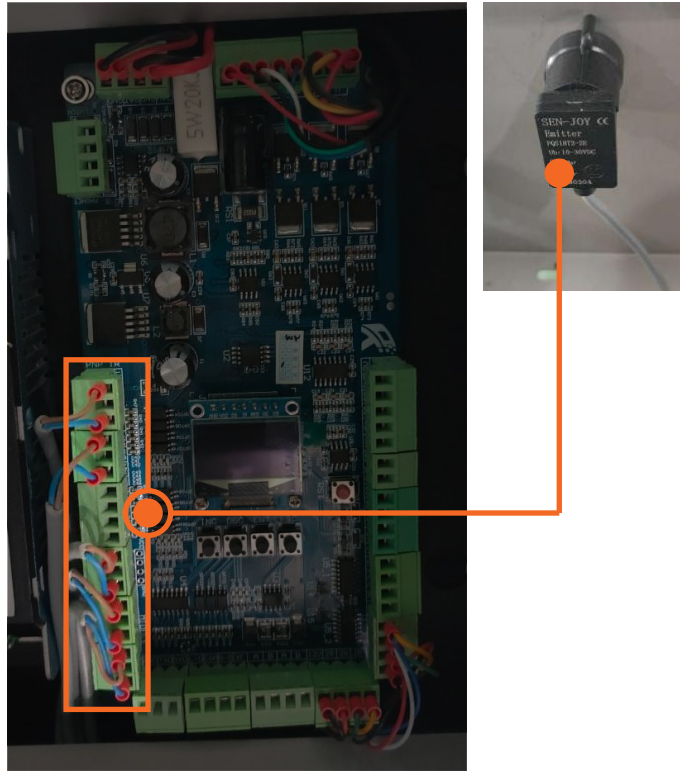
● Controller Power Supply Input.

### 6.3 Control Board to Infrared (IR) Sensor Integration

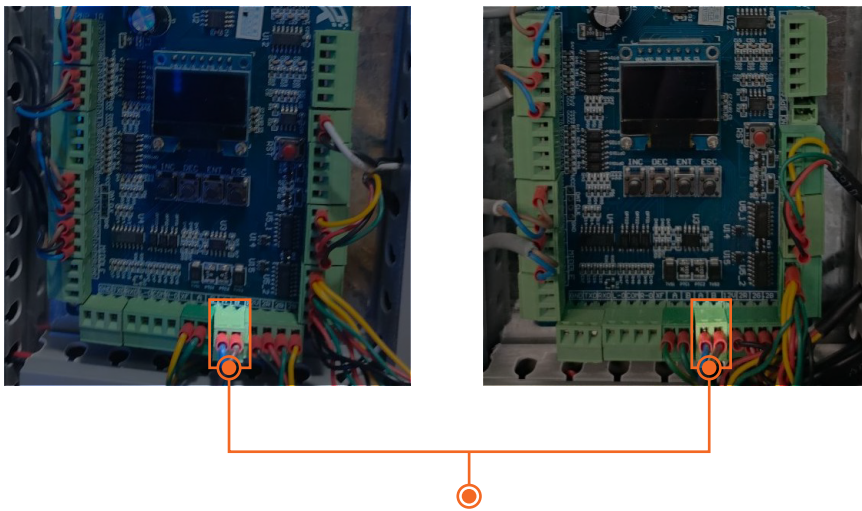
#### Main Board Photoelectric Sensor Connection



#### Slave Board Photoelectric Sensor Connection

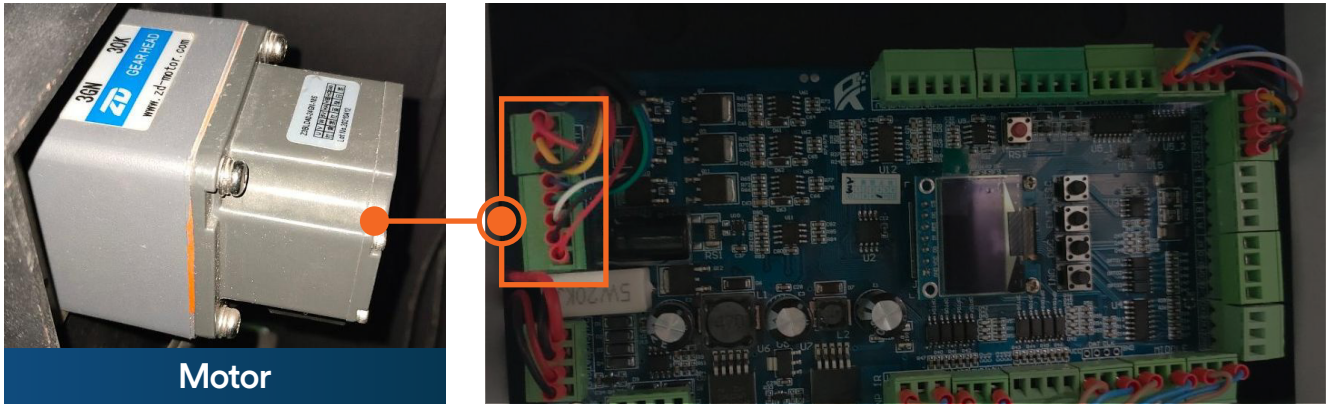


### 6.4 Synchronization Wiring



Master and auxiliary cables

## 6.5 Motor Connection Diagram



## 6.6 Functional Commissioning

Note: All units are pre-calibrated and tested at the factory according to order specifications. Under standard installation conditions, no further adjustment is required. For fine-tuning, please refer to the parameter descriptions below or contact our technical support for guidance.

# 7 Calibration / Debugging Interface

- **[ENT] (Confirm):** Opens the menu and confirms selected settings.
- **[INC] (Up):** Navigates upward or increases parameter values.
- **[DEC] (Down):** Navigates downward or decreases parameter values.
- **[ESC] (Cancel):** Returns to the previous menu or cancels the current setting.

### 7.1 Menu Access

- A. Press **[ENT]** to enter the menu.
- B. When prompted for the password, enter the following sequence: **[INC] → [INC] → [DEC] → [DEC] → [INC] → [DEC]**.

### 7.2 Parameter Configuration Guide

#### Equipment types

- 0 > Flap Barrier Gate
- 1 > Swing Barrier Gate
- 2 > Tripod Gate
- 3 > Single Swing Barrier Gate

#### Operation Modes

- 0 > All IR Sensors
- 1 > Left: IR / Right: Card Access
- 2 > Left: Card Access / Right: IR
- 3 > Dual Card Reader

### Left Entry Audio Notification



Configure the audio alert for successful passage from the left side.

### Right Entry Audio Notification



Configure the audio alert for successful passage from the right side.

### Passage Timeout (Entry/Exit)



- Unit: Seconds
- Range: 1 – 60s
- Description: sets the duration the gate remains open after a valid authorization before automatically closing.

### Passage Memory Mode



- 0 > Enabled (Left) / Disabled (Right)
- 1 > Enabled (Right) / Disabled (Left)
- 2 > All Disabled
- 3 > All Enabled

### Passage Settings



- 0 > Left Entry Only: left side is enabled; right side is locked.
- 1 > Right Entry Only: right side is enabled; left side is locked.
- 2 > Bi-directional Lock: both directions are disabled.
- 3 > Bi-directional Access: both directions are enabled for operation.

### Re-locking Delay



- Range: 0 – 60 seconds
- Description: sets the delay time for the unit to lock after a person has successfully passed through the sensors.

### Motor Operation Speed



- Unit: Percentage (%) of maximum output
- Range: 10% – 100%
- Description: sets the motor velocity for opening and closing.

### Main Motor Deceleration Angle



- Range: 0° – 90°
- Description: sets the angular point where the motor begins to decelerate before reaching the fully open or closed position. Adjusting this value ensures smoother operation and prevents mechanical impact, increasing system stability.

### Main Motor Buffering Distance

- Unit: Pulse count
- Range: 0 – 200
- Description: performs a secondary fine-tuning of the deceleration phase using pulse-width adjustments. Increase this value if the barrier closes too abruptly or hits the mechanical stop with excessive force.

### Zero-Position Deviation Adjustment

- Unit: Pulses
- Range: (-0) – (+0)
- Description: use this parameter to calibrate the barrier's home position. If the wings are not perfectly aligned or centered when closed, adjust the pulse offset (positive or negative) until the mechanical middle position is achieved.

### Main Motor Braking Distance

- Unit: Pulses
- Range: 0 – 200
- Description: sets the electronic braking range for the main motor.

### Left Opening Angle

- Unit: Degrees (°)
- Range: 30° – 100°
- Description: sets the maximum travel angle for the left-side opening.

### Right Opening Angle

- Unit: Degrees (°)
- Range: 30° – 100°
- Description: sets the maximum travel angle for the right-side opening.

### Homing Speed (Zero-Position Search)

- Unit: 10 RPM
- Range: 10 – 90
- Description: sets the rotation speed for the motor to locate its home position (zero-point) upon powering-off.

### Default Opening Direction

- 0 > Left Opening
- 1 > Right Opening

### Motor Clutch Control (Default: disabled)

- 0 > Disabled
- 1 > Enabled

### Access Without Infrared Detection



*(Note: skip this setting if your unit is not equipped with infrared sensors)*

- 0 > Prohibited
- 1 > Permitted

### Infrared Anti-Pinch Mode



*(Note: skip this setting if your unit is not equipped with infrared sensors)*

- 0 > Stop
- 1 > Reverse

### Impact Response Setting



- 0 > Stop
- 1 > Reverse

### Reverse Entry Locking



- 0 > Open
- 1 > Lock

### Motor Types



- 0 > Left open in reverse (Positive)
- 1 > Left open (Positive)
- 2 > Left open in reverse (Negative)
- 3 > Left open (Negative)

### Maximum Motor Torque



- Unit: 0.1A
- Range: 0 – 50
- Description: adjusts the maximum output force during the closing phase. Higher values increase closing power but may cause mechanical vibration. Lower values reduce force and vibration, ensuring a smoother but gentler operation.

### Obstruction Detection Sensitivity



- Unit: 0.1A
- Range: 0 – 50
- Description: sets the threshold for detecting a physical blockage during the closing cycle. Higher values may increase vibration. Lower values make the system more stable.



### Static Holding Force (Electronic Lock)



- Unit: 0.1A
- Range: 0 – 50
- Description: adjusts the motor's counter-force (resistance) when the barrier is in the closed/locked position. If a user attempts to push the barrier open forcibly while the machine is idle, this parameter determines how strongly the motor resists that pressure. The bigger the value, the bigger the force.

### Infrared Sensor Configuration



*(Note: skip this setting if your unit is not equipped with infrared sensors)*

- 0 > 3 Pairs
- 1 > 4 or 5 Pairs
- 2 > 6 or 7 Pairs

*Note: for Wing Gate models, the system typically operates with odd numbers (3, 5, or 7 pairs) to ensure proper synchronization of the barrier movement.*

### Clutch Activation Duration



*(Note: skip this setting if your unit is not equipped with a mechanical clutch)*

- Unit: 0.1s
- Range: 1 – 99
- Description: sets the duration for the initial electrical pulse required to engage the clutch.

### Clutch Release Delay



*(Note: skip this setting if your unit is not equipped with a mechanical clutch)*

- Unit: 0.1s
- Range: 1 – 99
- Description: sets the delay time for the clutch to release after the barrier has completed its movement.

### Status Indicator Mode



- 0 > No Middle Indicators (Default)
- 1 > Middle Indicators Enabled
- 2 > Same Input for Both Left and Right Indicators

### System Language



- 0 > Chinese
- 1 > English

### Master/Slave Synchronization



- 0 > Master Device
- 1 > Slave Device



### Device number

{ 0, 31 } (Device address)



RS232 Communication agreement selection (Reserved function)



Information uploading setting (Reserved function)



### System Initialization & Reset



- 0 > Factory Default: resets all operational parameters (motor speed, force, sensitivity) to factory settings.
- 1 > Clear Counters: deletes the passage logs and resets the "Open Times" counter to zero.

### System Diagnostic Test



Enter this menu to perform a full cycle test of the barrier gate.



## Troubleshooting

### 8.1 No response after successful authorization (Card Swipe/Face Recognition).

- Signal & Logic Check:** verify if the "Open Signal" cable is securely connected and the terminals are not loose. Confirm that the Infrared Sensor Quantity matches the physical installation.
- Manual Override Test:** press the "Open" button on the mainboard or short-circuit the trigger input. If the barrier does not react: the mainboard may be faulty and require replacement.
- Motor Wiring:** inspect the motor communication and power cables for loose connections or damage.
- Dual-Gate Synchronization:** inspect the Master/Slave synchronization line to ensure data is flowing between both units.

### 8.2. The barrier fails to open automatically during a power outage.

- Battery Voltage Test:** use a multimeter to check the battery. The voltage must be above 10V to trigger the emergency release. If the voltage is lower, replace or recharge the battery.
- Wiring Inspection:** verify that the battery cables are correctly connected to the dedicated terminals on the mainboard.
- Physical Connections:** ensure all battery and power terminals are tight. Loose contacts can prevent the high current flow required to move the motor.
- Hardware Integrity:** if the battery and wiring are functional but the barrier remains closed, inspect the motor and the mainboard for potential faults in the power-fail circuit.

### 8.3. One barrier opens, but the other remains closed after authorization.

#### A. Synchronization & Logic Check:

- I. **Communication Cable:** inspect the Master/Slave synchronization cable. Disconnect the terminals and reconnect them to ensure a solid contact.
- II. **Parameter Settings:** verify the Master/Slave Mode settings on both controllers.
- III. **Display Status:** check the LED display on the non-responsive unit for any error codes or status messages that could indicate why it isn't triggering.

#### B. Motor & Connectivity:

- I. **Motor Cables:** inspect both the power and communication wires of the non-opening motor for loose pins or damage.
- II. **Hardware Test:** verify if the motor rotates freely when powered on or via the Machine Test menu.

#### C. Mechanical Inspection:

- I. **Transmission Rail:** check the movement guide rails and internal transmission for physical obstructions or jams. The barrier should move smoothly without mechanical resistance.

#### D. Hardware Replacement:

- I. If all wiring, mechanical parts, and parameters are verified as normal, but the unit still fails to respond, the main controller board may need to be replaced.

### 8.4. The barrier opens after authorization but fails to close.

#### A. Infrared Sensor Alignment:

- I. Inspect all infrared sensor pairs. When the aisle is clear, the corresponding IR indicators on the control board should be ON (steady).
- II. If any indicator is OFF while the path is empty, it indicates the sensor is either misaligned, obstructed, or faulty.

### 8.5. The barrier fails to reset or home correctly after power-on.

#### A. Sensor Alignment & Verification:

- I. Ensure all infrared sensors on both Master and Slave units are properly aligned. The system will not initialize if it detects an obstruction (or a misaligned sensor) during the boot sequence.

#### B. Encoder Signal Check:

- I. Inspect the Encoder Indicators on the main control board. Under normal conditions, these LEDs should be fully lit or pulsing correctly during movement.

#### C. Cross-Board Testing:

- I. Swap the suspect control board with a known functional unit.
- II. If the issue is resolved: the original board is faulty.
- III. If the issue persists: the fault likely lies within the motor or the internal wiring.

#### D. Motor Replacement:

- I. If parameters are correct and the board is functional, but the motor fails to reach its "home" position or struggles to move, the motor assembly may be defective and require replacement.

## 8.6. The barrier arm impacts the housing (cabinet) during opening.

### A. Mechanical Stability:

- I. Check if the swing arm/wing is loose at its mounting point. Ensure all set screws and bolts are tightened to prevent the arm from wobbling or overextending.

### B. Travel Limit Adjustment:

- I. Review the Opening Angle settings.

### C. Transmission & Lock Inspection:

- I. Inspect the motor assembly and the mechanical linkage (movement assembly) for any signs of displacement or loose components. Check if the physical locks or stoppers have shifted from their original position.

### D. Hardware Replacement:

- I. If the arm is secure and the parameters are correct, but the impact continues, the internal movement assembly (mechanism) may be worn out or damaged and should be replaced.

## 8.7. Inconsistent speed during closing or reset.

### A. Infrared Sensor Alignment:

- I. **Adjust Parameters:** fine-tune Deceleration, Channel Speed, and other movement settings in the debugging menu.
- II. **Mechanical Check:** inspect the swing arm, internal mechanism, and motor for any loose components.

## 8.8. The barrier restarts automatically during operation.

**A. System Recovery:** if the barrier restarts, wait up to 3 minutes for it to complete the self-test and return to normal operation.

**B. Persistent Fault:** if the unit remains inactive or continues to restart for a long period, it indicates a hardware fault.

## 8.9. Controller power-off (No Power).

**A. Circuit Protection:** inspect the Leakage Breaker (DR) or main fuse to ensure power is reaching the unit.

**B. Voltage Check:** verify if the power supply is delivering a stable DC 24V output to the controller.

**C. Connection Check:** inspect all power input terminals and cables for loose or damaged connections.

## 8.10. LED indicators are not lighting up.

**A. Connection Check:** inspect the LED wiring and connection ports on the control board for loose pins.

**B. LED Replacement:** if the connection is secure and the board provides output, replace the LED module.Z





## Parts list

SERIAL NUMBER	NAME	QUANTITY	PICTURE
1	Sync line	1	
2	Expansion screw (M12*100)	4	
3	Base mounting fastener	4	
4	Card reader fastener	2	
5	Nut M3	5	
6	Allen Wrench	1	

### Customer service

We are committed to providing exceptional support should you encounter any operational issues or product defects. If you require clarification regarding installation, programming, or maintenance, please contact our after-sales service team promptly.