Brushless System

Operating Instructions

flap barrier /sliding gate/swing gate

V1.0

Note: Before operating this unit, please read this instruction completely.

【Preface】

Thank you for choosing flap /slide barrier and swing gate,This is a product with high technology, so please read this manual carefully before operation.

Please keep this manual for future reference.

Only trained professionals who understand electric and mechanical risk of product are qualified to install and operate gate system so as to avoid unnecessary dangers caused by misoperation.

All rights to improve and perfect our products are reserved. We can’t promise this manual is in full accord with the product you receive, but we will check and revise the manual at regular interval. No further notification will be sent in the case of any modifications to the manual.

CONTENTS

1 Product introduction

1.1 Brief introduction

The flap /slide barrier and swing gate is a kind of 2-way speed access control equipment designed for places with high class security requirements. It is easy to combine IC access control, ID access control, code reader, fingerprint, face recognition and other identification devices，It realizes the intelligent and efficient management of passage.

Function Features:

①With fault self-checking and alarm prompt function, it is convenient for users to maintain and use;

②Various pass modes such as card swiping and door opening can be set;

③Anti-collision function, the gate will be locked automatically when the gate opening signal is not received;

④Illegal break-in and tailgating, it will alarm with sound and light;

⑤Infrared anti-pinch function, physical anti-pinch function (when the door is closed, it will rebound and open);

⑥It has the function of swiping card with memory (default setting without memory function);

⑦It has the function of overtime automatic reset. After opening the gate, if it does not pass within the specified time,the swing gate is automatically closed, and the passing time is adjustable (the default time is 5S);

⑧Uniform standard external port, which can be connected with a variety of access control equipment, and can realize remote control and management

through the management computer.

1.2 Technical parameter

Housing Material	304 stainless steel
Input power	AC 100-240 V
Working voltage	DC 24V
Motor	24V Brushless Motor
Working temperature	-20 ℃ - 70 ℃（(Add thermostat below 0℃)）
Work environment	≦90%, no condensation
Open signal	Passive signals (relay signals, dry contact signals,)
Communication	RS485
Where Used	indoor
Running noise	≦75dB
Response time	0.2S
Pass rate	Normally open mode≦50 person/min Normally close mode≦35 person/min

1.3 Product structure and principle

Linguistic definition:

Single movement gate: refers to a gate with a gate on only one side.

Double movement gate: refers to the turnstile with gates on the left and right sides.

Main machine: Refers to the gate with infrared receiver installed in the machine.

Sub machine: Install the infrared transmitter and use it in combination with the main machine to form another gate of the channel together.

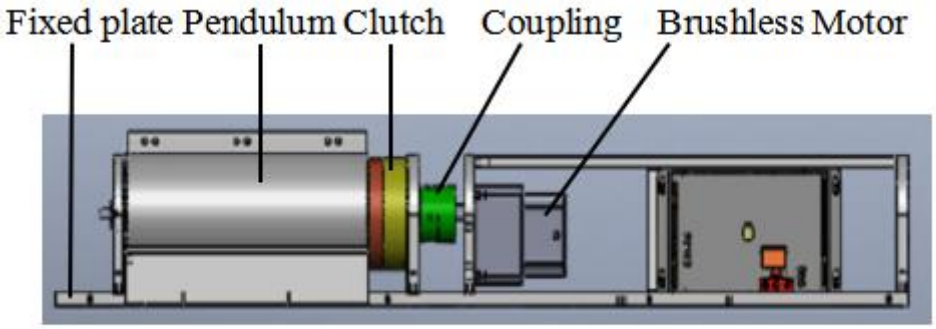
Zero position: gate closed position.

Free passage: open the door without swiping the card.

The structure of the product is mainly composed of mechanical system and electric control system.

The mechanical system is composed of cabinet and core mechanism. The cabinet is equipped with indicator, infrared sensor and other device.

The core mechanism is composed of motor, position sensor, transmission, shaft.



Movement Structure

The electric control system consists of access control system, control board, infrared sensor, direction indicator, brushless motor, power supply and so on.

NO	Name	Function
1	Access control device	IC/ID card access control, fingerprint, face recognition, code reader, access control device send delay signal to the turnstile board door signal. Remote control or button to open the door(select the configuration)
2	Brushless control board	The control center of the system, when receiving the access control device delay signal, it control motor running so that the gate opened, the direction indicator light turns green, while receiving hall sensor, infrared sensor, and judging and processing logic of these signals, keep the gate components of intelligent coordination work
3	Infrared sensor	Detect the passage of people in the lane, Anti pinch
4	Indicator	Display the current channel status
5	Brushless Motor	Drive the movement to accurately open or close the gate
6	Clutch	Illegal intrusion automatically locks the wing door
7	Power Supply	power supply to control board

System Operation Principle:

1) Turn on the power, wait for the end of the self-examination ; the system

enters into work mode;

2) After swipe legal card or QR code and fingerprint, Access control device send opening signal to main board.

3) The main board receives open signal, control indicator to turn green, motor acts to open the barrier.

4) After the passenger passing through the passage in accordance with the direction indicator mark, the infrared sensor detects the complete process of the passenger passing through the passage, and issues signal continuously to the main controller board, until the passenger passes through the passage completely. After the passenger passes through the passage completely, the gate close immediately.

5) If the passenger forgets to swipe card when go into the passage, sound/light alarm signal will be given from main board. The alarm signal will not be cancelled until the passenger retreats from the passage and the passing is only allowed after reading again the effective card.

2 Equipment Installations

2.1 Installation notes

- Please read this manual carefully before install it;
- The gates must be correctly arranged in order, and the left and right gates of each lane should be aligned;
- If the equipment is used outdoors, equipment should be installed at the

establishment of 100-200mm high cement platform, so as to prevent moisture, and install ceilings and other sunscreen, rain protection facilities;

- ❖ Protective earth wire must be connected;
- ❖ Please confirm each RJ45 cable straight through;
- ❖ Please check all wires has been properly connected before power on;
- ❖ Please test all function before using.

2.2 Equipment Installation

1) Tool preparations

1	A set of hexagon spanner	5	Screw driver and other common wiring tool
2	Cross screwdriver 6mm	6	Millimeter
3	Open spanner 17-19mm	7	M12x100 Expansion screws 8pcs
4	Impact drill(including D16 and D14 drills)	8	Cable Tester

2) Ensure the installation location and the system composition ,prepare to install after carrying out the system planning;

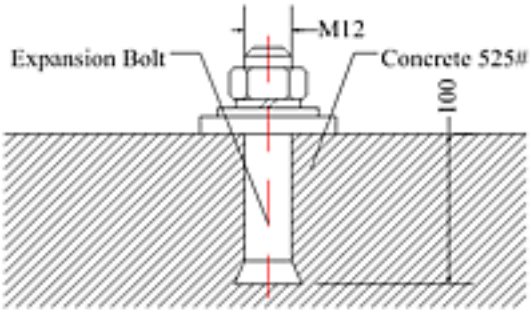
3) Make well of installation of equipment foundation base;

4)Put the turnstile in order and alignment .We have mark on the turnstile for the multichannel, please install the turnstile in order, such as A1-A2-A3-A4 on one side a1-a2-a3-a4 on the other side;

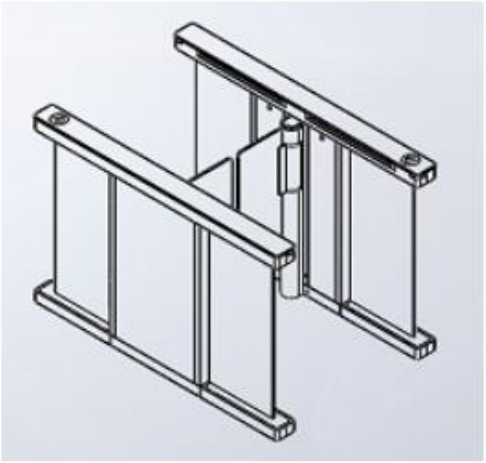
5) Mark the fixing position of expansion bolts according to fixing plate on the bottom of each turnstile;

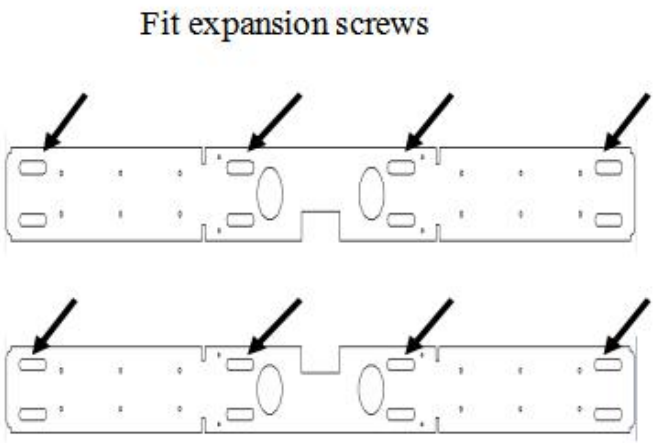
6) Move turnstile and drill hole by impact drill, fix Expansion screws;

7) Tighten the expansion screw after the functional test is completed;

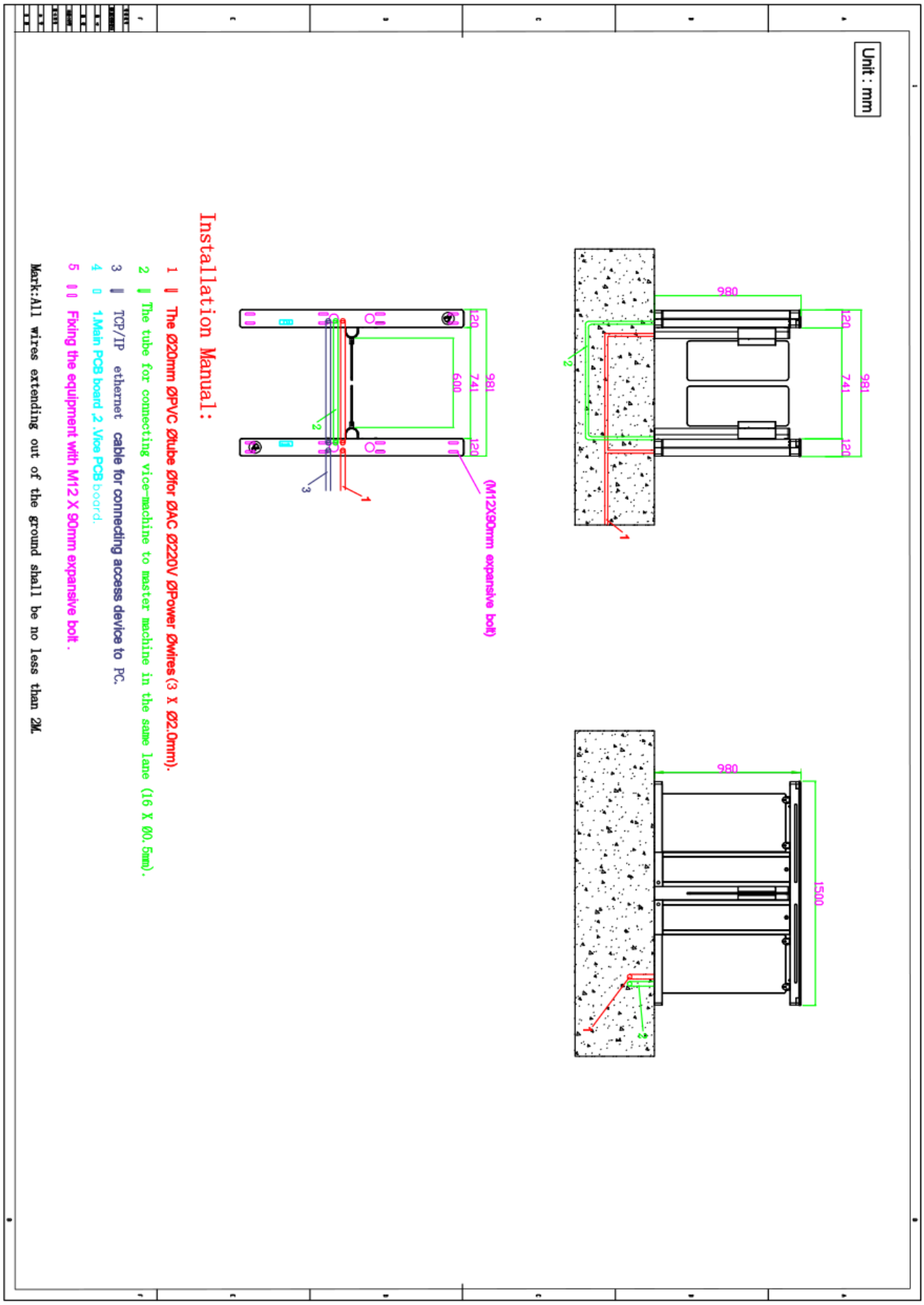


Ground Foot Installation
Foundation Drawing





Reference wiring diagram



8)Confirm the lane lines, dig line pipe diameter into the appropriate PVC line pipe, each lane will AC220V power line RVV3*1.5mm and 3pcs CAT 5 cable for connect main machine , 1 PCS network cable for access control system (if install other control system according to the actual situation of laying related field the wire) ;

9) Move each machine to the corresponding mounting position and point to the expansion bolt position；

10) Check again;

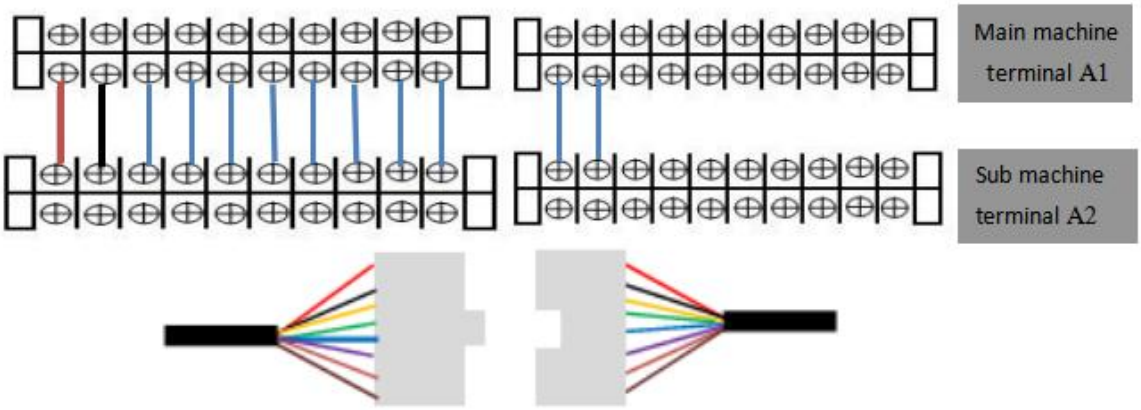
11) Check each gate alignment, all lane are completed debugging and function test, then tighten the nut.

2.3 Connection

1）Connect Cable between the master and the vice machine

Main machine and sub machine are connected one-to-one through two RVV8-core 0.5mm online wires; (the same identification of the online wire binding posts belong to the same channel, such as 1-1, 2-2, 3-3.

Refer to the following picture:



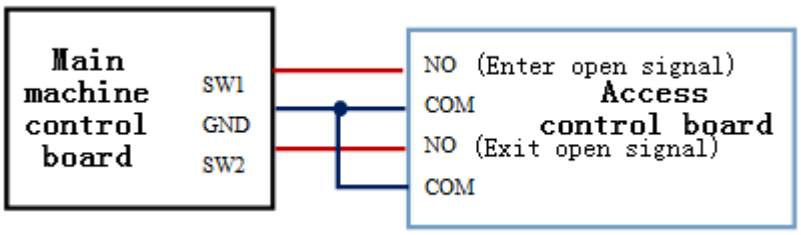
Male and female plug

2) Connecting AC220V power input

Connect the mater machie power adapter to 220V and connect the protective ground wire.

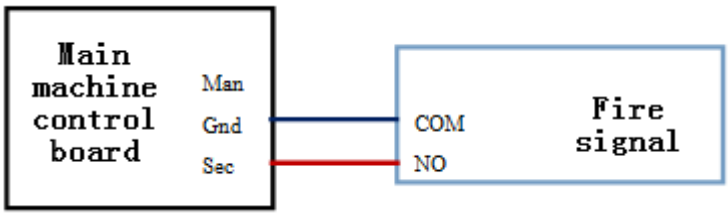
3）Access control device connect

Access control device send open signal to control board , gate will open immediately. The relay time of access control device must be set to 0-1 seconds.



Note: It is strictly forbidden for the access control equipment to take power directly from the gate control panel.

4）Fire signal connecting



The gate of the normally closed [Sec Gnd] port is open, and the gate is closed when canceled

2.4 Debugging instruction

1）Check wire：Check whether the connection wire of the gate and the power line are properly connected before power on. If there is any abnormality on the power supply process, check the connection wires firstly;

2）Function test： After power on the machine will open- close, and open -close, this process is machine self-check, after the sound from buzzer means finish self-check. Don’t stand in the lane in the process of self-check;

3）The control board will give alarm if stand in the lane without swipe card ;if no response when infrared sensor be block, please check if the infrared sensors are aligned， Under normal circumstances, the red led of receive sensor is no bright when no blocked .If the red led of receive sensor is always bright ,that means the sensors no shoot well ,please adjust to aligned.

4）The relay time of access control device must be set to 0-1 seconds.

5）When the valid card is swiped, the indicator light turn green， If the indicator indicates incorrect or turn off and alarm immediately when go into first sensor, This means that the signal connection is opposite, exchange the open signal connect terminal of SW1 Gnd to SW2 Gnd

6）Check and test carefully, running smoothly, no abnormal condition, no

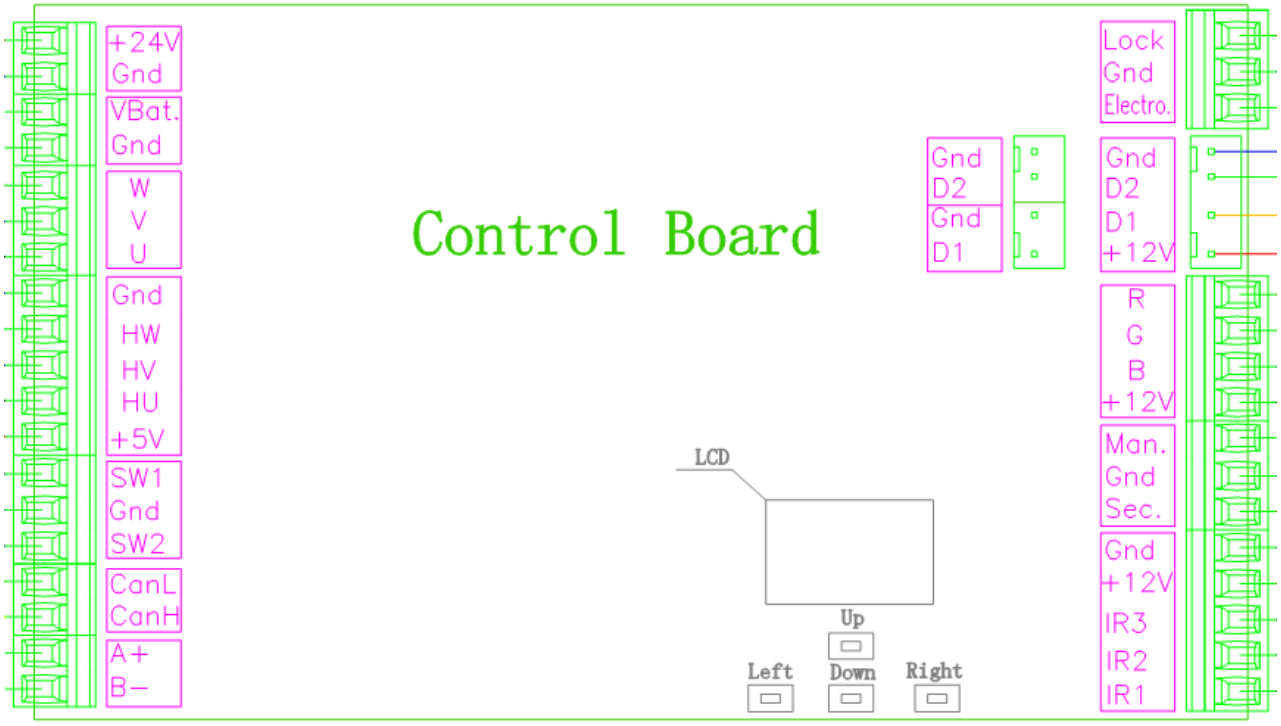
impact sound, etc; Confirm motor is no idle; the indicator light is correct and the infrared pinch function is normal before putting into use.

2.5 Notice of use

- If it tests well before installation, then fixed it; before you install and maintain it, please cut off the power;
- The product must be earthed, and an earth leakage breaker is necessary on the power supply;
- The depth of buried PVC tube should be greater than 60mm, and the exposed height above the ground should be greater than 50mm. The exit mouth should be bending back to avoid water dipping inside the tube;
- Don’t change the inside wire of the turnstile casually;
- Please don’t open the turnstile when it is under the working status;
- In installation, please make each door of the lane are in alignment;
- If you use the turnstile outdoor, it need to add a 100-200mm cement platform for the turnstile to do damp proof, also need to add a canopy to protect the turnstile from sun and rain;
- Please keep the control button or remote control far away from the children;
- Please don’t use the turnstile under the thunder and lightning condition to get rid of damage to the equipment.

3 Board and parameter instruction

3.1 Board instruction



Main board

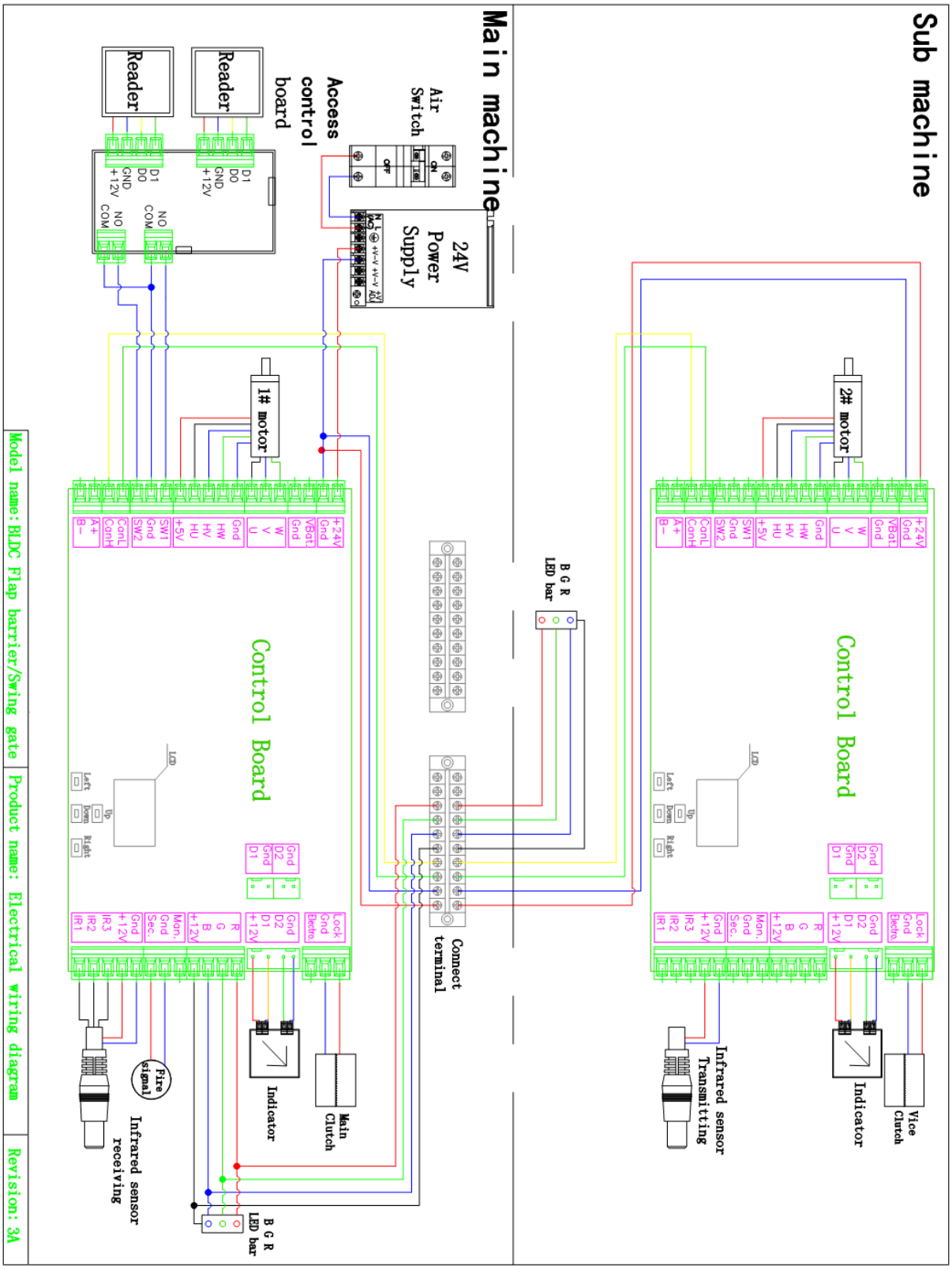
The connect board

Port	Instruction			Mark
(1) PWR IN	1	+24V	DC 24V power input port	Connect to 24V DC power supply
	2	GND		
(2) BAT IN	3	+24V	Spare DC 24V power input port	Connect the 12V super capacitor, Auto normally open when power off.
	4	GND		
(3) Motor output	5	W	Motor output	Output voltage until the motor drives the moving gate to open and close.
	6	V		
	7	U		
(4) Motor hall sensor	8	GND	Motor hall sensor	
	9	HW		
	10	HV		
	11	HU		
	12	+5V		
(5) Enter SW1 Exit SW2	13	SW1	Enter open signal input	Connect to access device NO-SW1 COM-Gnd
	14	GND		
	15	SW2	Exit open signal input	Connect to access device

				NO-SW2 COM-Gnd
(6)CanL CanH	16	CanL	Main machine and sub machine communication	
	17	CanH		
(7)COM（485）	18	A+	RS485 communication	
	19	B—		
(8) IR Sensor	20	IR1	Enter infrared sensor	Control board alarm when sensor be block
	21	IR2	Pinch infrared sensor	
	22	IR3	Exit infrared sensor	
	23	+12V	12V output for infrared	
	24	GND		
(9)Man Gnd Sec	25	Sec	Fire alarm input	Short for normally open, Close immediately when cancel
	26	Gnd	GND	
	27	Man	Normally open input	
(10)B G R +12V	28	+12V	+12V for LED bar	Connect to LED bar
	29	B	Negative of LED blue	
	30	G	Negative of LED green	
	31	R	Negative of LED red	
(11) Indicator	32	+12V	In and out direction indicator output port.	Connect to indicator
	33	GND	12v--GND power supply	
	34	D1	D1 for enter direction	
	35	D2	D2 for exit direction	
(12)Clutch	36	EIectr	Clutch signal output	
	37	GND		
	38	LOCK		

3.2 Wiring diagram

BLDC flap barrier/swing gate wiring diagram



3.3 Parameter instruction

Description: the factory has been set up parameters, please do not modify, if you need to modify the parameters, please proceed under technical guidance.

1. Description

1) The display screen is refers to the main control board of 3 LED display from left to right.

2)Four buttons: Up, Down, Left, Right.

Up and down for switch, left for previous menu. Long press "Right " key 3 seconds unlock into the menu. Select advanced parameters, and long press "Down + Right" key 3 seconds unlock into the menu.

2.Menu setting

Item	Explain
1. Parameters	
1.1 Counter	Display pass through count
1.2 Gate Mode	Set Gate Mode(NO, NC and card, free or reject) of enter and exit 1.NC, Both Card (default) 2.NC, Both Free 3.NC, Both Reject 4.NC, In Card Out Free 5.NC, In Card Out Reject 6.NC, In Free Out Card 7.NC, In Free Out Reject 8.NC, In Reject Out Free 9.NC, In Reject Out Card 10.NO, Both Free 11.NO, Both Card 12.NO, In Free Out Card 13.NO, In Card Out Free
1.3 PassTimeout	Set maximum waiting time 10-255, unit 0.1s, (default 5 seconds)
1.4 Memory	Set Scan Card With Memory Mode: 1. Both disable(default), 2. Entry allow, 3. Exit allow, 4. Both allow
1.5 ReadIn Lane	Set Can Scan Card After Entry Lane,Please do not modify: 1. not allow (default), 2. allowed
1.6 Open Delay	Set Authorized Open Door Delay 0-255, unit 0.1s, (default 0)
1.7 CLS. Delay	Set Close Door Delay After Passage Finish0-255, unit0.1s, (default 0)
1.8 MIN SPD.	Set the power-on self-check speed of the gate, the smaller the value, the slower the speed.
1.9 MAX SPD.	Set the gate opening and closing speed, the higher the value, the faster the speed.

1.10 Pass End	Set IR Check passage end position: 1.exit (default), 2.safety
1.11 Intrude Set	Set Intrude Alarm Mode: 1.None, 2.alarm(default) , 3.alarm and close
1.12 Reverse Set.	Set Passage From Reverse Alarm Mode: 1.None, 2.alarm(default), 3.alarm and close
1.13 Tail-Gating	Set Tail-Gating Alarm Mode: 1.None, 2.alarm(default), 3.alarm and close
1.14 Entry-Voice	
1.15 Exit-Voice	
1.16 Alarm-Voice	
1.17 Adv. Param.	Advance parameters
.1 Gearbox_RR	Set motor reduction ratio (1-120)
.2 KP	
.3 KI	
.4 Motor Pro.	Set the motor over current protection threshold, the default 2.0A
.5 Entry Angle	Set the door opening angle for Entry
.6 Exit Angle	Set the door opening angle for Exit
.7 Cushion EN.	Set the door closing limit buffer for Entry
.8 Cushion EX.	Set the door closing limit buffer for Exit
.9 Output Test	Angle value, Hall value position display
.10 Lock Open	Set clutch: 1. Not Allow, 2. Allowed
.11 Save Fact.	Save the current parameter to factory default
.12 Auto Report	Set automatic report gate status when on change 1.Disabled (default), 2.Enabled
.13 MoDirection	Set direction of motor rotation: 1. DIR_ON, 2. DIR_REV
.14 IR Logic	Set Use Local IR Sensor Logic
.15 Motor Type	Set motor type: 1. Motor1, 2. Motor2
.16 LED Mode	Set LED indicator default parameter: 1.Static LED, 2.Square LED
.17 Set DevType	Set Controller Device Type: 1. Swing Barrier, 2. Flap Barrier, 3. Tripod turnstile
2. System Set	
2.1 Language	Set Menu Display Language
2.2 Device Type	Display Controller Device Type
2.3 Version	Display hardware and firmware version information
2.4 Set Address	Set Device Logic Address
2.5 SLE.Address	Set master and vice machine address number (master machine002, vice machine003)
2.6 Master Flag	Set master machine or vice machine
2.7 RS485 Baud	Set the baud rate of the RS485

2.8 Reset	Reset all setting to factory default
2.9 Restart	Restart controller
3. Factory Test	
3.1 Cycle Test	Open and close door cycle test
3.2 Set Zero	Swing gate use, set the baffle closed position

4 Trouble shooting and maintenance

4.1 Trouble shooting

Basic concept:

The infrared sensor consists of a receive infrared sensor and a transmit infrared sensor. The green light at the tail of the transmit infrared sensor is always on.

The receive infrared sensor(with 3 wires: brown wire--12V, blue wire--Gnd, black wire--signal wire)is not blocked, the tail red light does not light up.The black signal wire and blue wire have no voltage output.

The receive infrared sensor is blocked, the tail red light light up.The black signal wire and blue wire have voltage output.

Fault 1: Gate automatically open when people in to first sensor?

Answer：Change pass mode two way free to two way card in the menu.

Fault 2: swipe into the first sensor, Gate give alarm and close immediately?

Answer：This means that the signal connection is opposite, exchange the open signal connect terminal of SW1 Gnd to SW2 Gnd.

Fault 3: indicator light is not bright?

Answer：Take the other indicator or control board from other lane and check it

Fault 4: is there an indicator that shows the wrong direction?

Answer：Exchange the connect wire of indicator D1 to D2.

Fault 5: One side of the wing door does not work?

Answer：1）Check whether the connection wires is loose;2）Turn off the power and use the millimeter to check whether the connection between the master machine and the vice machine is continuous ;3）Measure whether M1 or M2 has voltage output when restarting the power supply;4）Check fuse in the board.

4.2 Maintenance

Swing /falp barrier gates require regular maintenance by professionals and daily cleaning to ensure long-term stability and extended equipment life.

1. Maintenance Content:

* Keep the turnstile housing and card reader panels of turnstile gates clean;

* Fasten and lubricate the internal movement structure;

* Check the dust of the driver board and make it cleans.

* Check the connectors and wiring points to ensure the reliability of the connection.

2 Maintenance Methods:

1. Cleaning: Check the housing and card reader panels of the gate, and remove the dust and other dirt to make them clean;

2. Rust removal and Lubrication: Check the movement of the flap /slide gate and swing gate, remove rust with sand paper and spread with anti-rust oil if corroded;

3. Screws fastening: Check the connection of the various moving parts, fasten the screws where they are loose to avoid causing fault for long-running;

4. Circuit board cleaning: Cut off the power, and wipe dust of the board by using

a clean brush;

5. Lines Checking: Check the connecting lines and solder reinforcement if they are loose off.

Note: This product is the strong professional technical equipment. In addition to daily maintenance, please do not feel free to disassemble it. If a fault occurs while running, Please notify our service departments or the authorized service agencies promptly to have it maintained. Do not disassemble it at random to avoid damaging the internal structure or even damaging your interests because of your improper operation.

Guarantee Instruction

Our company products are guaranteed for one year, from date of sale, providing free maintenance based on not being damaged by any man-made.

● During the warranty period, all faults caused by the product itself can be maintained for free. Please carry the filled warranty card and the purchase invoice to the authorized service centers across the country or return the machine to our company for free repair.

● Within the period of free maintenance, faults or damages caused by man-made or natural disasters can be maintained with additional charge.

● Over the period of free maintenance, faults or damages can be maintained with additional charge.

The following conditions are not under warranty:

● Damages caused by abnormal operation, man-made or natural disasters;

● Damages after disassembling any portion of the machine (lines, components

etc.) ;

● Damages caused by wrong guide of non-professional technicians;

● Damages caused by adding other functions with unauthorized modification or installation with other equipment.

Note: The warranty card and purchase invoice are used as warranty certificates to maintain the machine. Please reserve them carefully. Lose won’t repair.

User Data Card

User Name		User Contact		Postcode	
User Address					
Machine Model					
Seller Unit		Seller Contact		Postcode	
Seller Address					
Sell Date					

Maintenance Records

Maintenance Date	Fault Description	Maintenance Method	Maintenance Man	Maintenance Unit Seal