
Swing Gate User Manual

1. Equipment Introduction

1.1 Brief Description

The turnstile is an intelligent access control device that our company has developed and manufactured over many years. This device organically integrates mechanical, electronic, microprocessor control, and various reading and writing technologies. By configuring various reading and writing devices, employing reliable safety protection devices, and combining a real-time alarm system with a direction indicator interface, it coordinates to achieve intelligent control and management of the access channels.

The equipment is made of stainless steel sheet by stamping, which is beautiful, rust-proof, and durable. It uses standard electrical interfaces to easily integrate barcode card, ID card, IC card and other card readers into the equipment, providing a civilized and orderly passage for people to enter and exit, while preventing unauthorized access. In addition, the system is specially designed to meet fire protection requirements, ensuring that the passage is unobstructed in case of emergency, so as to facilitate the timely evacuation of

people.

1.2 Functional Features

- 1) It has a zero-position self-test function, which is convenient for users to maintain and use;
- 2) An alarm function is available to alert if unauthorized entry is attempted;
- 3) Anti-impact function: The telescopic baffle (swing arm) automatically locks when no gate opening signal is received ;
- 4) Dual infrared/mechanical anti-pinch function: When the telescopic baffle (swing arm) encounters obstruction during the resetting process, the motor will automatically stop working within a specified time with very little force, and at the same time issue an alarm signal;
- 5) It has an automatic reset function. If a pedestrian does not pass through within the time specified by the system after reading a valid card, the system will automatically cancel the pedestrian's passage permission.
- 6) A unified standard external electrical interface, which can be connected to various card readers and can be remotely controlled and managed through a management computer;
- 7) The entire system operates smoothly and with low noise;

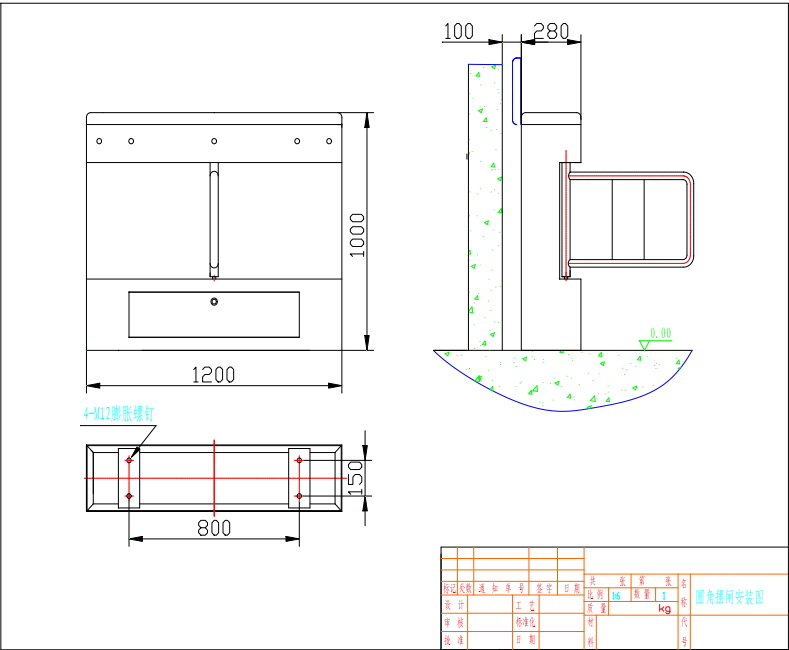
1.3 Main Technical Parameters

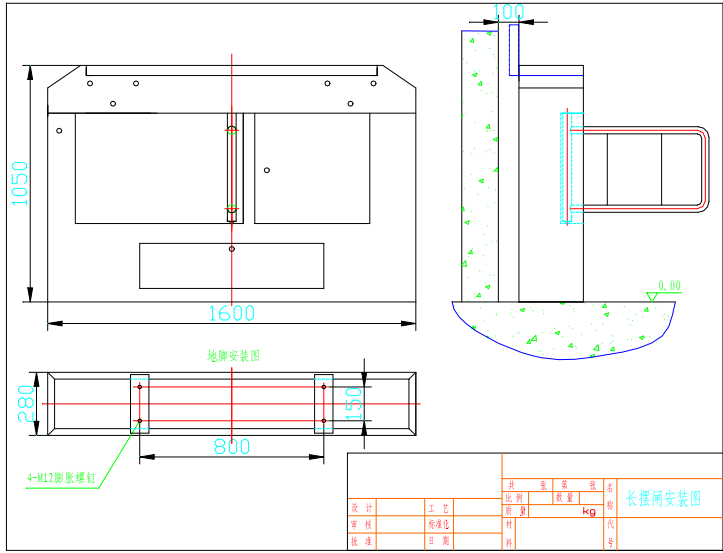
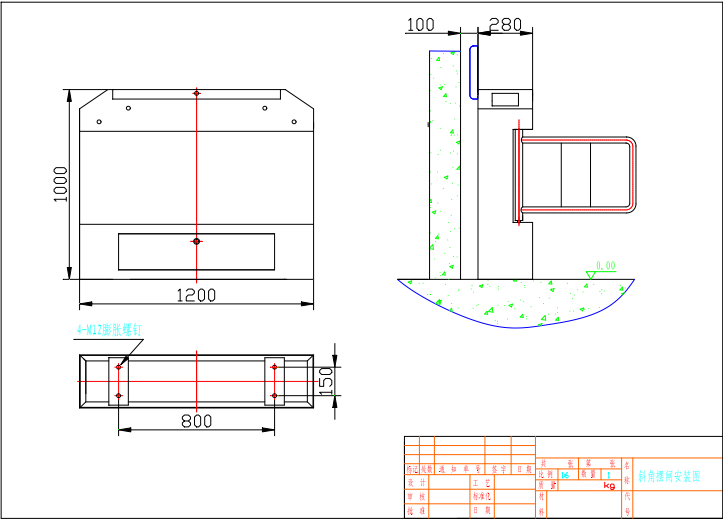
- 1) Power supply voltage: AC220±10% V, 50HZ
- 2) Drive motor: DC motor 24V /40W
- 3) Operating ambient temperature: -15 ° C - 60 ° C
- 4) Relative humidity: Relative humidity $\leq$ 90%, no condensation
- 5) Input interface: 12V level signal or 12V pulse signal with pulse width > 100 ms and drive current > 10 mA
- 6) Communication interface: RS232 communication ,
- 7) Communication distance: $\leq$ 10 meters
- 8) Passage width: Wing gate 600 mm , single swing gate arm length 600-900 mm
- 9) Traffic speed: 30 people/minute (normally open mode), 20 people/minute (normally closed mode)
- 10) Gate opening and closing time: 0.8 seconds for wing gates, 1-2 seconds for swing gates.

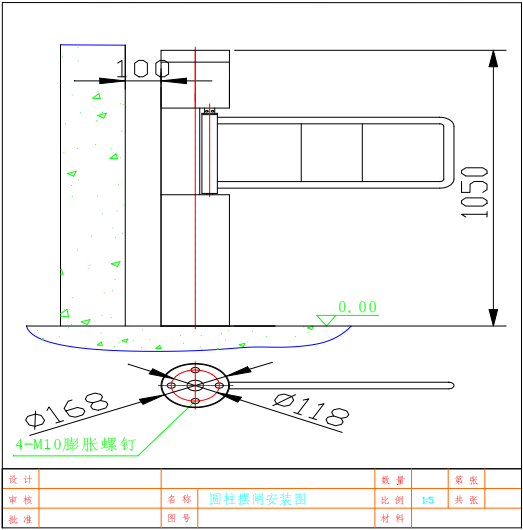
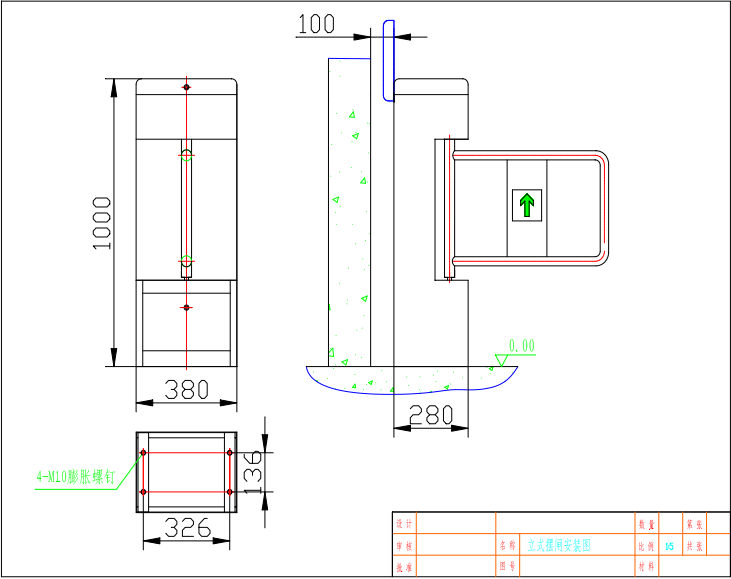
2. Product dimensions

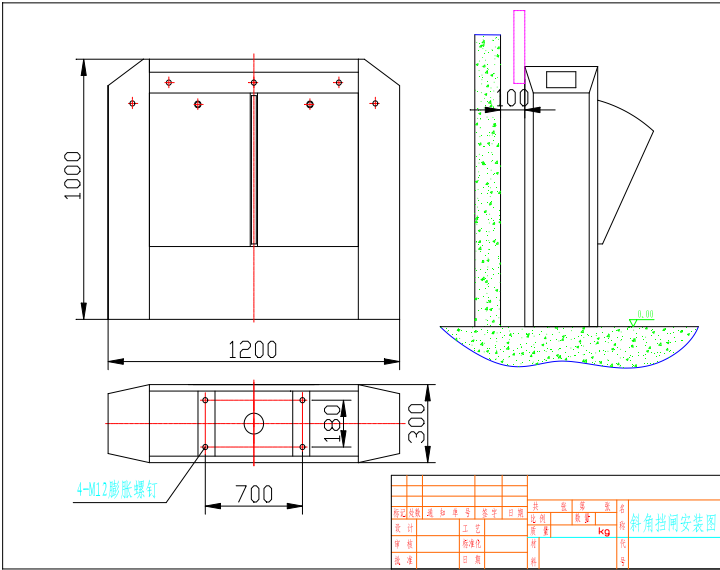
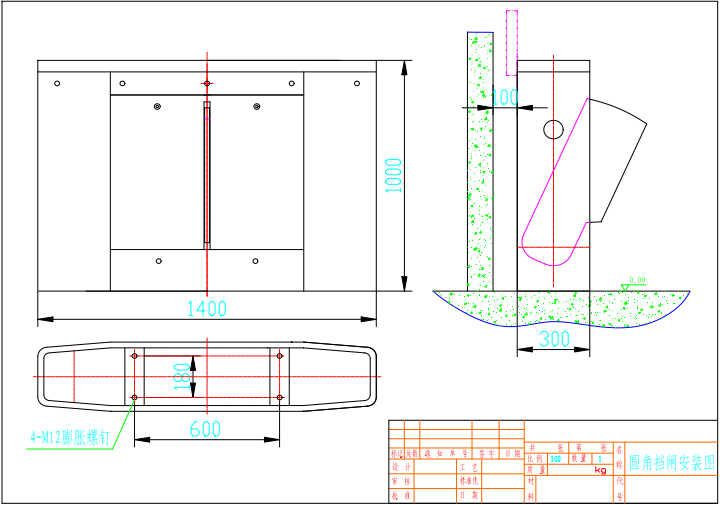
2.1 Equipment External Dimensions

Refer to the reference figure for the external dimensions of the wing gate equipment; (Note: The external dimensions of the access gate are the same as those of the wing gate.)









3. Product structure and working principle

3.1 Mechanical System of Turnstile

The mechanical system of a turnstile consists of two parts: the housing and the mechanism. The housing serves as the carrier and houses the direction indicator, reader/writer, infrared sensor, etc.; the mechanism mainly comprises the motor, frame, drive shaft, and gate.

3.2-channel gate electrical control system

The electronic control system consists of a card reader, main control board, infrared sensor, direction indicator, alarm, limit switch, transformer, etc.

Card reader (self-provided): Reads the information on the card and, after processing and judging it, sends a request for approval signal (switch signal) to the main control board.

◆ Main control board: The control center of the system. It receives signals from the card reader and infrared sensor, performs logical judgment and processing on these signals, and then sends execution commands to the direction indicator, motor, counter and alarm.

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- ◆ Infrared sensor: detects pedestrian location and provides safety protection;
 - ◆ Directional indicator: Displays the current status of passageway signs and guides pedestrians to cross the passageway safely and orderly;
 - ◆ Alarm: The system will issue an alarm when it detects a pedestrian unauthorizedly entering the passageway;
 - ◆ Limit switch: controls the position of the gate rotation;

3.3 System Working Principle

- 1) Turn on the power. The system will start working after 3 seconds.
- 2) When the card reader reads a valid card, the buzzer will emit a pleasant sound to indicate to the pedestrian that the card reading was successful; at the same time, it will also judge and process the information read from the card and send an application signal to the main control board.
- 3) The main control board receives signals from the card reader and infrared sensor, and after comprehensive processing, sends effective control signals to the direction indicator and motor, causing the direction indicator to turn into a green arrow passage sign. At the same time, the gate

issues a set voice, the main control board controls the motor to run, the limit switch controls the motor rotation angle, the gate opens, and pedestrians are allowed to pass.

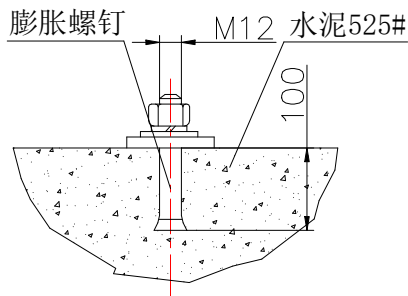
4) After a pedestrian passes through the passage according to the directional indicator signs, the infrared sensor detects the entire process of the pedestrian passing through the passage and continuously sends signals to the main control board until the pedestrian has completely passed through the passage.

5) If a pedestrian forgets to swipe their card or swipes an invalid card to enter the passage, the system will prevent the pedestrian from passing and will issue an audio alarm (illegal entry, please swipe your card). The alarm will not be deactivated until the pedestrian leaves the passage; passage will only be allowed after swiping a valid card again .

4. Equipment installation and commissioning

4.1 Equipment Installation

- ◆ Prepare the tools for installing the equipment and check the accessories according to the packing list;
- ◆ After clarifying the system composition and working method, conduct overall planning and prepare to begin installation;
- ◆ After preparing the foundation surface for installing the equipment, arrange the equipment accordingly;
- ◆ After determining the hole positions, drill the holes and pre-embed M12 anchor bolts or expansion bolts;



地脚安装基础图

- ◆ the high-voltage cables and low-voltage cables through

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- 3/4" PVC conduits respectively, and bury them in the corresponding positions with cement;
- ◆ Move each chassis to its corresponding mounting position, and align each one with the anchor bolt positions;
 - ◆ Check that the system composition and operation are correct. Only proceed to the next step after confirming that everything is correct.
 - ◆ Open the chassis door, select one of the devices as a reference (preferably the middle one) , align the base bolt holes with the corresponding anchor bolts, and pre-tighten the nuts;
 - ◆ Open the door of the adjacent unit, align the base bolt holes with the anchor bolts and the pre-defined reference equipment, and tighten the nuts; if there are multiple units to be installed, proceed in the same manner.
 - ◆ Refer to the wiring diagram to connect the power cord and control wires, and connect the system protective ground wire;
 - ◆ After the status check and function debugging are qualified, tighten the anchor nuts;

! warn :

1. The depth of buried PVC conduit should be greater than 60 mm , and the height above ground should be greater than 50 mm .

The outlet bends to prevent water from entering the conduit.

2. When installing access gates, the left and right gates of each access channel should be aligned;

3. Connect the system protective ground wire;

100-200mm high cement platform should be built at the installation site.

The platform is used to insulate against moisture, and a roof or other sun and rain protection facilities are added;

5. After the equipment is installed, its status and functions must be checked and tested to ensure they are satisfactory before it can be put into normal use.

4.2 Equipment Function Debugging

Only after the equipment status check is normal can the following functional debugging be carried out!

Swing Gate (Wing Gate) Commissioning Instructions

1. Preparations before debugging

Check the mains power wiring according to the wiring

diagram. Verify that the power supply wiring and all other wiring of the entire device are correct. Once everything is confirmed to be correct, power on and test!

The protective ground of the equipment must be reliably grounded; otherwise, it is not allowed to be used.

2 Hardware Configuration

The bidirectional swing gate (wing gate) has two photoelectric sensors, while the unidirectional swing gate (wing gate) has a single photoelectric sensor.

5. Troubleshooting and Routine Maintenance of Turnstiles

5.1 If the swing door does not open after swiping the card, or does not open automatically after a power outage, check again whether the opening signal line has fallen off and whether the opening signal indicator on the main board has received an opening signal.

5.2 The operating states of the direction indicator are: green arrow pointing left, pointing right, or red cross. If the direction indicator does not respond or indicates the wrong direction,

try testing it on another unit, swapping it with a known good one. Also, double-check the wiring.

5.3 The access gate has an automatic opening function after power failure. If it does not open after power failure, the reason is that the voltage of the backup battery (storage battery) inside is not enough. You can use a multimeter to check if the voltage is above 10V.

5.4 After swiping a card at the access gate, one gate opens while another does not. Recheck that the synchronization cable is properly connected. After ensuring it is connected, check if the mainboard of the gate that is not opening receives an open signal. If not, check that the wiring is secure and that the connectors on the mainboard are properly plugged in.

5.5 After swiping the card, the gate opens but does not close. This usually occurs because the anti-pinch infrared sensor in the middle is not properly aligned. Before securing the control unit, ensure the infrared sensor is aligned correctly for the

gate to open and close properly. If the infrared sensor is not properly aligned, an alarm will sound upon power-on. After swiping the card, please follow the directional arrows.

6. Equipment Operation Instructions

6.1 Before the equipment is put into use, it must undergo functional testing. Only after the testing is completed and the equipment is in normal working order can it be put into use.

6.2 When the equipment is powered on, it is strictly forbidden for anyone to stand in the passageway;

6.3 When pedestrians are using their cards to cross the road, they are strictly prohibited from entering the passageway until the directional indicator sign turns green;

6.4 Pedestrians should not linger in the middle of the passageway for extended periods when crossing it;

6.5 When passing through the gate, do not crowd; maintain a certain distance from each other.

6.6 It is strictly forbidden to pass through the gate quickly without reading the card;

6.7 It is recommended to display the access instructions for this machine in a conspicuous place to guide passersby through the turnstile channel safely and orderly;

6.8 When the equipment is not in operation, it must be properly managed, and it is strictly forbidden to knock or shake the equipment;

6.9 When the equipment is in the off state, it is strictly forbidden to push, pull or hit the gate with force;

 **! warn:**

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- 1. Do not use this device during thunderstorms to prevent damage .**
 - 2. To ensure the system's protective ground is reliably connected, in order to prevent personal injury;**
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7. Common Faults and Analysis

Basic concepts:

- A、 Limit photoelectric switch: (used for position control of wing gate) has 3 lines, including 2 power inputs, brown: +12V and blue: GND, and 1 signal output. When the sensor head touches a magnet or metal object (sensing distance 2-4mm), it outputs +12V, otherwise it outputs 0V.



- B. Motor: DC24V geared motor, with a no-load current of about 300mA and a load current of less than 1.2A during normal operation.



- C. Cylindrical photoelectric switch: (same as alarm and

anti-pinch signal detection) consists of a transmitter and a receiver. The transmitter has two power input lines (brown: +12V, blue: GND), and the indicator light is always on when the power supply is normal. The receiver has two power input lines (brown: +12V, blue: GND) and one signal output line (black line). When a person passes through the area, i.e. when the barrier is broken, the signal output indicator light turns on and outputs +12V; otherwise, it is 0V.



D. Cylindrical reflective photoelectric switch: (function as above) It has 3 lines, including 2 power inputs (brown: +12V, blue: GND) and 1 signal output. When a person passes by the reflective photoelectric switch (reflection distance is 10-20mm), the output is +12V, otherwise it is 0V.



1. The swing arm rotates back and forth after power-on or there is no limit switch after the gate is opened.

1) Determine if the limit switch is exposed to strong light (generally refers to outdoor installation and testing):

2) Test the limit photoelectric switch:

A. Check if the limit photoelectric switches for zero position, left open position, and right open position are powered! Check if the terminal blocks are loose or have poor contact;

B. Place a piece of iron on the front of the photoelectric switch (make sure it is close to the detection surface) and see if the light on the photoelectric switch lights up. If it does not light up, the photoelectric switch is faulty. If it does light up, adjust the position of the photoelectric switch accordingly.

3) Check whether the connection between the limit photoelectric switch and the main board is reliable;

4) If the limit photoelectric switch and wiring are normal, the mainboard is damaged.

2. The gate does not operate after a valid opening signal is given.

1) The mainboard indicator light is normal. When a valid gate opening signal is given, the indicator light will turn into a green arrow, but the gate will not move.

Testing method: Check if the motor connection wires are properly connected. If the motor wires are properly connected, touch the tail of the motor with your hand to see if the motor is rotating. If it is rotating, it means that the motor wires are connected in reverse. Reconnect the positive and negative motor wires. If the motor does not rotate, connect a 24V power supply directly to the motor. If the motor still does not rotate, it means that the motor is damaged. If the motor rotates, it means that there is a problem with the motor driver chip on the motherboard. Contact us to replace the motherboard.

2) If all the indicator lights on the motherboard are off,

check if the connection between the power supply and the motherboard is normal. If there is voltage at the 24V terminal on the motherboard, check if the fuse is working properly. If the fuse is damaged, replace it. If the fuse is working properly, the motherboard is damaged and needs to be replaced.

3. The gate does not reset after opening or resets immediately after opening to the designated position.

If the gate does not immediately close after a pedestrian has passed through, but only closes after a certain delay, it indicates that the outgoing infrared sensor is not working properly.

Testing method: First, check if the cylindrical photoelectric switch is connected; when there is a signal output, the left or right infrared indicator light on the motherboard will light up, otherwise the motherboard is damaged; check if the motherboard parameters are set to have memory.

If the gate immediately resets after the pedestrian has passed through the gate, it indicates that the anti-pinch function and the left or right infrared sensor are reversed.

Check the connection to the main board.

4. The turnstile does not operate after a power outage.

1) Check the voltage of the dry cell battery (not less than DC 9V);

2) Check if the wiring is loose or detached, and test the voltage at both ends of the battery terminals.

Output (not less than DC 9V), otherwise the control board will be damaged.

5. The swing arm does not limit its position after power failure and reverses its direction after power is restored.

1) Check the voltage of the dry cell battery (not less than DC 9V);

2) Test the left and right limit photoelectric switches and the main board respectively. (See 1.)

3) Reverse the swing arm and reverse the motor wires.

6. When used online, the cylindrical photoelectric switch opens immediately upon disconnection.

1) The machine is set to infrared gate opening mode. Go into the menu and change the gate's working mode to card swipe gate opening.

7. When connected online, the two turnstiles do not open

synchronously.

Check the connection cable for looseness or detachment.

8. After swiping the card to open the gate, the gate will only open after the access control panel has closed.

Go to the menu and change the gate opening signal type to high-level opening.

9. The gate is not closed for an extended period of time after it has been opened.

1) Check if the opening time of the entrance/exit is set too long (see the system parameter setting instructions).

2) Check the anti-pinch infrared photoelectric switch. Check if there is 12V voltage at the black output signal terminal (normally it is 0V). Otherwise, the photoelectric switch transmitter or receiver is damaged.

10. An alarm will sound when pedestrians pass through the gate.

1) Check if the opening duration of the entrance/exit is set too short (see the system parameter setting instructions);

2) Check if the infrared photoelectric switches for entering and exiting are incorrectly connected. That is, the

photoelectric switch signal for entering is incorrectly connected to the signal for exiting, and the signal for exiting is incorrectly connected to the signal for entering, which will cause a false alarm.

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