Non-Spring Barrier Gate

NSBG101-H

Manual

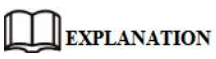
(for DZE4-H mechanism, DZBL-C controller)

V1.0.2

Preface

Symbol Stipulations

The meanings of the following symbols which may appear in this manual.

Symbols	Meanings
	Indicates that there is a high level of potential danger, if not avoided, it may cause casualties or serious injures.
	Indicates that there is a medium or low level of potential danger. If not avoided, it may cause minor or moderate injury to personnel.
	Indicates potential risks. If you ignore the information, it may cause equipment damage, data loss, equipment performance degradation, or unpredictable results.
	Indicates that it can help you solve a problem or save your time.
	Indicates that it is the additional information of the main text, which emphasizes and supplements the main text.

Revision History

Version No.	Revision Content	Release Date
V1.0.0	First Release.	2024.03
V1.0.1	Added option description for IR anti-smashing logic interface H-27 (supported by program Ac34 or above firmware)	2024.06
V1.0.2	Delete the related info for fence boom	2024.07
V1.0.3	The controller was changed to DZBL-C2; the appearance of the electronic clutch changed; some descriptions not related to this model were deleted.	2024.10

Safety Instructions

The following is the correct methods of using the product, in order to prevent danger, prevent property damage, etc., please read this manual carefully before using the equipment and strictly follow it during use. Please keep the manual properly after reading.

Operating Environment Requirements

Please transport, use and store the device within the allowable humidity and temperature range.

Please do not let any liquid flow into the device.

Please install the device in a well-ventilated place, and do not block the vents of the device.

Please do not press hard, vibrate violently or soak the equipment.

Please use the factory packaging or materials of the same quality when shipping the equipment.

It is recommended to ground via the grounding hole on the device to improve the reliability of the device.

Operation and Maintenance Requirements

Please do not disassemble the device privately.

Please use the accessories or attachments of the manufacturer for installation and maintenance by professional service personnel.

Please do not provide two or more power supply methods to the device at the same time, otherwise the device may be damaged.

The self-contained boom is not allowed to be lengthened or cut off, and it is also not allowed to add weight to the boom privately.

Contents

1. Production Overview

1.1. Brief Introduction

The product consists of four parts: cabinet, transmission mechanism, control unit, and boom. It distinguishes between left-installed and right-installed, and it is used in parking lot entrance and exit control systems.

EXPLANATION s divided into two types: barrier gate with straight boom and barrier gate with folding boom.

If any customization which is not listed in the following table is needed, please consult the marketing staff.

Barrier Types

Type	Description (Boom Length=L, Meters=M, Seconds=S)
Barrier gate with straight boom	• L≤3M, up speed 1S. • L≤3.5M, up speed 1.4S. • L≤4M, up speed 2S. • L≤4.5M, up speed 2.5S.
Barrier gate with folding boom	• L≤3M (1.5+1.5M), up speed 1.2S. • L≤4M (2+2M), up speed 2.2S.

1.2. Functions and Features

1.2.1. No spring design, eliminating the need for mechanical leveling, maintenance-free.

1.2.2. The boom will not fall off when power off, high safety.

1.2.3. Minimal operation, the direction can be exchanged in 30 seconds.

1.2.4. Bluetooth control, one-key remote service.

1.2.6. The perfect combination of worm gear and gear is reliable.

1.2.7. Support external radar, loop detector, infrared photocell anti-smashing function, built-in DC 12V power output, can be used for external radar power supply.

1.2.8. Support RS485 communication or RS485 off-line connection.

1.2.9. DC24V power supply is optional.

1.3. Technical Data

1.3.1. Working temperature (motor): -35℃~ + 70℃

1.3.2. Power supply input voltage: AC100~120V

1.3.3. Controller input voltage: DC24V±10%, 20.8A

1.3.4. Motor power: 300W

1.3.5. Relative Humidity: 30%~80%, No condensation

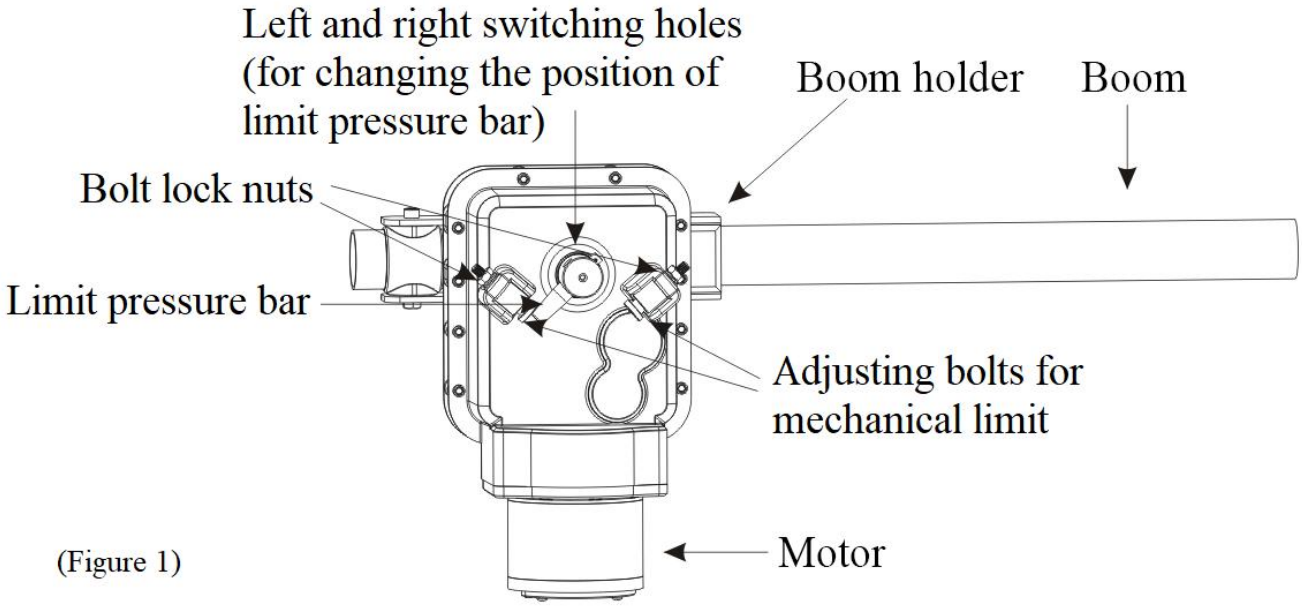
1.3.6. Distance of remote control: open and undisturbed, L≤50M

1.3.7. Running Speed: 1~2.5 seconds adjustable

1.3.8. MTBF: 8,000,000 times

2. Product Structure

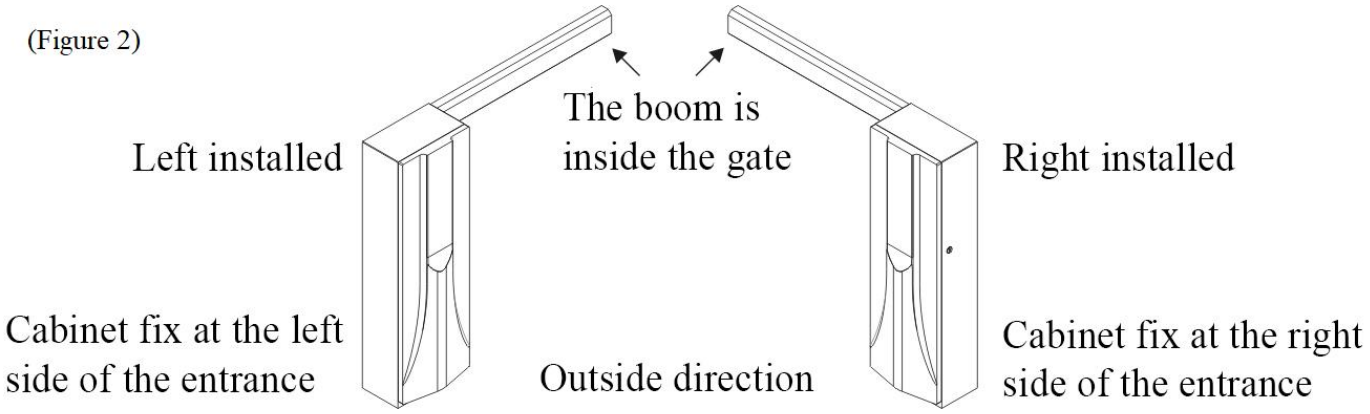
2.1. Mechanism Structure



(Figure 1)

2.2. Installation Direction Definition

(Figure 2)



2.3. Operation Instructions for Changing Left and Right Direction

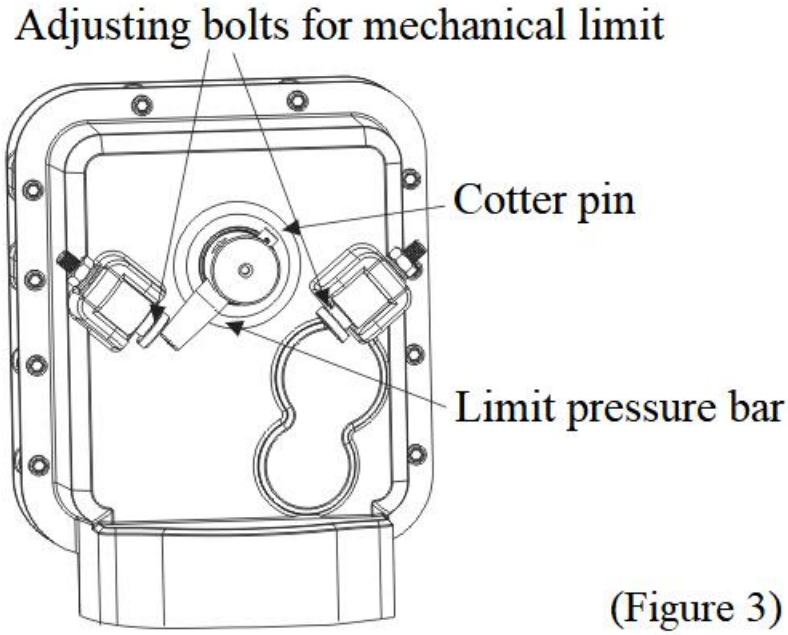
Steps as following:

1. Use pliers to remove the cotter pin.
2. Pull out the limit rod from below.
3. Insert the limit rod into another hole.

Prompt: For left-installed barrier, insert the outside hole from right side; and for right-installed barrier, insert the inside hole from left side.

4. Re-threaded back the cotter pin into the limit rod hole.
5. Properly adjust the limit adjustment bolt, so that when the boom is in horizontal position, it can reach the limit rod, and when the boom is in vertical position, it can not reach the limit rod.
6. Simultaneously press and hold the 2 buttons on the right side of the control board to enter the advanced menu, and modify the H-05 as follows:

Left-installed barrier H-05=2; Right-installed barrier H-05=3

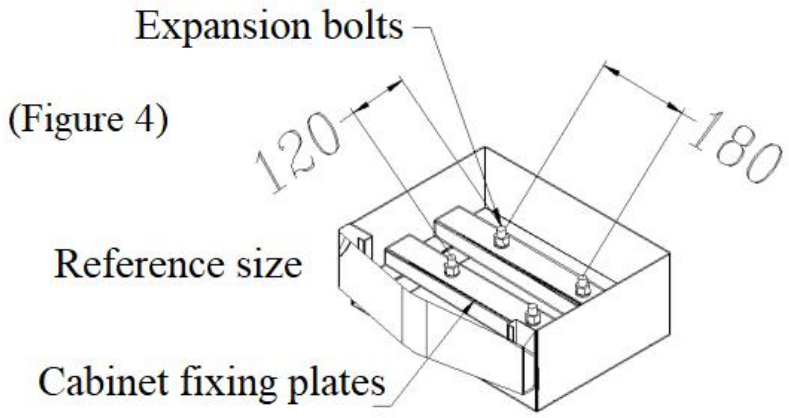


(Figure 3)

3. Product Installation and Adjustment

3.1. Cabinet Installation

According to the specific conditions of the site, use expansion bolts to fix the barrier on the ground. At the location where the barrier is installed, make a foundation for the barrier according to the site conditions, and make a cast-in-place foundation for non-concrete ground. Refer to "Figure 4".



(Figure 4)

(The size of the fixing plates matched with the cabinet shall prevail)

3.2. Boom Installation

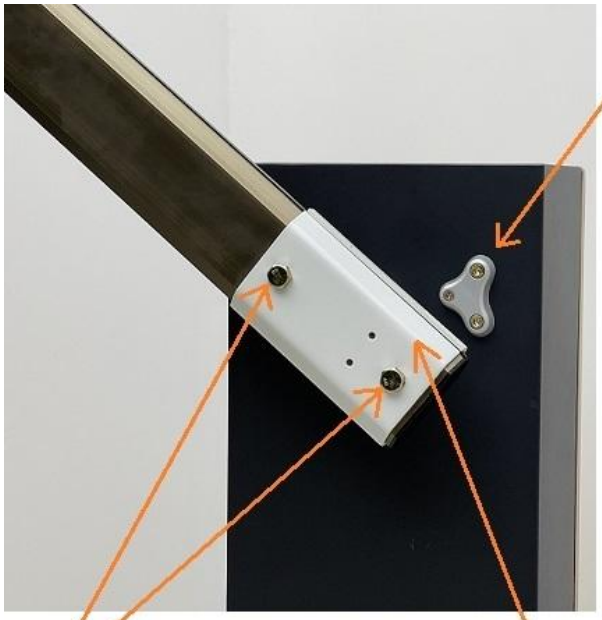
EXPLANATION

Installation Pictures for reference only, the product prevails in kind.

3.2.1. Straight Boom Installation (refer to "Figure 5")

Step 1. Fix the boom fixing plate on boom with 2pcs of M12*70mm hexagon screw.

Step 2. Hold the fixing plate by hand, then lift up the boom vertically and install it on the boom holder. And then Install the flat washer, spring washer, and M12 nut on the screw in turn, and fix the screw with a wrench.



(Figure 5)

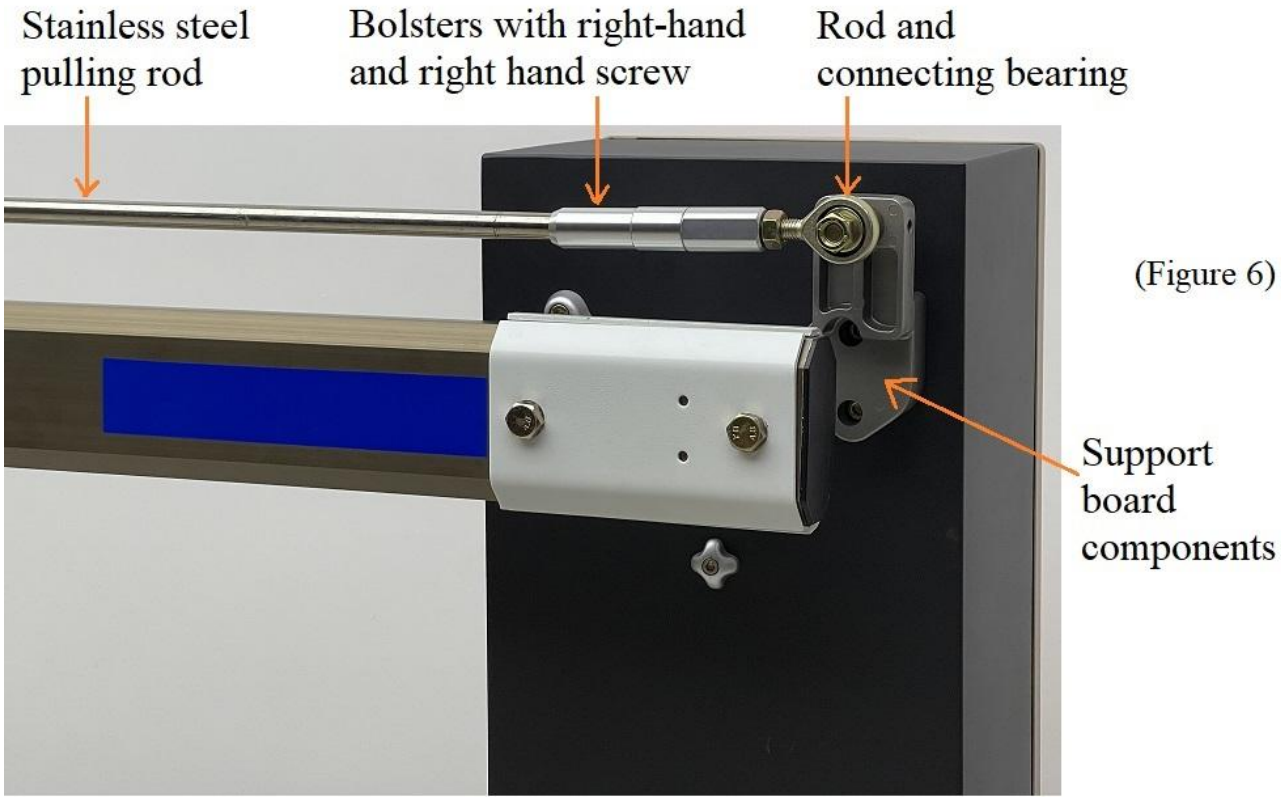
3.2.2. Folding Boom Installation (refer to "Figure 6")

Step 1. Fix the boom fixing plate on boom with 2pcs of M12*70mm hexagon screw.

Step 2. Hold the fixing plate by hand, then lift up the boom vertically and install it on the boom holder. And then install the flat washer, spring washer, and M12 nut on the screw in turn, and fix the screw with a wrench.

Step 3. Use the support board components to replace the triangular block, then fix the rod and connecting bearing on the support board components with screw.

Step 4. Loosen the bolsters with right-hand and left-hand screw, rotate the stainless steel pulling rod then adjust the horizontal and vertical position of the boom; after adjusting well, lock the bolsters with right-hand and left-hand screw.



(Figure 6)

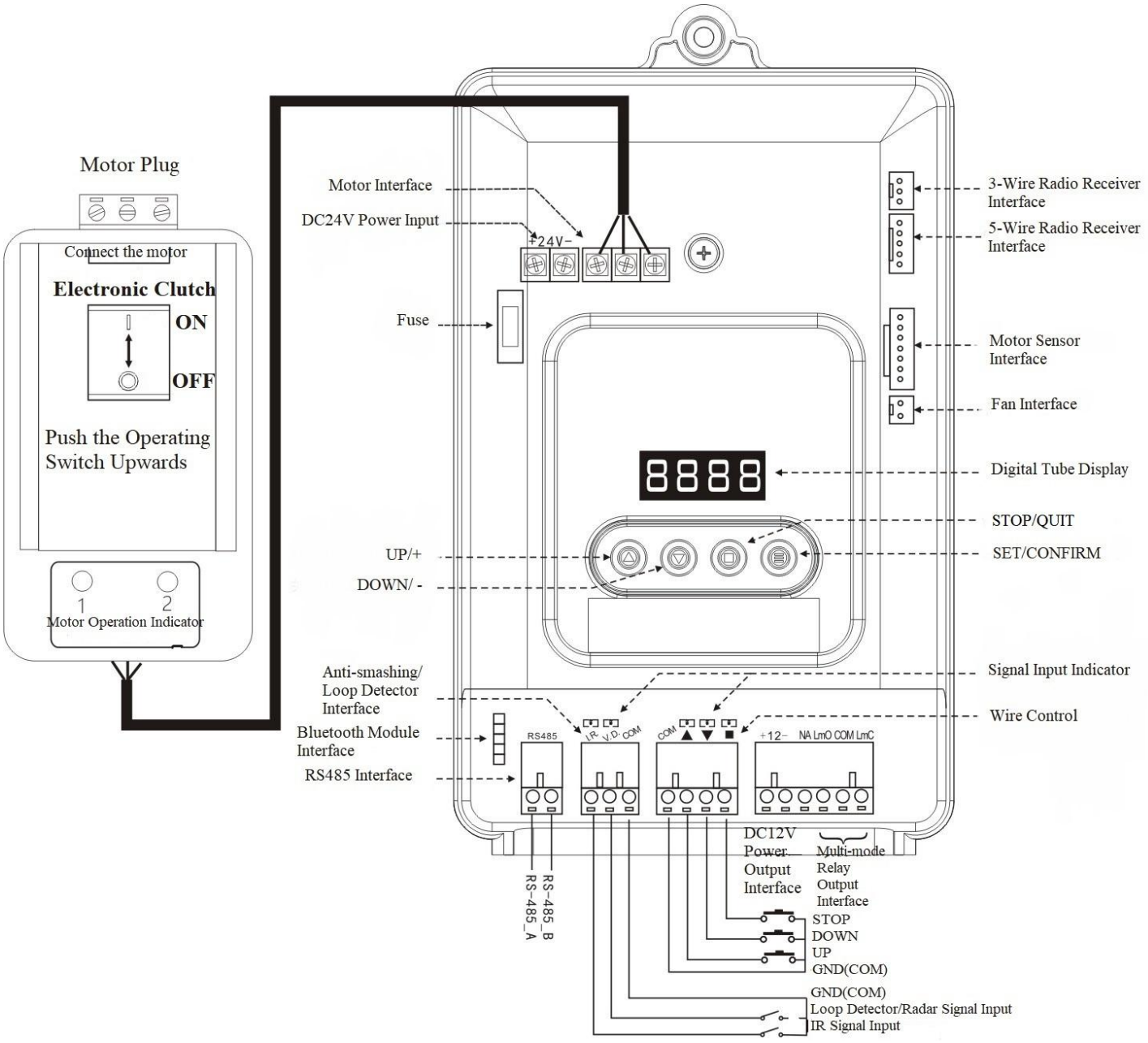
4. Controller Explanations and Instructions

EXPLANATION

All the electrical connections are done before delivery. The necessity is to connect the power and grounding connection.

4.1. Controller Explanations

4.1.1. Controller Wiring Diagram



4.1.2. Controller Interface Explanations

Item	Explanation
Wire Control Interface	This interface is available for parking system, also available for external controller to control barrier gate. UP: Short circulate "▲" and "GND" Down: Short circulate "▼" and "GND" Stop: Short circulate "■" and "GND"
Anti-smashing Interface	Infrared Photocell: Boom will lift up when short circulate "Infrared photocell" and "GND" interfaces during boom falling down. Loop Detector: Boom will lift up when short circulate "loop detector" and "GND" interfaces during boom falling down; when boom moves to up limit position, boom will fall down after "loop detector" and "GND" interfaces disconnected.
Multi-mode Relay Output Interface	The relay output can be set to meet different application requirements by setting the output mode. For details, please refer to item H-16 of advanced settings. The default is that the limit signal output is as follows: When the barrier opens to up limit position, the COM and LmO are connected; When the barrier closes to down limit position, the COM and LmC are connected; During the opening and closing, COM and LmC, LmO are disconnected.
DC12V Power Output	Provide 1A current output, available for radar or small light strips.
Indicator	Indicating the running status of the barrier gate.
Function Button	The 4 buttons have two working status: normal working status and menu setting status. The function of normal working status is that the "▲" is the opening function, "▼" is the closing function, "■" is the stopping function, "≡" short press has no function under normal work, long press for 2 seconds to enter the menu setting status. In the menu setting status, "▲" and "▼" are used to adjust menu items or parameters, "■" is used to cancel the set value or exit the menu setting status. "≡" is used to enter the next menu or save the set value.

Item	Explanation
Digital Tube	It can be used to display the working status, parameters, menu items and other information of the barrier gate. It runs in low power consumption mode after power on, and the digital tube display brightness is dim at this time. Pressing any button will make the digital tube display enter the normal working mode, and the digital tube will be highlighted. If there is no button, the low power consumption mode will be entered after 60 seconds, and the digital tube brightness will be dimmed to reduce power consumption.
Electronic Clutch Switch	During a power outage, switch the lever down to 'OFF O' to unlock the motor, allowing the boom to be manually lifted to open the barrier gate. After lifting, switch the lever up to 'ON I' to lock the motor and prevent the boom from sliding down. When the barrier gate is operating during power-on, both motor operation indicator lights 1 and 2 will flash

4.2. Model DZE4I Quick Debugging Guide

For the use environment without eaves shelter, you can follow the following method to quickly debug the barrier gates:

Properly adjust the adjusting bolt, so that when the boom is horizontal, it can press against the limit pressure bar. When the boom is vertical, it could not press against the limit pressure bar.

Press and hold the "≡" and "■" keys at the same time for 2 seconds to enter the advanced menu, enter H-13 and select the corresponding speed according to the boom length:

H-13=9, Left-installed barrier, straight/folding boom≤3m

H-13=10, Right-installed barrier, straight/folding boom≤3m

H-13=11, Left-installed barrier, straight/folding boom≤3.5m

H-13=12, Right-installed barrier, straight/folding boom≤3.5m

H-13=13, Left-installed barrier, straight/folding boom≤4m

H-13=14, Right-installed barrier,straight/folding boom≤4m

H-13=15, Left-installed barrier, straight boom≤4.5m

H-13=16, Right-installed barrier, straight boom≤4.5m

(Explanation: For short boom, you can choose a slower speed; for long boom, it is not recommended to choose a faster speed.)

After selecting, press "≡" key to confirm (the parameters in F-00~F-09, F-13, F-15 and H-05 will be modified automatically, and H-33 will be automatically modified to 2), then press "■" to exit. Press the remote controller to control the barrier gate to rise and fall, and observe whether the rise and fall is smooth. If the operation is not smooth, you can adjust the parameters according to the symptomatic way described in the following column:

-> Boom shakes at up limit position: reduce the value of F-02 first, then consider reducing the value of F-06.
-> Boom is not vertical at up limit position (<90°): Increase the value of F-09 until the boom opens to the up limit position (Attention to the position of the limit pressure bar and adjusting bolts for mechanical limit).
-> Boom is not vertical at up limit position (>90°): Reduce the value of F-09 until the boom opens to the up limit position.
-> The up limit light turns on a few seconds after the boom opens to the up limit position: Power off and restart, reduce the value of F-09, then use the remote controller to move boom up until the up limit light can light up normally.
-> Boom shakes at down limit position: Increase the value of F-03 and reduce the value of F-07.
-> Boom is not horizontal at down limit position (<0°): Power off, adjust the adjusting bolt in the closing direction according to the mechanism structure figure 1. And extend the adjusting bolt until it presses against the limit pressure bar and the boom goes to horizontal position.
Note: The mechanical limit in the closing direction serves as the zero point for the position stroke. Adjusting it may affect the vertical alignment when opening. Therefore, appropriately adjust the value of F-09.
-> Boom is not horizontal at down limit position (>0°): If the limit pressure bar does not press against the adjusting bolt in the closing direction, reduce the value of F-08 to resolve the issue. If it is already pressing against the bar, adjust the adjusting bolt in the closing direction by retracting it slightly until the boom goes to horizontal position.
Note: In environments with eaves, after setting the corresponding H-13 as described above, reduce the value of F-09 (half of the original value corresponds to a 45-degree lift) until the boom no longer touches the eaves.

4.3. Controller Parameter Setting

Long press button "≡" for 2 seconds to enter the general menu setting status, the digital tube will display "F-XX". Select menu items by short press or long press two buttons "▲" and "▼", short press once to increase or decrease by one, long press to continuously increase or decrease. When the "F-XX" item displayed by the digital tube is the parameter that needs to be set, press button "≡" again to enter the setting of the specified item, and press button "■" to return to the previous level or exit the setting. When the specified parameter setting is completed, you must press button "≡" to confirm it to take effect. The parameters currently set by pressing button "■" will not take effect.

4.3.1 "Regular Menu" Command List

Menu	Function	Defaults	Range	Remark
F-00	Boom up speed	40	15-100	The larger the value, the faster the

				boom up speed
F-01	Boom down speed	40	15-100	The larger the value, the faster the boom down speed
F-02	Boom up deceleration position	60	10-80	The angle at which the boom up starts to decelerate, unit: degree
F-03	Boom down deceleration position	40	10-80	The angle at which the boom down starts to decelerate, unit: degree
F-04	Low speed working angle for boom up	90	15-90	The angle of the last section of low-speed zone during boom up
F-05	Low speed working angle for boom down	0	0-75	The angle of the last section of low-speed zone during boom down
F-06	End speed for boom up	8	1-50	Boom up limit position speed
F-07	End speed for boom down	4	1-50	Boom down limit position speed
F-08	Horizontal position adjustment	15	1-600+	Fine adjustment on horizontal position of the barrier gate
F-09	Vertical position adjustment	6	1-600+	Fine adjustment on the vertical position of the barrier gate
F-10	Delay auto-closing time	0	0-255	Auto-closing time when no vehicle passes, unit: second
F-11	Reserved	0	0-255	
F-12	Reserved	0	0-255	
F-13	Self-learning speed when power on	25	10-80	Find up and down limit at this speed
F-14	Remote control learning	0	0-30	Learning remote control
F-15	Sensitivity of auto-reversing on obstruction	10	1-40	The smaller the value, the higher the sensitivity. For this model, the recommended value is≤2

4.3.2. "Regular Menu" Command Explanation

F-02 Boom up deceleration position

It is used to set the starting position of deceleration in the process of boom up. The unit of angle is 0 degrees when the barrier gate is in the horizontal position and 90 degrees when it is in the vertical position. This parameter indicates that deceleration starts when the barrier gate is opened to this angle. If the boom shakes when the gate is lifted to up limit position, this parameter can be reduced.

F-03 Boom down deceleration position

It is used to set the starting position of deceleration in the process of boom falling down. The

unit of angle is 0 degrees when the barrier gate is in the horizontal position and 90 degrees when it is in the vertical position. This parameter indicates that the barrier gate will start to decelerate when the boom falls down to this angle. If the boom shakes when falling to down limit position, this parameter can be increased.

F-04 Low-speed operating angle for boom up

It is used to set a low speed area in the opening process. When the opening angle reaches the set angle by F-04, the barrier gate will run at the end speed set by F-06 until it opens to up limit position. If the value is 90, the function is invalid. If the boom shakes when lifting to up limit position, this parameter can be reduced.

F-05 Low-speed running angle for boom down

It is used to set a low speed area in the closing process. When the closing angle reaches the set angle by F-05, the barrier gate will run at the end speed set by F-07 until it closes to down limit position. If the value is 0, the function is invalid. If the boom shakes when falling to down limit position, this parameter can be increased.

F-06 End speed for boom up

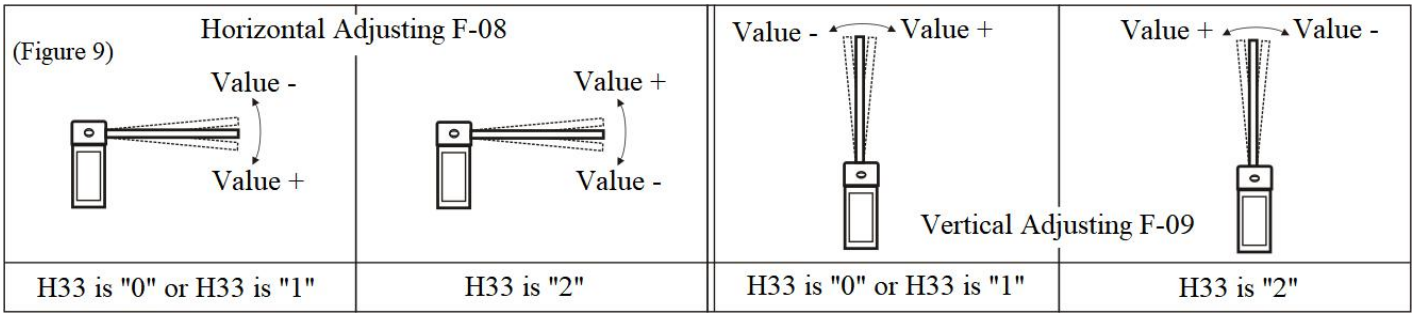
The speed for boom lifts to up limit. The boom will end lifting at this speed when boom lifts up. If the parameter is set too large, the boom will shake when it lifts to up limit position.

F-07 End speed for boom down

The speed for boom falls to down limit. The boom will end falling at this speed when boom falls down. If this parameter is set too large, the boom will shake when it falls to down limit position.

F-08 Horizontal position adjusting

If the horizontal position of the barrier boom is uneven, this parameter can be used to fine-tune according to the left part of Figure 9.



F-09 Vertical position adjusting

If the vertical position of the boom is not straight, this parameter can be used to fine-tune according to the right part of Figure 9.

F-10 Delay auto-closing time

When the boom lifts to the up limit position, if there is no vehicle passing through the loop during the setting time, the boom will fall down automatically; if there is opening signal during the countdown, it will be countdown again; and if there is closing signal, the boom will fall down at once. If set to 0, this function is closed.

F-13 Power-on self-learning speed

This command can set different speeds for finding the up limit or down limit. After entering the menu, the first setting is the speed for finding the up limit. The digital tube displays "1-XX", XX means the speed for finding the up limit, and the speed can be adjusted by pressing the two buttons "▲" and "▼". After the up limit speed setting is completed, press the button "≡", the digital tube displays "2-XX", XX means the speed for finding the down limit, and the speed can be adjusted by pressing the two buttons "▲" and "▼". Finally, after the up and down limit speeds are set well, press the button "≡" to save the parameters. If you press the button "■" during the setting process, the set parameters are invalid.

F-14 Remote controller learning

After entering the remote control learning menu item, the number of remote controls currently learned is displayed. Long press any buttons of the remote controller for one second, the buzzer will beep once, means the learning is complete. And the digital tube displays the numbers of learned remote controller plus one. After learning a remote control, you can continue to learn the next one. If it is a learned remote controller, the buzzer will beep three times in rapid succession, indicating that the remote control has been learned. After learning is complete, press button"≡"or "■" to exit learning. The remote controller that has learned successfully will beep with a buzzer when pressing the button under normal working conditions.

Note: The setting for clearing the remote control is in the H-09 of the advanced menu.

F-15 Sensitivity of auto-reversing on obstruction

When the barrier gate is blocked and stopped for more than the set time, the barrier will reverse and turn to open, and the digital tube will display the word Er.ob. The smaller the value, the higher the sensitivity, otherwise the lower the sensitivity. For this model, the recommended value is≤2.

4.3.3. "Advanced Menu" Command List

"Advanced menu" access method: Simultaneously long press the button "≡" and "■" for 2 seconds to enter the menu setting status, the digital tube will display "H-XX".

ATTENTION

The advanced menu is used by professional technicians, and general users should use it with caution! Do not change the menu of the serial number not listed in the table at will, it may cause abnormal operation of the barrier gate.

Menu	Function	Defaults	Range	Remark
H-03	Delay auto-closing after vehicle passing through	0	0-255	Auto close the barrier gate when the vehicle passes through, Unit: seconds
H-05	Motor model and rotating direction	3	0-3	For this model : 2: Left-installed 3: Right-installed
H-07	Counting function	0	0-10	One vehicle one count by default

H-08	Auto-aging test	0	0-6	Auto-aging test interval, 0 for normal operation, 1-5 for auto-aging test intervals, and 6 for auto-closing upon power-on.
H-09	Reset	0	0-255	5: clear remote control code 10: reset
H-13	Model DZE4 Quick Operation Parameter Selection	0	0-24	The correct operating range for this model is 17-24
H-16	Relay output mode	6	0-9	For different relay applications
H-27	IR senor interface anti-smash mode	1	0-1	0: During falling down, boom will open automatically when IR sensor works, and keep open; 1: During falling down, boom will open automatically when IR sensor works, and close automatically after the signal of IR sensor disappears (Factory default)
H-30	The angle of the loop detector off detection	10	0-45	Turn off the loop detector detection after closing to the set angle
H-31	Enter motorcade passing mode by remote opening	0	0-1	Enter motorcade passing mode directly by remote opening
H-38	The sound of loop detector signal	1	0-1	0: no sound when there is loop detector signal; 1: sound when there is loop detector signal
H-40	Valid time of loop detector signal	5	1-20	The loop detector signal lasts longer than the set time to be effective
H-45	Delay auto-closing speed	40	15-100	When the value of F-10 or H03 is bigger than 0, this value is the delay auto-closing speed .
H-46	Low voltage auto-opening operation time	0	0-50	Unit: 0.1 second, 0 means turning off this function
H-47	Low voltage auto-opening threshold	21	15-22	Operating voltage, unit: V
H-48	Bluetooth module login password (optional)	4622	0000-9999	Login password for WeChat mini-program “道闸云控”

4.3.4. "Advanced Menu" Commands Explanation

H-03 Delay auto-closing after vehicle passing through

Range: 0-255, default: 0, unit: 1 second.

Unlike the F-10, this delay means that the countdown starts after the vehicle passes through the loop coil. If there is an opening signal in the countdown, the timer will be restarted. If the closing signal is given, the closing will be executed immediately. If the stop signal is given, the delay will be suspended. Setting it to 0 means to turn off this function, and the barrier will close immediately after vehicle passing through.

H-05 Motor model and rotating direction

Range: 0-3, default: 3.

This model only uses 2-3:

2: Left-installed

3: Right-installed

H-07 Counting function

Range: 0-10, default: 1.

In some application scenarios, the barrier gate need to be closed with the same number of opening times as the closing times of the loop detector relay. This function can be enabled at this time. 0 means not enabled, and the value indicates the maximum continuous memory opening times. When the traffic flow is large, the parameter value can be increased.

H-08 Auto-aging Test

The time interval of the auto-aging test. Power off and restart will continue the auto-aging test. After the test is completed, set this parameter to 0 to cancel the auto-aging test. 0 means turning off the auto-aging test function.

H-09 Reset

This option has two functions, clearing the remote controller and restoring factory settings. In order to prevent misoperation, it needs to set a specific value before pressing button "≡" to complete the operation.

5: Clear all learned remote controllers.

10: Restore factory settings, restore the set value to the default value, but still retain the learned remote controllers.

After the operation is completed, the buzzer will beep once to indicate success.

Note: It is not recommended to use the factory reset for this model. Please follow Model DZE4I Quick Debugging Guide on page 8 to configure the settings.

H-13 Model DZE4I Quick Operation Parameter Selection

Left-installed	**Right-installed**
9: Straight boom/ folding Boom ≤ 3M	10: Straight boom/ folding Boom ≤ 3M
11: Straight boom/ folding boom ≤ 3.5M	12: Straight boom/ folding boom ≤ 3.5M
13:Straight boom/ folding boom ≤ 4M	14: Straight boom/ folding boom ≤ 4M
15: Straight boom ≤ 4.5M	16: Straight boom ≤ 4.5M

After setting, the following parameters will be automatically changed: F-00~F-09, F-13, F-15, H-05, and H-33=2.

H-16 Relay Output Mode

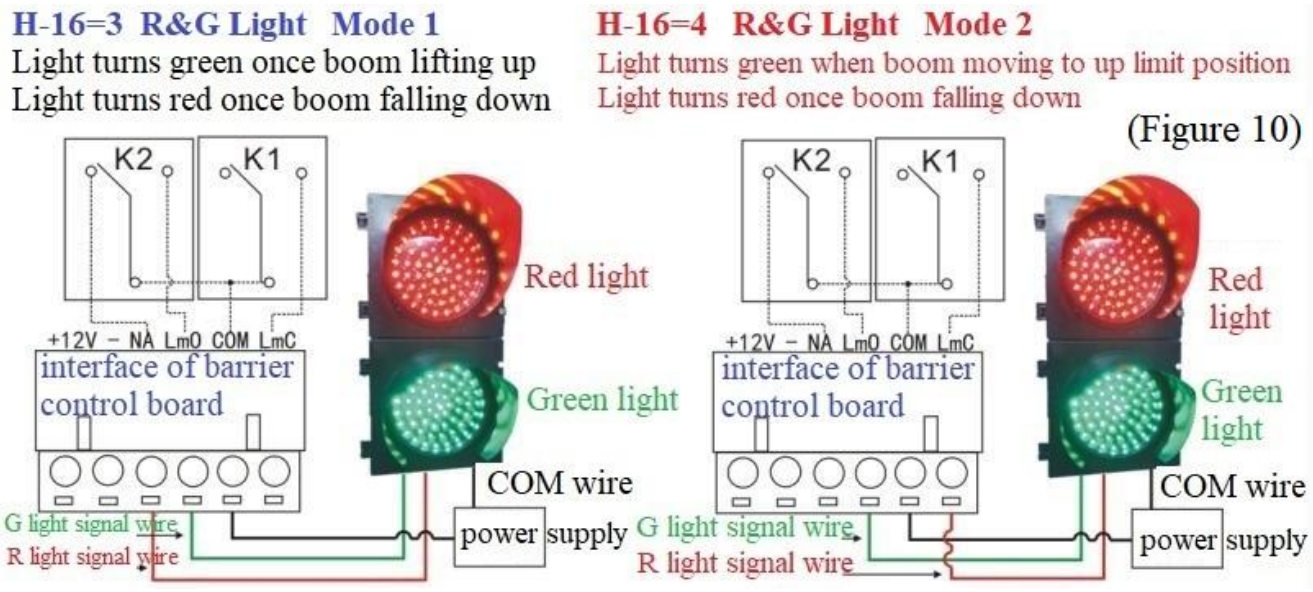
The controller has two relays. The output of the relay can be set to meet different application requirements by setting the output mode.

0: Traffic light mode. Drive the traffic light board to indicate allowable and prohibited passing. When the barrier opens to up limit position, the COM and LmO are connected, the COM and LmC are disconnected. When barrier closes to down limit position, the COM and LmO are disconnected, the COM and LmC are connected.

1: Boom lifting alarm mode. The opening to up limit position relay K2 will be output as an alarm signal. When the barrier closes to down limit position, if the boom is artificially lifted beyond a certain angle, the COM and LmO will keep connecting for 15 seconds as an alarm output. At this time, an external alarm can be used to alarm.

2: Loop detector mode. In this mode, the closing to down limit position relay K1 is used as a signal output, which can be used as a radar or loop detector signal that needs to detect the opening or closing state of the barrier. When the barrier is opening, the COM and LmC are connected. When barrier closes to down limit position, the COM and LmC are disconnected.

3: R&G light mode 1. In this mode, the open to up limit position relay K2 is used as a R&G light control. When the barrier opens to up limit position, the COM and NA are connected, and when barrier closes to down limit position, the COM and LmO are connected. (That means, light turns green once boom lifting up, and light turns red once boom falling down)



(Figure 10)

4: R&G light mode 2. When the barrier opens to up limit position, the COM and LmO are connected, the COM and LmC are disconnected. When the barrier just starts to close, the COM and LmO are disconnected, the COM and LmC are connected. (That means, the light will turn green once boom lifts to up limit position, and light will turn red during boom falling down and when boom falls to down limit position)

5: Pulse mode. After the barrier closes to down limit position, the COM and LmC keep connecting for 1 second. It can be used for anti-following, and can be used as an opening signal

for another barrier. During the boom lifting up or when boom lifts to up limit position, the COM and LmO are connected to indicate the state.

6: Limit signal output mode. When the barrier opens to up limit position, the COM and LmO are connected. When the barrier closes to down limit position, the COM and LmC are connected. During the process of opening, closing and stop, the COM and LmO, LmC are all disconnected. It can be used for the system to monitor the state of barrier gate.

7: Pulse mode+remote control opening signal output. After the barrier closes to down limit position, the COM and LmC keep connecting for 1 second (same as mode 5). Where there is remote control opening signal, the COM and LmO keep connecting for 1.5 seconds, which can be used to read the remote control opening signal.

8. Folio synchronized output: LmO and public COM are closed during barrier gate opening; LmC and public COM are closed during barrier gate closing. Public COM, LmO and LmC are disconnected after the intermediate stop or in place. It can be used to synchronize the rise and fall signals of folio barrier gates.

9. Running output: when the barrier gate motor rotates, LmC and public COM are closed; after the motor stops, LmC and public COM are disconnected.

H-27 IR sensor interface anti-smashing mode

Range: 0-1. Factory default: 1

0: During falling down, boom will open automatically when IR sensor works; when opening to up limit position, the boom will keep open after the signal of IR sensor disappears.

0: During falling down, boom will open automatically when IR sensor works; when opening to up limit position, if there is no other signal, the boom will close automatically when the signal of IR sensor disappears. **Note:** When boom opens to up limit position, it will not close automatically if there is signal of IR sensor.)

H-30 The Angle Of Closing The Loop Detector

Range: 0-45, Default: 10, Unit: degrees.

Solve the problem of false detection of the presence of a car during the fence boom falling down process. This function can be used to set the barrier gate to close to the specified angle without detecting the loop detector. If it is 0, it means that the loop detector signal is always detected during the boom falling down process.

H-31 Enter motorcade mode by remote opening

When this parameter is 1, it means entering motorcade mode by remote opening directly. At this time, the loop detector is invalid until the barrier close. Both closing the barrier gate by wire control and remote control can all exit the motorcade mode. Opening the barrier gate by wire control does not enter the motorcade mode.

Note: When H-31 is 0, in up limit position, long pressing the "ON" button of the remote controller for 4 seconds can also enter the motorcade mode.

H-38 The Sound of The Loop Detector Signal

In up limit position, the buzzer will emit a "didi" sound when the loop detector signal is valid.

When it is set to 0, there is no sound when there is loop detector signal; when it is set to 1, there is sound when there is loop detector signal. Defaults to 1.

H-40 Valid Time of Loop Detector Signal

Range: 1-20, Default: 5, Unit: 0.02 seconds.

In the process of opening, or in the up limit position, in order to filter the short-term loop detector false trigger signal, the loop detector signal must continue for more than the set time to be considered valid, and the gate will close automatically when the loop detector signal disappears (meaning the vehicle passed through the loop coil area).

H-45 Delay auto-closing speed

Range 15-100, default: 40.

When the setting of "Delay auto-closing time F-10" or "Delay auto-closing after vehicle passing through H-03" is greater than 0, after the countdown is 0, it will automatically close at the speed of this value. The smaller the value, the faster the speed. and vice versa. When auto-reversing on obstruction during closing, due to the spring tension is too large and the speed value is too small, the value can be appropriately increased.

H-46 Low voltage auto-opening operating time

This item is used for the function of auto-opening after power failure. Together with H-47, when the power supply voltage is lower than the set voltage, and the low voltage continues for the time set by H-46, the barrier gate will automatically open. After the barrier opens to up limit position, the digital tube displays loxx (xx represents the H-47 value). This function needs to be equipped with a super capacitor backup power module to achieve. If H-46 is set to 0, this function is turned off.

H-47 Low voltage auto-opening threshold

This item is used in conjunction with H-46. This parameter is used to set the action voltage for power off. When the power supply voltage is lower than this value and exceeds the time set by H-46, the barrier gate will open during power off.

H-48 Bluetooth module login password (optional)

View or modify the 4-digit login password for the WeChat mini-program"道闸云控" to connect to the Bluetooth module.

4.4. Error Code List

When the controller detects an abnormality, it will display the error code to indicate the type of error, details as follows:

Error Code	Error reason
Er.ob	Auto-reversing or stop on obstruction.
Er.ou	The barrier gate stops when encountering resistance, and the 24V power supply voltage is below 18V. This may be due to insufficient power supply from the switching power supply or the boom exceeding the specified length.
Er.7	Artificially lifting boom alarm.

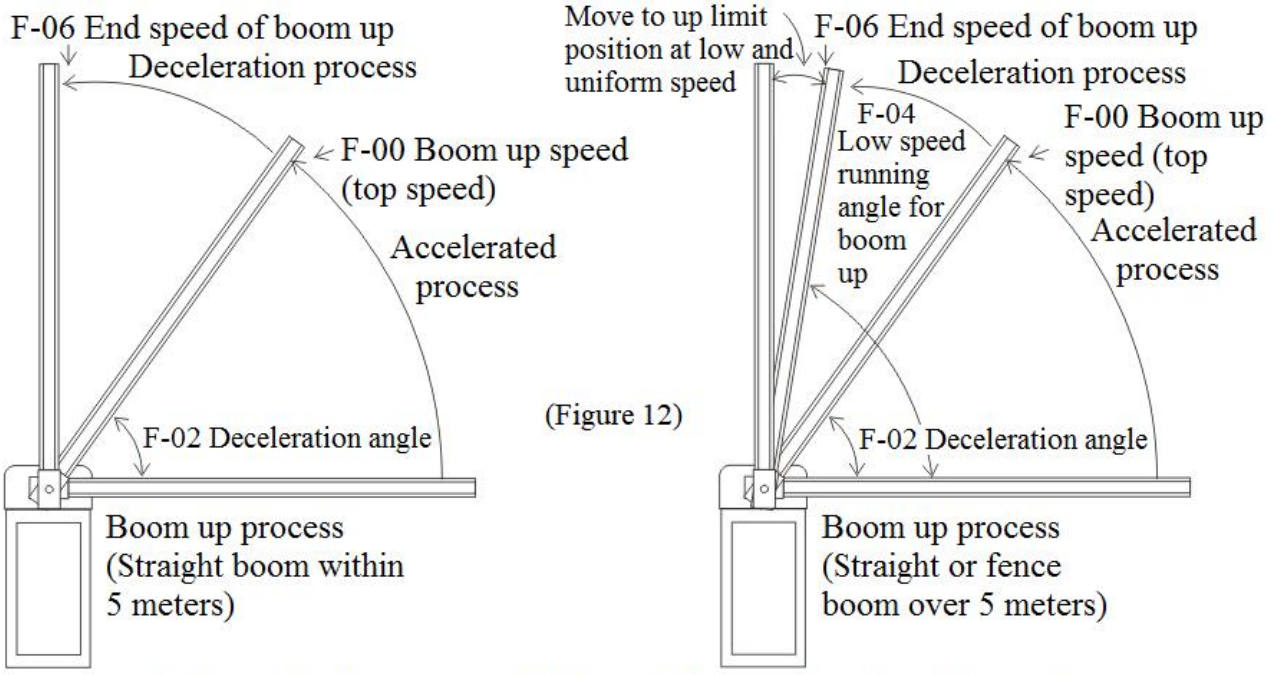
Er.11	Running timeout prompt. When the opening or closing time exceeds 30 seconds, it will automatically stop and display this code.
uLxx flashes	xx is the voltage of the voltage interface. When xx is less than 15 or xx is greater than 30, it means that the voltage is abnormal, and it flashes to prompt.
Er.L0	Power-on detection of stop signal input by wire control. You can check whether it is caused by peripherals by unplugging the wire control terminal.
Er.L1	Power-on detection of closing signal input by wire control. You can check whether it is caused by peripherals by unplugging the wire control terminal.
Er.L2	Power-on detection of opening signal input by wire control. You can check whether it is caused by peripherals by unplugging the wire control terminal.
Er.L3	Power-on detection of loop detector signal input. You can check whether it is caused by peripherals by unplugging the wire control terminal.
Er.L4	Power-on detection of infrared photocell signal input. You can check whether it is caused by peripherals by unplugging the wire control terminal.
Er.L5	Power-on detection of stop signal input by 5P remote control. It can be checked by unplugging the 5P remote control receiver.
Er.L6	Power-on detection of closing signal input by 5P remote control. It can be checked by unplugging the 5P remote control receiver.
Er.L7	Power-on detection of opening signal input by 5P remote control. It can be checked by unplugging the 5P remote control receiver.
Er.13	The braking voltage is too high. If the issue persists after powering off and restarting, the control board needs to be replaced

4.5. Meaning of Information Displayed by Digital Tube

Content	Meaning
IdLE	The related plug of the motor is not connected, or the motor sensor is faulty, or the wiring is loose.
STOP	The barrier gate closes to down limit position or stops.
STOP.	The resistance is large when the boom falls down and closes to down limit position.
LocK	The barrier gate is locked, and enter motorcade mode.
uPxx	The opening memory times when the counting function is enabled, xx is the number of times (displayed only when the counting function is enabled).
dExx	The delay auto-closing time, xx is the countdown time (displayed only when the delay auto-closing function is enabled).
Pcxx	Software version, xx is the version number, the larger the value, the higher the version. When power on, it will be displayed.
Loxx	When the barrier gate has set low-voltage automatic opening, it will be displayed

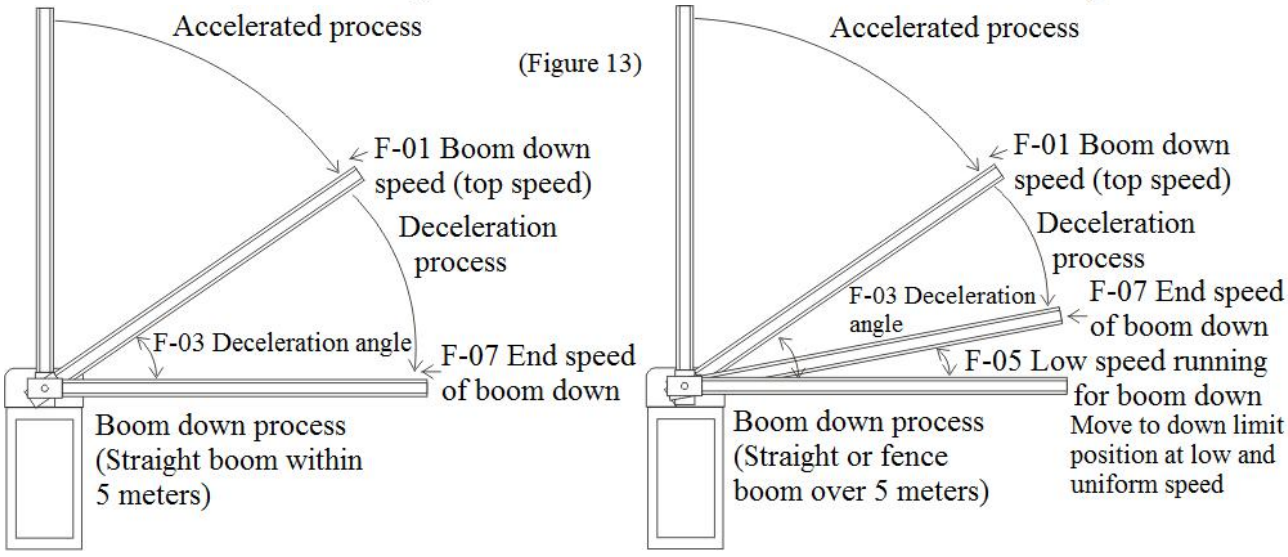
	after triggering the opening signal. xx is the set value of H-47.
uLxx	Displays the voltage of the current power supply interface, xx is the voltage value. Built-in 24V supply voltage is displayed when power on.
out-	The control board is in an inactive state and needs to be activated by logging in through WeChat mini-program "道闸云控".
cL.xx	Barrier gate is closing or closes to down limit position, xx indicates the source of the closing signal: 2 remote control; 4 loop detector/radar; 7 wire closing/ closing button of main control board; 10 delay auto-closing; 12 IR sensor closing; 15 automatic finding position when power-on; 16 RS485
oP. xx	Barrier gate is opening or opens to up limit position, xx indicates the source of the opening signal: 1 remote control; 3 loop detector/radar; 6 wire closing/ closing button of main control board; 12 IR sensor anti-smash; 15 automatic finding position when power-on; 16 RS485.

4.6. Schematic Diagram of Related Parameters for Boom Up and Down



(Figure 12)

Schematic Diagram of Related Parameters for Boom Up



(Figure 13)

Schematic Diagram of Related Parameters for Boom Down

5. Common Malfunctions and Solutions

Malfunction Phenomenon	Possible Causes	Solution
The opening and closing speed is fast at the first power-on	The power-on self-learning speed of F-13 is too fast.	Reduce the values of 2-XX of F-13.
When manually finding the limit, the boom can't open or close to limit position, and the buzzer alarms	For this model, it is not recommended to use H-34~H-36 for manual limit adjustment.	Please adjust according to the content "4.2. Model DZE4I Quick Debugging Guide"
The controller displays IDLE	The motor sensor plug is not plugged in.	Insert the motor sensor plug well.
	Motor sensor failure.	Replace the motor.
The controller resets when the barrier gate is running	Insufficient power supply	Replace the power supply kit
	Barrier gate controller failure.	Replace the controller.
Auto-reversing during closing	Without installing the barrier boom; the closing speed of short boom is too slow	Install the boom; increase the value of F-01 or reduce the value of F-03
	False signal from loop detector or radar	Check whether the signal indicator light of loop detector or radar is flashing incorrectly
Boom shakes a lot at up limit position	The speed is too fast when the boom opens to up limit position	Reduce the value of F-06
	Angle of boom up deceleration is large	Reduce value of F-06 and F-02 at the same time.
	The opening speed is too fast	Reduce the value of F-00
Boom shakes a lot at down limit position	The speed is too fast when the boom opens to up limit position	Reduce the value of F-07
	Angle of boom down deceleration is large	Reduce the value of F-07 and increase the value of F-03 at the same time.
	The closing speed is too fast	Reduce the value of F-01
Remote control distance is short	The battery voltage of remote controller is too low	Replace the batteries
	High-voltage wires or strong	Replace the high-power remote

	electromagnetic causing serious interference near the barrier gate	controller.
Remote controller failed to learn	The remote controller does not match the receiver	Contact the manufacturer.
	During the learning process, the sequence of remote control button presses is incorrect	Relearn after clearing the code of remote controller.
Boom is not vertical after boom moves to up limit position	The vertical position value on the control board is set improperly.	Adjust the value of F-09 on the control board.
Boom is not horizontal after boom moves to down limit position	The horizontal position value on control board is set improperly.	Adjust the position between adjusting bolt and limit pressure bar, and then adjust the value of F-08 on the control board.
Display STOP. when the boom falls down and closes to down limit position.	The tension of the spring is too large.	Increase the value of F-07 or loosen the spring.
Display Er.ob, boom can not open	Electronic clutch does not switch to ON position	Switch the clutch to ON position
	Motor Wire failure	Check whether the electronic clutch plug and motor plug are properly inserted

6. Warranty and Service Items

6.1. Free service is offered for component parts in one year warranty time. (not includes the barrier boom or remote)

6.2. Lifetime service with charge accordingly.

6.3. Technical questions are supported.

6.4. The below items and situations are not included in the range of free service:

6.4.1. The user does not follow the instruction and cause any damage of the product.

6.4.2. The power supply is not stable, over the range of permitted voltage or not accordant to safety electric using standard.

6.4.3. The user installs or uses the product in wrong methods, cause damage to the appearance of product.

6.4.4. Natural disaster causes damage to the product.

6.4.5. Warranty time is over.

6.4.6. Service items are out of our promises.

7. Maintenance

7.1. Keep the barrier gate clean.

7.2. Check the joints every month in case of any loose parts.

7.3. Check the easily worn-out parts every half year and renew it.

7.4. Remote control distance will be shortened or not work in cases like big object screening, battery exhausting, extreme weathers.

8. Packing List

Name	Specification	Quantity	Unit	Application
Screws, Nuts, Washer	M12*70	2	sets	Fixing the boom
Boom Fixing Plate		1	pcs	Fixing the boom
Boom Holder Plastic Cover		1	sets	Optional
Cabinet Fixing Plate		2	pcs	Fixing the cabinet
Expansion Bolt	M16*150	4	sets	Fixing the cabinet
Support Post		1	pc	Optional
Radio Emitter		1	pcs	Optional
Keys		2	pcs	For cabinet door
Remote Controller		2	pcs	
Manual		1	pcs	

Appendix

I. RS485 Communication Protocol

This controller of barrier gate supports 2 types of protocol, the baud rate of the new protocol is 19200, and the baud rate of the old protocol is 9600, which can be selected by advanced menu H-25 of the control board, 1 is the new protocol, 0 is the old protocol (the original DZ5/DZX protocol). Menu H-26 is to set the address.

The new protocol is described as follows:

Communication format: 16 hexadecimal, Baud rate:19200.

Date format sent by upper system: Data header (fd xx) + Address + Command + (data) + End code(fd fa).

However, XX cannot be fd or fa (the following example is 00).

Data format returned by controller: Data header (fd 00) + Address + Command + (data) + End code (fd fa).

Some commonly used command tables as following (the following example address is 01), and for more commands, please contact our customer service for an electronic file.

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1. Upper system sends search command: 00

Sending stream code is: fd 00 01 00 fd fa

Barrier controller returns: 00 intermediate state

09 open to up limit position

0c open to down limit position

If the barrier gate opens to up limit position, the returning stream code is : fd 00 01 09 fd fa

---

2. Upper system sends stopping command: 01 sending stream code: fd 00 01 01 fd fa

Barrier controller return 01 returning stream code: fd 00 01 01 fd fa

---

3. Upper system sends opening command: 03 sending stream code: fd 00 01 03 fd fa

Barrier controller return 03 returning stream code: fd 00 01 03 fd fa

---

4. Upper system sends closing command: 05 sending stream code: fd 00 01 05 fd fa

Barrier controller return 05 returning stream code: fd 00 01 05 fd fa

---

5. Upper system sends locking command: 07 sending stream code: fd 00 01 07 fd fa

Barrier controller return 07 returning stream code: fd 00 01 07 fd fa

---

6. Upper system sends unlocking command: 08 sending stream code: fd 00 01 08 fd fa

Barrier controller return 08 returning stream code: fd 00 01 08 fd fa

---

7. Turn on proactive reporting command: a1 sending stream code: fd 00 01 a1 fd fa

Barrier controller return a1 returning stream code: fd 00 01 a1 fd fa

Date format for proactive reporting: fd 00 + Address + Characteristic code + fd fa

The list of proactive reporting content is as follows:

Content	Characteristic code	Content	Characteristic code
Stop by remote control	02	Stop by wire control	11
Open by remote control	04	Open by wire control	13
Close by remote control	06	Close by wire control	15
Open to up limit position	09	Open by loop detector	16
Close to down limit position	0c	Open by infrared photocell	17
Auto-closing after vehicle passing through	0a	Delay auto-closing	18
Open by auto-reversing on	12	Stop on obstruction	14

obstruction			
Motor sensor is not detected	e3	The tension of the spring is too large, or artificially lifting boom alarm	e7

---

8. Turn off proactive reporting command: a0 sending stream code: fd 00 01 a0 fd fa

Barrier controller return a0 returning stream code: fd 00 01 a0 fd fa