TIMEWATCH
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Manual

TW6000DCLD DC Barrier

catalogue

1. Brief Introduction to the road gate machine

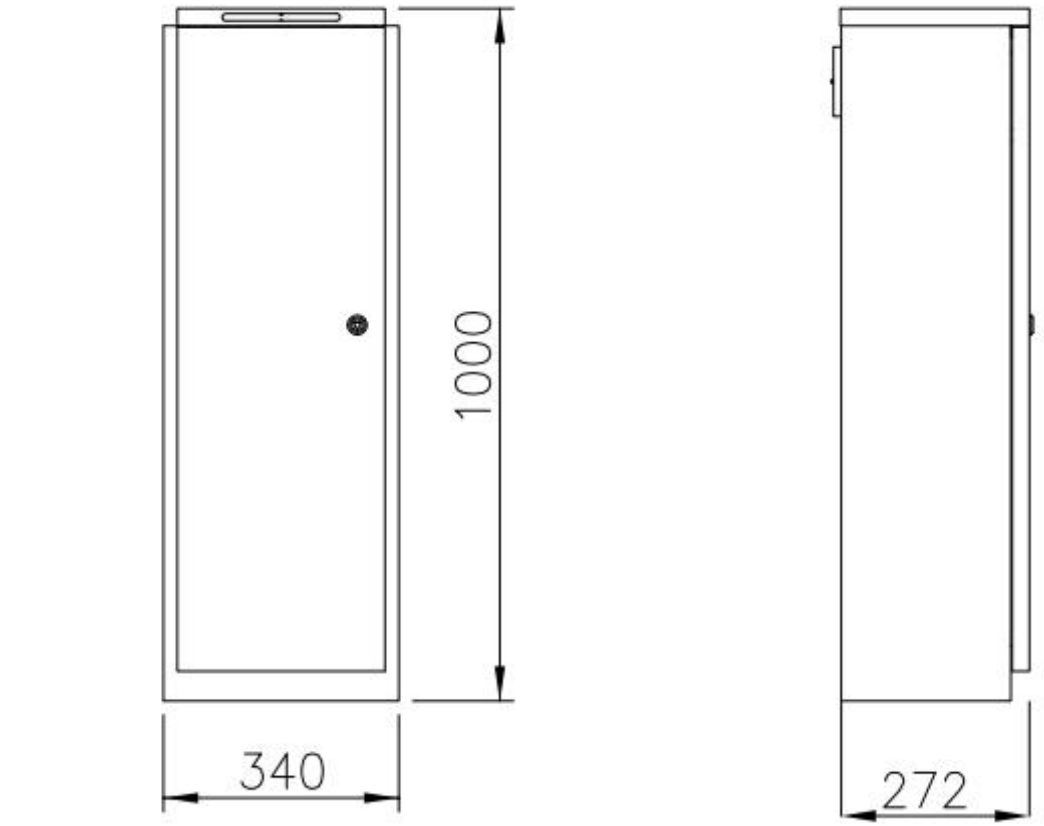
1.1 Functional Features

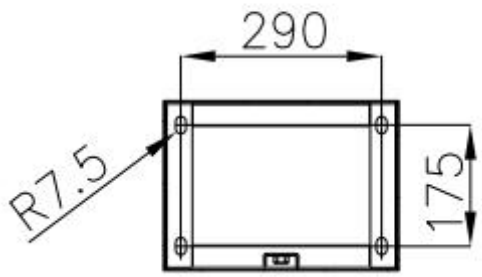
* Left and right movement is adjustable
* Road gate movement adopts crank shaker drive mechanism, compact structure, rigid rigidity, convenient maintenance and operation;
* When the gate rod is in the horizontal or vertical state, the movement structure is completely self-lock, which can effectively protect the reducer from external force impact;
* Compared with the ordinary gate movement, the parts are reduced by about 20%, with less faults;
* Road gate movement has the national invention patent and utility model patent, the movement technology is in the domestic leading level;

1.2 Product parameters

* Product size: 340X272X1000 (mm)
* Power supply: 220V ± 10%, 50~60Hz
* Motor: 24V140W brushless secondary variable speed all copper DC motor
* Running speed: 2-6S adjustable / 0.8-2S adjustable
* Remote control distance: 30M
* Waterproof grade: IP45
* Working environment: -15~ + 70℃
* Box thickness: 1.5mm

2. Appearance size of the gate





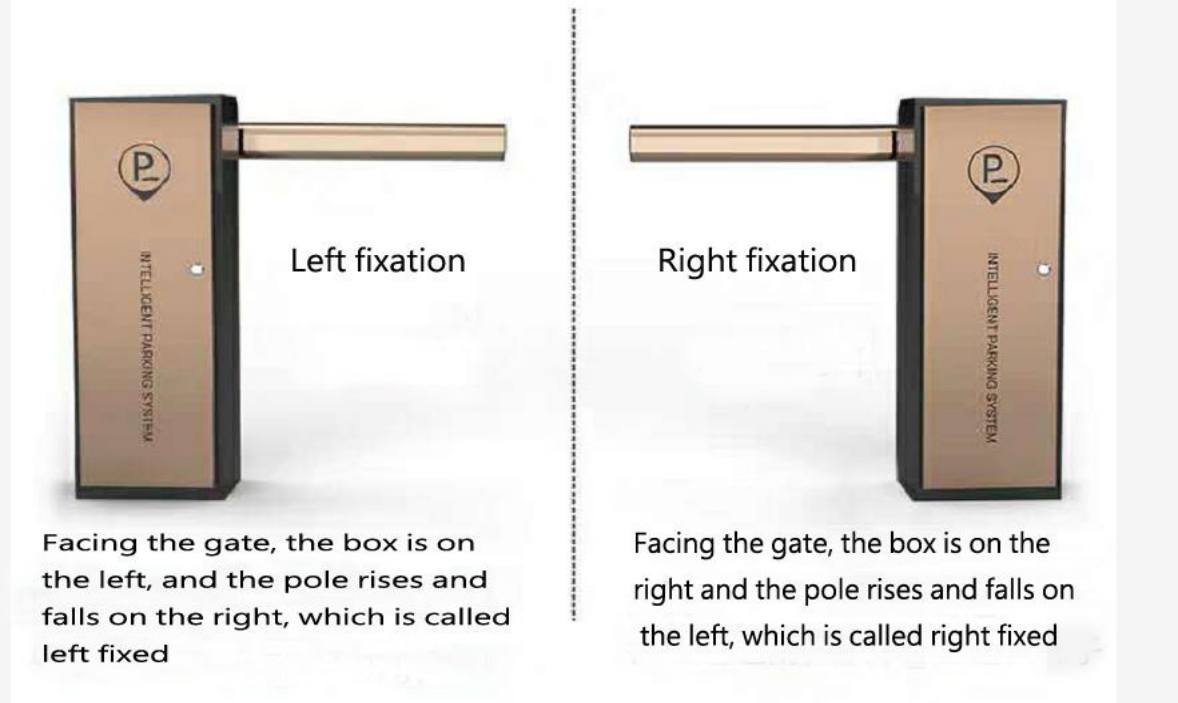
Schematic diagram of the foot mounting hole position

3.Installation of road gate machine

3.1 Construction preparation:

1. Determine the gate pre-installation position according to the selected integrated gate direction and the field installation situation.

The gate is divided into left fixed gate and right gate, defined as follows: facing the front of the main engine (no side of the main shaft), the right rod falls to the left fixed gate, and the lever falls to the left direction is the right fixed gate.As shown in the figure below:

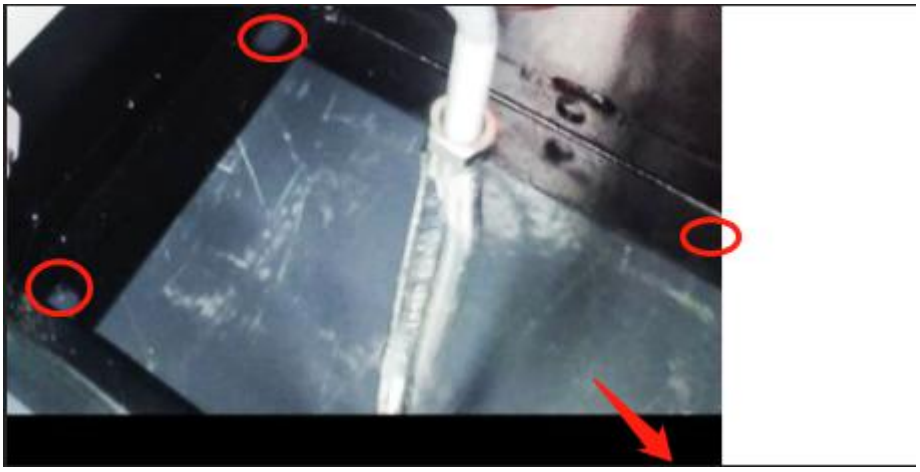


Left and right fixed definition of road lock

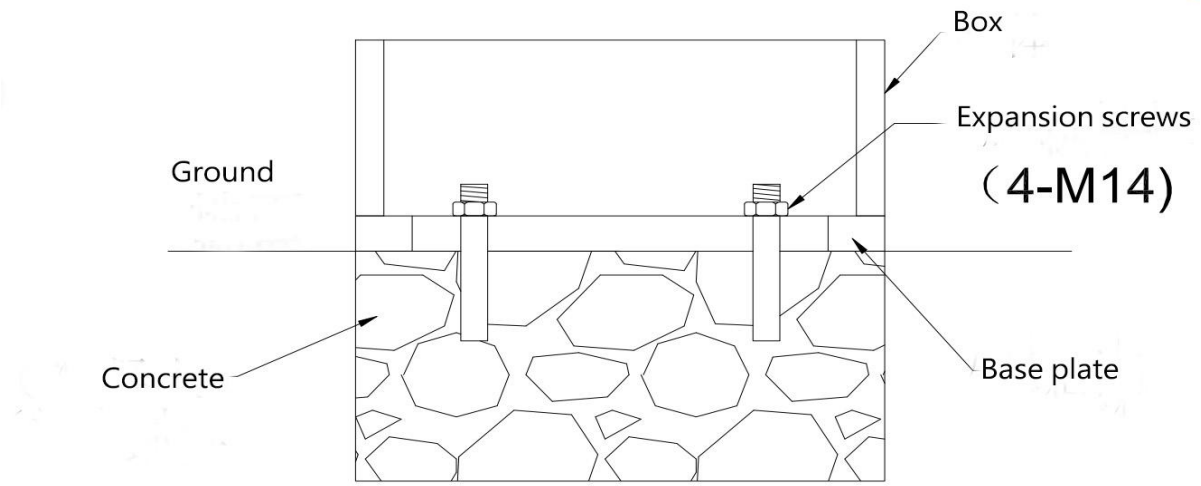
2. Lay power line and control line according to the control room or post box (separate power line and control signal line)
3. For the non-concrete foundation or the ground is not horizontal, do the gate foundation according to the situation.

3.2 Circuit gate installation:

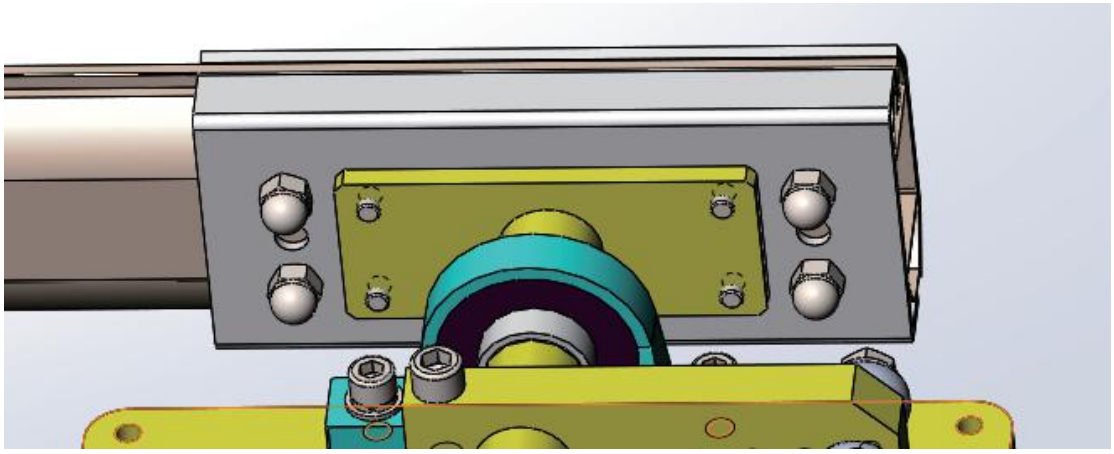
1. Place the box in the installation position, open the box to determine the position of the expansion bolt and mark.



2. Remove the box and punch the mark with impact drill and place expansion bolts.
3. Place the box at the installation position, adjust the angle of the box, and tighten the expansion bolt nut after horizontal.



3.3 Gate bar installation (straight bar):



- Release all balance pull springs;
- Turn the motor hand shake handle and turn the brake clip to the horizontal position;
- Remove the lever and lever outer splint, double head bolt, gasket and cover nut;
- Place the splint and gate bar in the figure, insert the bolts, tighten the nut, and secure the gate bar;
- After the gate rod is installed, turn the motor hand shake handle to pull the gate lever back to the vertical position and hang all the pull springs.

3.4 Spring balance:

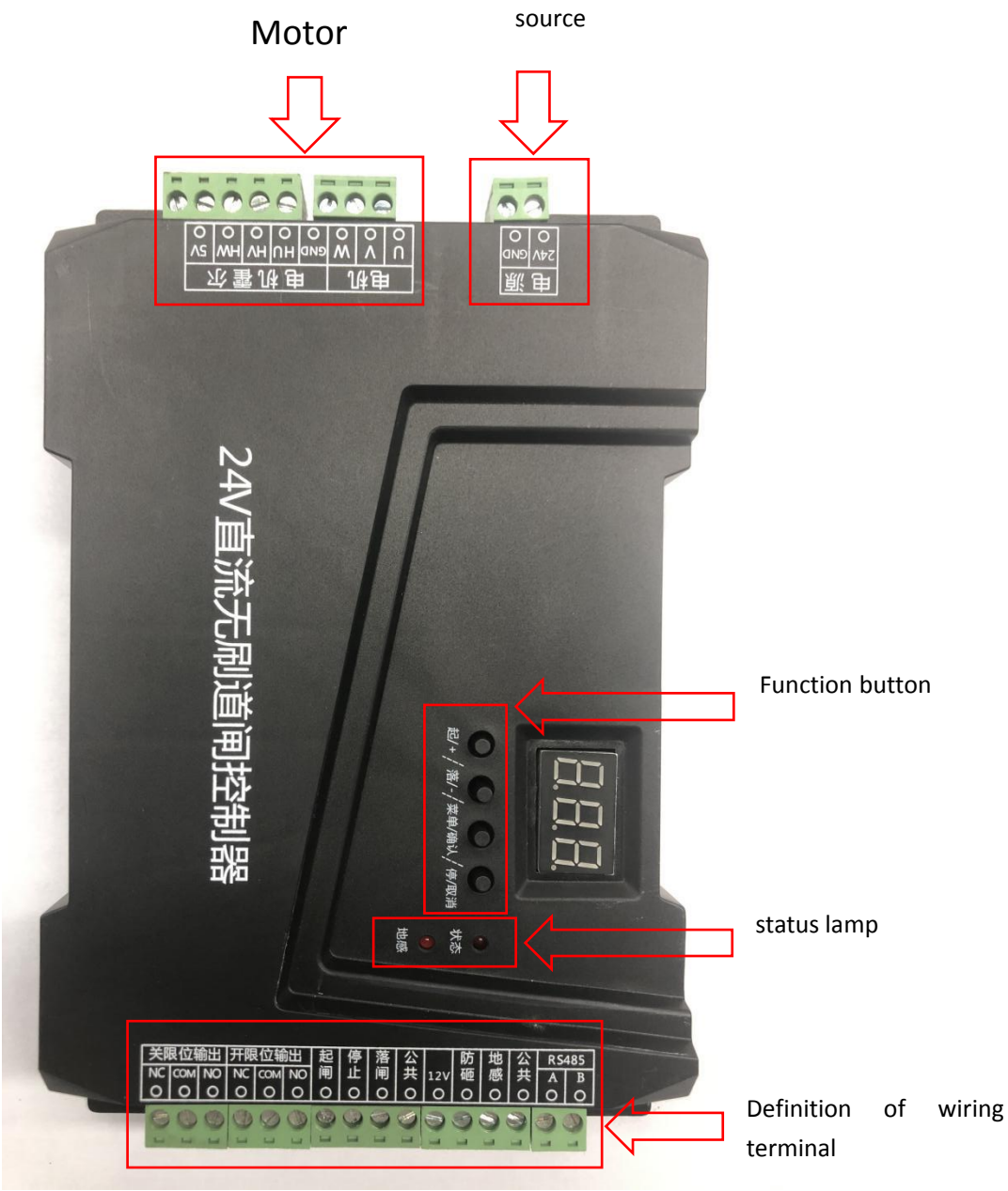
Open the gate door and cover, loosen the two loose nuts (M6), loosen the two limit screw (hexagonal M6X25), loosen one lock screw (hexagonal M12X50), loosen about 5mm. Put the brake lever between 30 ° and 60 ° to loosen the external force, then the balance between the brake bar and the spring; if the brake bar is moving upward, the spring tension shall be reduced; If the brake bar is moving down, the spring tension should be increased.

Increase spring tension, spring hang hole down; reduce spring tension, spring hang hole up.

After the spring balance is adjusted, reset the gate rod and swing rod (see the left and right gate diagram for details), pay attention to the position of the swing rod can not be wrong, and tighten the loose screws and nuts;

Pretighten the spring to a certain tension, otherwise the gate bar will shake, and the flower basket screw is easy to loose.

4. Introduction of the gate controller



4.1 Wiring instructions:

1. The start, stop, off and public are the gate control signal input, which can be connected to three manual buttons, and the camera opening input is connected to the start and public, regardless of sequence. Close the gate input access to the off-gate and public, regardless of order.

2. The ground sense and public are connected to the brake detector or radar output signal to control the vehicle over the gate.
3. Anti-smash and public for infrared access.

4.2 Explanation of operating terms:

Long press: press and hold the button without release, such as: long press for 3 seconds for at least 3 seconds, until the LED display menu item and buzzer prompt.
Short press: release the button, do not exceed the long press time.

4.3 Key button function explanation:

The controller has four keys, from left to right are "lift / +", "drop / -", "menu / confirm" and "stop / cancel", which can set the various parameters of the controller.
"Lift the gate / +": under the normal working state, press the button to lift the gate. After entering the setting state, you can use the button to increase the menu item and adjust the setting value upward.In the parameter set state, short press add one at a time.
"Off / -": Press this key to go off. After entering the setting state, you can use this key to reduce the menu items and adjust the setting value down.In the parameter set state, press one minus each time.
Menu / Confirm: This key has 3 functions:
1. In normal working mode, press the key for 3 seconds to enter the menu item selection state. The LED displays "P-XX", and then press "Lift / +" and "drop / -" to select the menu item;
2. Press "Menu / confirm" under the menu item selection state to enter the setting parameter state;
3. After the parameter is set, press it to save the exit.
"Stop / Cancel": when normal operation, the key is the stop function, the menu item selection state is the exit setting state, press the key to exit the state and return to the menu selection state, that is, the previous level menu, and the value set is invalid.If there is no key operation within 15 seconds under the menu selection status and parameter settings, the controller returns to operation after a buzzer tap.

4.4 Display:

The controller has a three-bit LED display that can be used for gate operating status, parameters, menu items and other letters
The display of interest.Display the controller version information after power, and the initial position of the motor after 2 seconds.

4.5 Parameter setting steps:

It can be set by long pressing the Menu / Confirmation button for 3 seconds, and the LED will display PXX.
Select the menu item by short pressing or long pressing "Lift / +" and "drop / -", and add one once
Or subtract one, long press is continuous add or subtract.Press Menu again to set up the specified item and press Stop /
Cancel the key to return to the previous level or exit the settings.When setting for the specified parameters is complete, you must press " Menu
/ Confirm " key confirmation can not take effect.The parameters set by pressing the Stop / Cancel key will not take effect.No in 15 seconds
With a button, the buzzer on the control board will ring loudly, exit the setting state, and return to the normal working state.

4.6 Learning and deletion of remote control coding:

Press the "Lift / +" button in normal working mode to quickly enter the remote control learning menu command.

1、Paired learning

Entering the remote learning menu item P-22 shows the number of currently learned.Press any key of the remote control, learn the successful buzzer long sound, and the LED shows the number of learned remote control plus one, after learning a remote control can continue to learn the next, the maximum support of up to 200 remote control.If it is a learned remote control, the buzzer calls rapidly three times continuously, suggesting that the remote control has been learned.After the study is completed, press the confirmation key to exit. Then the successful remote control will have a corresponding response in the normal working state.

2、Clear the remote control

After entering the P-31 menu item, the number of currently learned remote controls is displayed. Press confirm key to clear all learned remote controls, and the number of remote controls is 0.

4.7 DC brushless gate controller command list:

menu	function	Windows default	scope	remarks
P-01	Lift the brake speed	70	20-100	The larger the value, the faster the speed
P-02	Landing speed	70	20-100	The larger the value, the faster the speed
P-03	Lift the first part of the brake for the deceleration	40	10-60	Start the to start slow stroke, unit: degree
P-04	The first part of the trip	40	10-60	Start the trip to slow down, in unit: degrees
P-05	Lift brake acceleration time	80	30-250	Speed to lift speed, in 0.01 seconds
P-06	Drop brake acceleration time	80	30-250	Speed to closing speed, in 0.01 seconds
P-07	End speed of lifting gate	30	10-60	End of the brake lift at this speed in 10rpm
P-08	Landing end speed	30	10-60	End at this speed in 10rpm
P-09	horizontal position adjust	36	0-252	Fine-tune the horizontal position of the gate bar
P-10	vertical position adjust	36	0-252	Fine-tune the vertical position of the gate bar
P-11	Lift the second part of the brake for the deceleration	18	0-252	Lift the second section of the brake deceleration stroke
P-12	The second section of the stroke	18	0-252	The ated stroke of the second section
P-13	Resistance to the rebound sensitivity adjustment	25	10-250	Resistance response time, in unit: 0.1s
P-14	Encounter resistance to rebound strength	40	10-80	The bigger the value, the stronger the value
P-15	Lift the gate and memory function setting	0	0-1	The memory is off by default
P-16	Type of ground sensation falling rod	0	0-3	0 means opening properly, 1 means closing immediately, 2 means the buzzer rings immediately, and 3 means the
P-17	No sense automatic shutdown time	0	1-250	This feature is turned off by default in 1 seconds
P-18	Ground sensing delay rod drop time	0	0-25	This feature is turned off by default in 1 seconds
P-19	Motor start-up strength adjustment	50	10-80	The bigger the value, the stronger the value
P-20	Motor maximum strength adjustment	70	30-90	The bigger the value, the stronger the value
P-21	Motor type / rotation direction setting	0	0-5	Motor polarity and gate rotation direction
P-22	Remote control learning	0	0-200	Learn the remote control, the maximum number of 200
P-23	Find the initial position speed	60	30-90	The upper and lower limits of this speed are measured in rpm
P-24	RS485 Address	0	0-31	RS485 mailing address
P-25	RS485 Mode Settings	1	0-3	RS485 pattern
P-26	Motor positive and reverse switch time	10	5-50	Unit: 0.1 seconds
P-27	Motor stop time	5	2-50	Unit: 0.1 seconds
P-28	Lift the gate first	0	0-1	Under the lock lift first mode, open first
P-29	The velocity PID parameter is Kp regulation	100	50-250	The larger the value, the greater the speed adjustment
P-30	Automatic test mode	0	0-20	Automatic test interval, 0 is the normal operation
P-31	Number of remote control	0	0-200	Clear all learning remote controls
P-32	Restore the factory parameter settings	0	0-1	Restore the default parameters

Detailed solution of parameters:

P-01, gate lift speed

All where the speed is involved, the percentage of the maximum speed of the motor is taken. If the maximum speed of the motor is 1800rpm and the set value is 80, the maximum speed runs at 1440rpm.

P-02, Strip speed

The same lifting speed.

P-03

For setting the motor deceleration during gate lift. In angle, 0 degrees for horizontal position and 90 degrees in vertical position. This parameter indicates the start of slow down when the lever is opened at this angle from the vertical position.

P-04

For setting the motor deceleration stroke during the drop trip. In angle, 0 degrees for horizontal position and 90 degrees in vertical position. This parameter indicates the initial deceleration when the gate lever falls to this angle from the horizontal position.

P-05 gate lift and acceleration time

Unit: 0.01 seconds, acceleration to lift speed. This parameter determines the acceleration of the gate lift.

P-06 shutdown acceleration time

Unit: 0.01 seconds, time to trip speed. This parameter determines the acceleration of the shutdown gate.

P-07 lift end speed

At this speed to lift the gate, too small will lead to open not in place, too large will lead to shaking. If the P-11 command has set a low lift angle and is in the effective range, run at that speed in the low speed uniform zone.

P-08 shutdown end speed

At this speed to close the gate, too small will lead to close not in place, too big will lead to shaking. If the P-12 command is set at the drop gate low speed angle and is in the effective range, run at that speed in the low speed uniform zone.

P-09 horizontal position regulation

If the gate lever is uneven horizontally, it can be fine-tuned by this parameter. For gates with rubber ring as a buffer, this value needs to be increased to avoid squeezing the rubber ring at each closing.

The P-10 vertical position adjustment

If the gate bar is not positioned vertically, it can be fine-tuned by this

parameter. For gates with rubber ring as a buffer, this value needs to be increased to avoid squeezing the rubber ring with each opening.

P-11

This parameter sets a low speed uniform speed zone during the lift. During the lift, at this angle, at P-07 until it is completely closed.

P-12

This parameter sets a uniform zone during the trip. During the trip, at this angle, P-08 will end until it is completely closed.

P-13 meets resistance and rebound sensitivity

Range: 10-250, default: 25, in: 0.01 seconds. When the strength of resistance exceeds the set value of P-14, the timing starts, and exceeds the set time, the gate rebounds.

P-14 encountered resistance rebound strength

Range of 10-80, with a default of 40. The bigger the numbers, the bigger the numbers are. This parameter works with P-13 resistance rebound sensitivity to determine a rebound. If there rebound during normal shutdown, the two parameters P-13 and P-14 should be increased.

P-15 lift gate memory function setting

Range 0-1, the default value: 0. In some application scenarios, the number of opening closures and the number of ground sensing relay closures are consistent to close the gate. This feature can then be enabled. The 0 is not enabled for the.

P-16 ground gate type

Range 0-1, the default value: 0. After the ground sense signal disappears, whether to drop the switch immediately or wait until the switch is in place. 0 Represents the gate after lifting in place, 1 means immediately.

P-17 no land sense (start rod limited time) automatic closing time

Range: 0-255, default: 0, unit: seconds. After the gate is opened, if the car is not detected after the time set by the parameter, the gate will be automatically closed. If set to 0, the gate is open until the car passes by or the close button is pressed.

P-18

Range: 0-25, default: 0, unit: seconds. After the ground sense signal disappears, and then start the drop gate.

P-19 motor starting strength

Range: 10-80, default: 50. The start strength of the motor, the greater the value, the greater the start strength.

P-20 motor maximum strength

Range: 30-90, default: 70. The maximum allowable force when operated by the motor, the greater the value, the greater the strength.

P-21 Motor type / direction of rotation

Value range: 0-5, default: 0. Because the pole logarithmic of the motor, the deceleration series of the gate movement is different, the gate has the left and right out of the pole. So this parameter is used for being compatible with various types of motors and gates. 0 and 1, 2 and 3, 4 and 5 are corresponding in pairs. When the "lift / +" button gate lever is pressed, the choice of motor type and rotation direction is correct, while the rotation direction of the motor should be adjusted. Hino motor chooses between 0 and 1, Chengbang motor between 2 and 3, and Tibang motor between 4 and 5.

P-22 Remote Control Learning

Entering the remote learning menu item shows the number of currently learned. Press any key of the remote control, learn the successful buzzer long sound, and the LED shows the number of learned remote control plus one, after learning a remote control can continue to learn the next, the maximum support of up to 200 remote control. If it is a learned remote control, the buzzer calls rapidly three times continuously, suggesting that the remote control has been learned. After the study is completed, press the confirmation key to exit. Then the successful remote control will have a corresponding response in the normal working state.

The P-23 looks for the initial position and speed speed

Range: 30-90, default: 60. After the gate controller, find the upper and lower limits at this speed. After the upper and lower limit learning is completed, enter the normal working state.

P-24 Equipment RS485 Address

Range: 0-31, the default: 0. Device address for the RS485 communication period.

The P-25 device RS485 mode setting

Range: 0-3, Default: 1. The device enables the RS485 function for single or online mode. The master-slave address must be set to the same in online mode. 0 Single-alone host mode in which the device actively uploads device status every 300ms, including the received remote control status. 1 For stand-alone slave mode, a query command is required to obtain the device status. 2 It is online host mode in which the host is slave. 3 For the online slave mode.

The P-26 motor has a positive and reverse switching time

Range: 5-50, default: 10, unit: 0.1 seconds. In order to prevent the impact of reverse electric momentum on the motor by positive rotation switch, the motor needs to slow down and then reverse accelerate.

P-27 motor stop time

Range: 2-50, default: 5, unit: 0.1 seconds.To prevent the violent shaking of the brake rod, the motor needs to slow down to zero within the set time to eliminate the jitter.

P-28, gate lift is preferred

Range: 0-1, the default: 0. In some scenarios require invalid shutdown and stop during lifting the rod.

0: In the process of lifting, closing and stop according to closing and shutdown.

1: In the process of lifting the lock, press to close, stop is invalid.It must be put in place before working.

The P-29 speed PID parameter Kp setting

Range: 50-250, Default: 100. This parameter is used to adjust the magnitude of speed changes over the same time interval.

P-30, automatic testing

Range: 0-250, default: 0, unit: seconds.The time interval of automatic testing, being 0, indicates closing automatic testing for automatic testing and aging testing.After the test is completed, set the parameter to 0 to remove the automatic test.

P-31 to clear the remote control

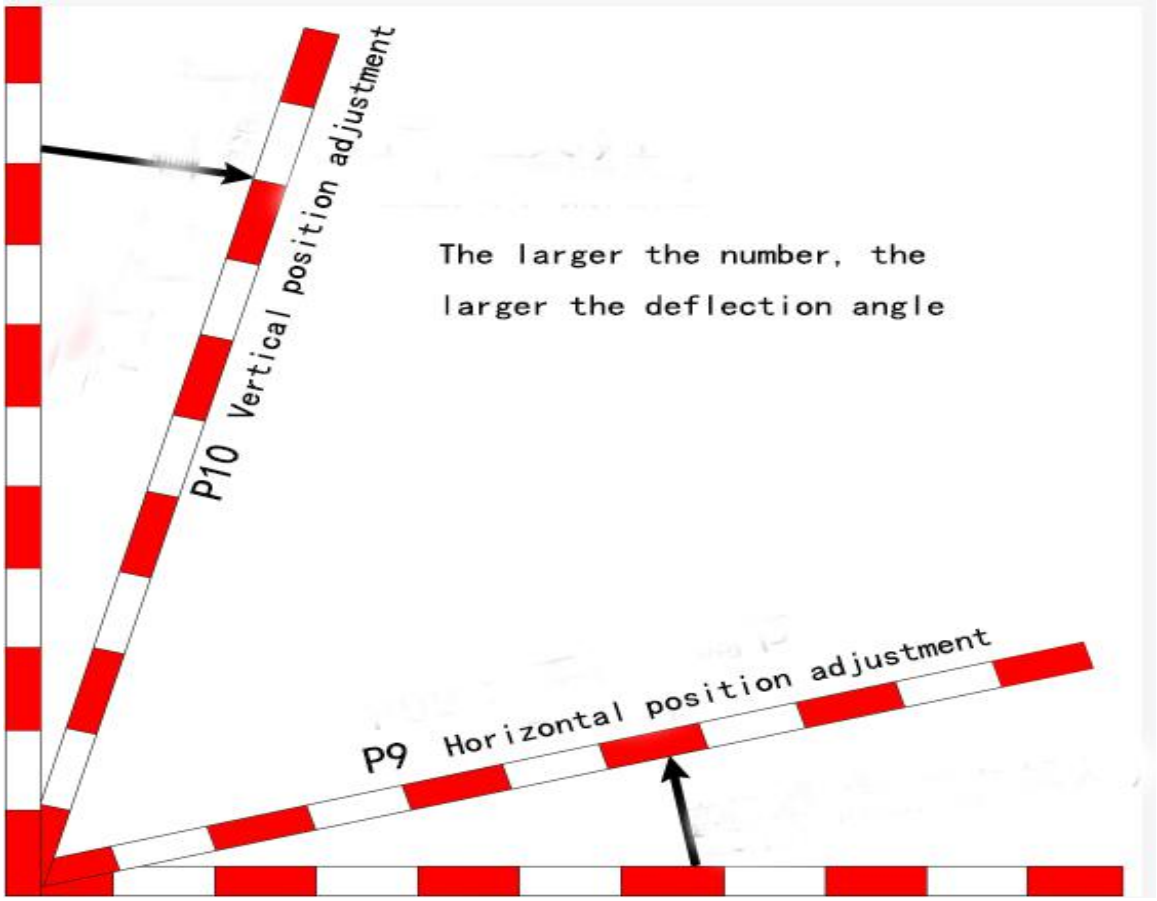
After entering this menu item, the number of currently learned remote controls is displayed. Press confirm key to clear all learned remote controls, and the number of remote controls is displayed as 0.

P-32 restores the factory settings

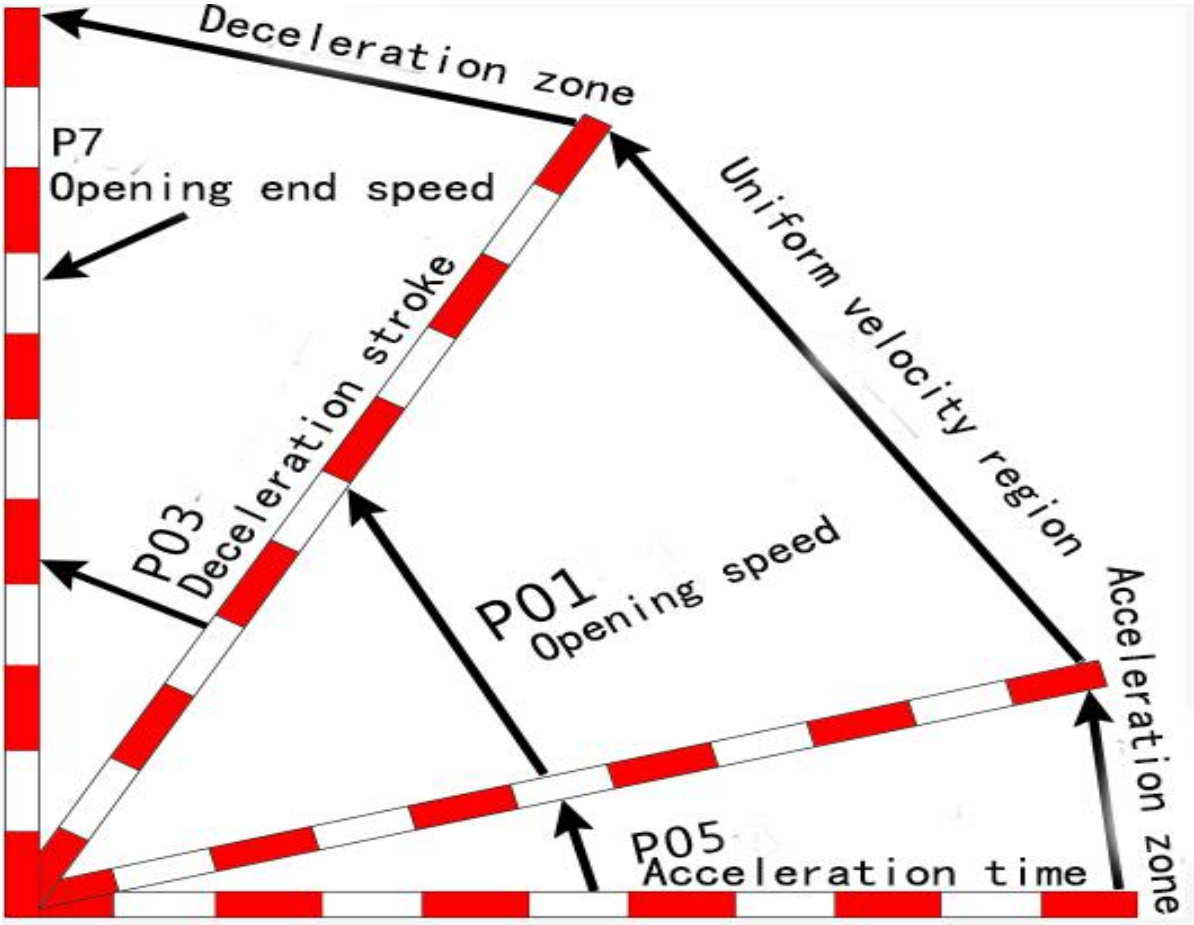
Recovery of factory settings, all parameters use default settings, control board default parameters can meet the most scenarios.If improper setting occurs during setup, you can use the restore factory setting function.Display the "R-S" after entering the recovery factory setting menu, clear all user Settings after confirmation, display the "SYS" after clearing success, buzzer loudly and exit the setting mode.

4.8 Functional schematic diagram

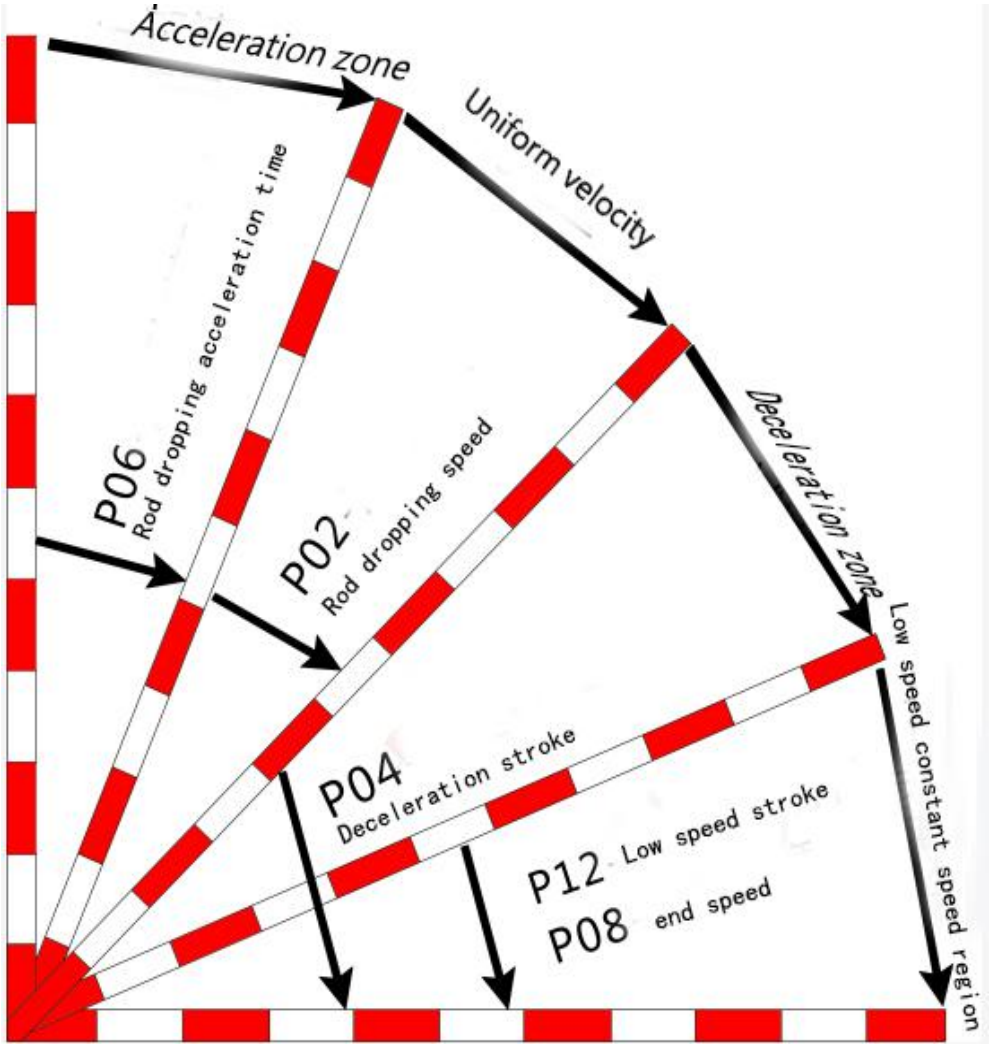
1. Schematic diagram of adjusting the horizontal and vertical positions by P-09 / P-10



2. Schematic diagram of lifting the brake



3、Schematic diagram of falling gate



5. Road gate test

5.1 Gate bar position (levelness, verticality) adjustment:

The gate has used the horizontal ruler to adjust the horizontal degree and verticality as the best position. If the site needs to adjust the position of the gate rod, adjust according to the following way

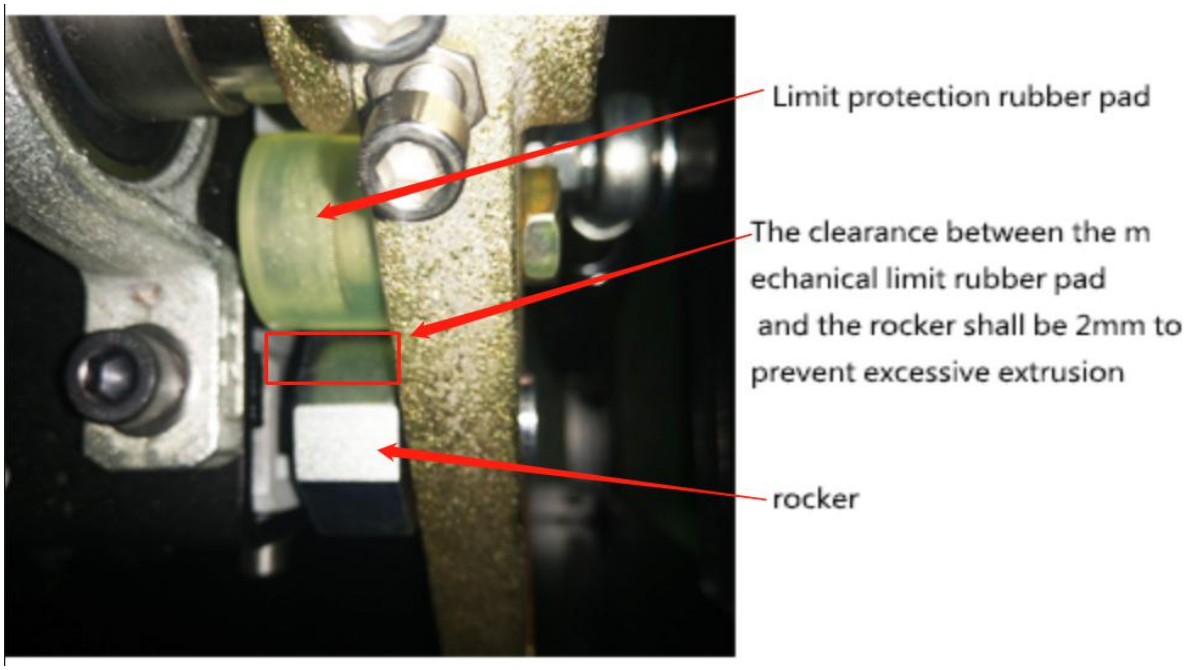
1. Gate bar adjustment level (take the left fixing machine as an example)

Long press the menu key, add the parameter item to the P09, and then press the menu key, you can see the specific parameter value of the P09 item.

If the pole level is high, you can reduce the value, and then press the menu key to save.(Reducing the parameters of P09 increases the drop rod stroke, making the swing rod closer to the mechanical limit protection rubber pad, thus reducing the rod more horizontally.)

If the pole level is low, you can increase the value, and then press the menu key to save.(Increasing the parameters of P09 reduces the drop rod stroke and makes the swing rod farther away from the mechanical limit protective rubber pad, thus raising the rod more horizontally.)

Note: the premise of lowering this value should ensure that the rocker can not squeeze the mechanical limit pad after the falling rod is in place, and ensure the 2mm gap. If the mechanical limit pad will be squeezed, the parameters should be increased.As shown in Fig:



2. Vertical gate adjustment (take the left fixed machine as an example)

Long press the menu key, add the parameter key to the P10 key, and then press the menu key to see the specific parameter value of the p10 key.

If the pole is not in place (less than 90 degrees), you can reduce the value, and then press the menu button to save.(Reducing the parameters of P10 increases the rod lifting stroke, making the rocking rod closer to the mechanical limit protective rubber pad, thus raising the rod more vertical.)

If the pole is too far (over 90 degrees), you can increase the value and then press the menu button to save it.(Increasing the parameters of P10 reduces the stroke of the lever, making the rocker farther away from the limit protective rubber pad, thus making the rod lower and more vertical.)

Note: on the premise of lowering this value, ensure that the rocker can not squeeze the mechanical limit pad after lifting the rod in place, and ensure the 2mm gap. If the mechanical limit pad will be squeezed, the parameters should be increased.As shown in Fig:

Note: When the brake rod cannot be shaken to the ideal horizontal or vertical position by parameter tuning (the mechanical limit block is not in place), adjust the brake lever position in this way.

Turn the gate and movement open or closed; loosen two loose nuts (M6) on the rocking lever of the movement, loosen two limit screws (inner hexagonal M6X25), loosen one locking screw (inner six M12 * 50) for all screws and about 5mm; adjust the lever to the required position and tighten the loose screw nuts.

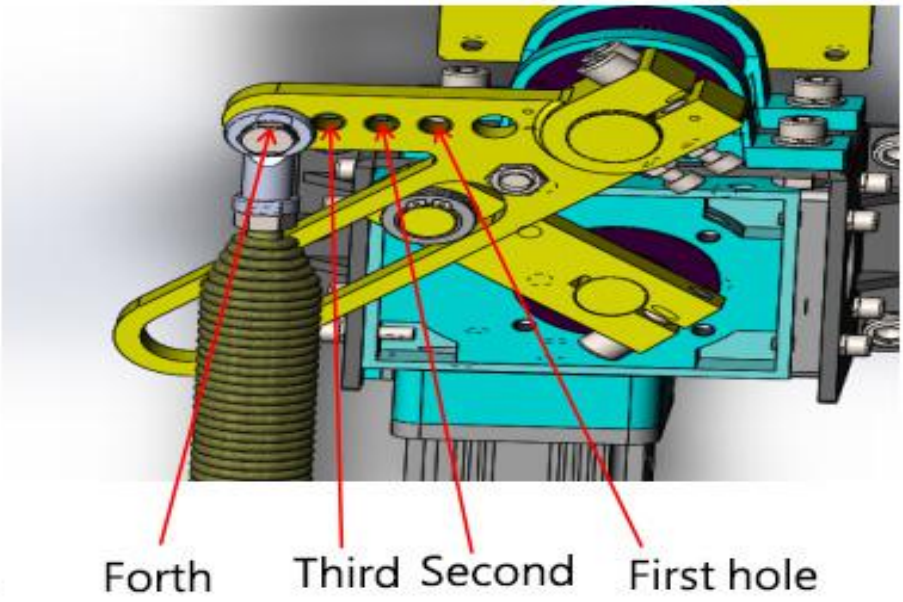
7.Digital pipe code meaning

L00: Initial location is not determined
L01: Close the gate in place
L02: Open the gate in place
L03: Stop halfway way
L11: Close the gate
L12: Opening the gate is in the process
E01: The gate is not open in place
E02: The lock machine is not closed in place
E03: The motor direction is not consistent with the setting
E04: Self-test was unsuccessful
E05:, motor blocking rotation

E06: Motor overcurrent protection
E07: Motor Hall is missing
E08: Motor start-up failed
E09: Motor Hall order is wrong

8. Appendix: Spring ratio table

Schematic diagram of the spring hole position



Corresponding table of spring installation				
Rod length	Straight rod (folding arm rod)		Fence pole	
	Spring (mm)	hole position	Spring (mm)	hole position
2.5M	5	2	6.5	2
2.75M	5	3	6.5	2
3M	6.5	1	7	1
3.25M	6.5	1	7	1
3.5M	6.5	1	7	2
3.75M	6.5	2	7	2
4M	7	1	7	3
4.25M	7	1	7	3
4.5M	7	1	7	4
4.75M	7	2	 Balance arm hole bitmap	
5M	7	2		
5.25M	7	2		
5.5M	7	3		
5.75M	7	3		
6M	7	3		