

Z-Wave smart module-DC roller shutter motor function specification

1、 System Configuration

(1) Motor Schematic

Figure 1 DC roller shutter motor



(2) Electrical properties

Table 1 Electrical performance table

Rated operating voltage	DC 8.4V	
Rated torque	2N.M	
Wireless frequency	433.92Mhz	
Protection level	IP20(Indoor use)	
Current (A)	A;	
Power(W)	W;	
Motor speed (rpm)	Level 1: 20 rpm;	
	Level 2: 24 rpm;	The factory default is 24 rpm
	Level 3: 28 rpm;	
Battery life times	For products with batteries: the battery is fully charged, with rated load, height 2m; one cycle is counted as one up and one down operation.	One complete cycle is counted as one run, and the number of runs is required to be greater than 200 times
Low power standby	The static power consumption of the control board in standby mode is less than 100uA	

Continuous operation protection time	The maximum continuous running time is 6 minutes, and it will stop automatically after the time is up.	
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(3) Transmitter button diagram:

Figure 2 Transmitter button diagram



First row of buttons	Up	V(Fav)	Down
Second row of buttons	CH-	Stop	CH+
back	T		P (Prg)

2、Function Operation Introduction

Table 2 Functional overview

Serial number	Functional Description	operate	Contents
1	Add Code	Prg	The motor has not saved the transmitter, add code when power on
		Prg	Press the motor stroke head button for 2Sec to enter the code adding
		Prg(A)+Prg(A)+Stop(B)	Add emitter B through emitter A
2	Reversing function	Up&Down*6Sec	Regardless of whether the itinerary is set
3	Set up a trip	Fav&Up *2Sec	Determine the upstroke point
		Fav&Down *2Sec	Determine the next travel point
4	Inching linkage mode switching	Prg+Stop+Stop	Switching of inching linkage
5	Setting or deleting the best travel point	Fav&Stop *2Sec	Setting or deleting the best travel point
6	Operation at the best travel point	Fav	Run to the best travel point
7	Fine-tune the upper travel point	Fav&Up *6Sec	Enter fine-tuning the upper travel point
		Fav&Up *2Sec	Determine the new upstroke point
8	Fine-tune the lower travel point	Fav&Down *6Sec	Enter the fine adjustment down travel point
		Fav&Down *2Sec	Determine the new downstroke point
9	Speed adjustment	Prg+Stop+Up	Increase operating speed

		Prg+Stop+Down	Reduce running speed
10	Deletion	Prg	Delete emitter B
		Prg(A)+Prg(A)+Stop(B)	Delete emitter B
		Prg(A)+Prg(A)+Down(A)	Delete All Launchers
11	Delete itinerary	Prg+Stop+Prg	Delete itinerary
12	Charging reminder settings	Prg+Down+Stop	Turn charging reminder on or off
13	Network operation	Prg+Down+Up	Blue light flashes, network configuration mode
Notes	<p>1. "Up" means the up key of the transmitter; "Down" means the down key of the transmitter; "Stop" means the stop key of the transmitter; "Fav" means the setting key on the front of the transmitter; "Prg" means the programming key on the back of the transmitter.</p> <p>2. "&" indicates that the keys are pressed simultaneously; "*" indicates the duration of the key being pressed; and "+" indicates a combination of key operations.</p>		

3、Functional Detailed Description

Table 3 System function description

1. Add code operation	<p>① Method 1: The motor has not saved the transmitter. When powered on, it will rotate once. Within 10 seconds, press the Prg button on the back of the transmitter to be added. It will rotate twice, indicating that the code has been added successfully. (Prg)</p> <p>② Method 2: When the motor is powered on, press the travel head setting key for 2 seconds, and it will rotate once. Release the key at this time. Within 10 seconds, press the Prg key on the back of the transmitter to be added, and it will rotate twice, indicating that the code is added successfully. (Prg)</p> <p>③ Method 3: When the motor is powered on, press the Prg key of transmitter A once, and the indicator will turn once; press the Prg key of transmitter A once, and the indicator will turn once; then press the Stop key of transmitter B to be added once (there is no code for transmitter B in the motor), and the indicator will turn twice, indicating that the code has been added successfully.</p>
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	<p>(Prg(A)+Prg(A)+Stop(B) (A transmitter has been coded)</p> <p>Notice:</p> <ol style="list-style-type: none"> a. The effective interval of the key is 10 seconds. If there is no effective transmitter operation within 10 seconds, it will automatically exit the code adding mode. b. After power failure, if the motor has saved the transmitter, there will be no rotation prompt when power is turned on again, and it will not automatically enter the code adding operation mode. c. The maximum number of motor memory transmitter channels is 20. If the memory is full, continue to add codes and overwrite from the second code. d. It is forbidden to use the transmitter's group control 0 channel or group to add code.
<p>2. Transmitter reversing operation</p>	<ol style="list-style-type: none"> ① Press the Up button on the transmitter to open the curtain upwards; press the Down button on the transmitter to close the curtain downwards. The transmitter controls the curtain direction correctly. If the curtain is closed by pressing the Up button on the transmitter (or opened by pressing the Down button on the transmitter), a reversing operation is required. ② Press the Up and Down buttons of the transmitter at the same time for 6 seconds, and the prompt will rotate once, indicating that the motor running direction is switched. (Up&Down *6Sec) ③ After switching the motor direction, press the Up button on the transmitter to open the curtain upwards; press the Down button on the transmitter to close the curtain downwards. <p>Notice:</p> <ol style="list-style-type: none"> a. If you find that the motor is running in the opposite direction, you must perform a reversing operation.
<p>3. Set up trip actions</p>	<ol style="list-style-type: none"> ① When the motor has no travel setting, short press the Up or Down button of the transmitter to make the motor jog and run, and long press for more than 2 seconds to make the motor run continuously. ② By pressing the Up or Down button on the transmitter, select the upper travel point, press the Up and Fav buttons for 2 seconds at the same time, and rotate the prompt 2 times to confirm the upper travel point. (Up&Fav *2Sec) ③ By pressing the Up or Down key on the transmitter, select the next travel point, press the Down and Fav keys for 2 seconds at the same time, and rotate the prompt 2 times to confirm the next

	<p>travel point. (Down&Fav *2Sec)</p> <p>④ After setting the upper and lower travel points, short press the Up or Down button on the transmitter, and the motor will run continuously within the set travel range.</p> <p>Note: The upper and lower travel points cannot be set at the same position</p>
<p>4. Inching/continuous mode switching</p>	<p>① If the motor is already in the continuous mode, you need to switch to the inching mode: short press the remote control Prg button, turn it once, then press the Stop button, turn it once, and finally press the Stop button. The motor turns once, indicating that the motor has switched to the inching mode. (Prg+Stop+Stop)</p> <p>② If the motor is already in the inching mode, you need to switch to the continuous mode: short press the remote control Prg button, turn it once, then press the Stop button, turn it once, and finally press the Stop button. The motor turns once, indicating that the motor has switched to the continuous mode. (Prg+Stop+Stop)</p> <p>③ In the inching mode: short press the Up or Down key and release it within 2 seconds, the motor will inching; if you press it for more than 2 seconds, the motor will run continuously. (Up*2sec/Down*2Sec)</p>
<p>5. Setting and deleting the best travel point</p>	<p>① Set the best travel point: When the motor has been set, run it to the position where the best travel point needs to be set. At this time, press the transmitter Fav and Stop keys for 2 seconds at the same time, and turn the prompt twice to confirm the best travel point. (Fav&Stop *2Sec)</p> <p>② Delete the best travel point: When the motor has set the best travel point, press the transmitter Fav and Stop keys for 2 seconds at the same time, and the prompt will rotate once, indicating that the best travel point has been deleted. (Fav&Stop *2Sec)</p>
<p>6. Run to the best point</p>	<p>① When the optimal travel point has been set, if the motor is not at the optimal travel point, short press the transmitter Fav key, and when you release it, the motor will automatically run to the optimal travel point. (Fav)</p>

<p>7. Fine-tune upper travel</p>	<p>① Press the Up and Fav buttons simultaneously for 6 seconds, turn the prompt once, and enter the fine-tuning upstroke mode; (Up&Fav *6Sec)</p> <p>② In this mode, short press the Up or Down button on the transmitter to start the motor; if the button is pressed for more than 2 seconds, the motor will run continuously.</p> <p>③ Press the Up or Down button on the transmitter, adjust the new up travel point, press the Up and Fav buttons for 2 seconds at the same time, turn the prompt 2 times, and confirm the new up travel point. (Limited time 4 minutes) (Up&Fav *2Sec)</p>
<p>8. Fine-tune the lower stroke</p>	<p>① Press the Down and Fav keys simultaneously for 6 seconds, turn the prompt once, and enter the fine-tuning downstroke mode; (Down&Fav *6Sec)</p> <p>② In this mode, short press the Up or Down button on the transmitter to start the motor; if the button is pressed for more than 2 seconds, the motor will run continuously.</p> <p>③ Press the Up or Down key on the transmitter to adjust the new down travel point, press the Down and Fav keys for 2 seconds at the same time, and rotate the prompt 2 times to confirm the new down travel point. (Time limit 4 minutes) (Down&Fav *2Sec)</p> <p>Notice:</p> <p>a. After fine-tuning the stroke, the original optimal stroke point position remains unchanged; if the motor is not operated during fine-tuning the stroke, the motor will stop for more than 4 minutes and then rotate once to automatically exit the stroke adjustment.</p> <p>b. The upstroke and downstroke point positions are set at the same position, the operation is invalid and a new position needs to be set.</p> <p>c. When adjusting the stroke, the transmitter reversing operation is invalid. Long pressing the stroke head button will make the reversing effective and exit the fine adjustment stroke.</p>
<p>9. Adjustment of running speed</p>	<p>① Short press the transmitter Prg key, the motor will rotate once; short press the transmitter Stop key, the motor will rotate once, and finally short press Up, the motor will rotate once, which means the motor speed has been increased; if the motor is already at the fastest speed, the motor will not rotate when the last step is performed. (Prg+Stop+Up)</p> <p>② Short press the transmitter Prg key, the motor will rotate once; short press the transmitter Stop key, the motor will rotate once, and finally short press Down, the motor will rotate once, which means the motor speed is reduced; if the motor is already at the slowest speed, the motor will not rotate when the last step is performed. (Prg+Stop+Down)</p> <p>③ The motor speed has 3 levels.</p>

<p>10. Delete itinerary operation</p>	<p>① Short press the transmitter Prg key, turn prompt 1 time, short press the transmitter Stop key, turn prompt 1 time, and finally short press Prg, turn prompt 1 time, the motor runs without travel limit. (Prg+Stop+Prg)</p> <p>Notice:</p> <p>a. When the motor is equipped with a curtain, it is forbidden to run without a stroke. The stroke needs to be set in time to avoid damaging the curtain.</p>
<p>11. Charging reminder settings</p>	<p>① Short press the transmitter Prg button, the prompt will turn once; short press the transmitter Down button, the prompt will turn once, and finally short press Stop, the prompt will turn once, and the charging prompt will be turned off (or on). (Prg+Down+Stop)</p> <p>Notice:</p> <p>a. The last time the blue LED flashes 3 times, it means the charging reminder is on; no flashing means the charging reminder is off</p> <p>b. When the charging reminder is turned on, the blue LED flashes 3 times every 8 seconds to indicate that it is charging; when the battery is fully charged, the blue LED light is always on.</p> <p>c. Regardless of whether the charging reminder is turned on or not, the blue LED flashes 6 times as soon as the USB charger is plugged in.</p>
<p>12. Decoding Operation</p>	<p>① Single code deletion operation: Press the travel head button for more than 2 seconds, release the button after rotating it once, then press the Prg button of the transmitter B (with added code) already in the motor, rotate it once, indicating that the code of transmitter B is deleted. (Prg)</p> <p>② Single deletion operation:</p> <p>Delete transmitter B through transmitter A: Press transmitter A Prg key once, rotate prompt once; press transmitter A Prg key once, rotate prompt once; then short press transmitter B Stop key once (transmitter B code is already stored in the motor), rotate prompt once, indicating transmitter B code is deleted. (Prg (A) + Prg (A) + Stop (B))</p> <p>Transmitter A deletes itself: Press the Prg key of transmitter A once, and the prompt will rotate once; press the Prg key of transmitter A once, and the prompt will rotate once; then press and hold the Stop key of transmitter A for 6 seconds, and the prompt will rotate once, indicating that the code of transmitter A has been deleted. (Prg(A)+Prg(A)+Stop(A) *6Sec)</p> <p>③ All code deletion operation: press the Prg key of transmitter A once, rotate the prompt once; press the Prg key of transmitter A once, rotate the prompt once; then short press the Down key of transmitter A to be deleted once, rotate the prompt once, indicating that all transmitters are deleted. (Prg (A) + Prg (A) + Down (A))</p> <p>Notice:</p>

	<ul style="list-style-type: none"> a. The effective interval of the key is 10 seconds. If there is no operation within 10 seconds, the code deletion setting will be exited. b. After deleting the code, all other settings of the motor are retained (the stroke is retained as previously set) c. A transmitter is any transmitter that has been coded d. It is forbidden to use the transmitter's group control 0 channel or group to delete code.
<p>13. Travel head button function</p>	<ul style="list-style-type: none"> ① Only after the stroke is set, short pressing this button can control the motor's up/stop/down action. (The motor will not work if there is no stroke or in storage mode) ② Press and hold the button for more than 2 seconds, turn it once, and the orange LED flashes once, then release the button to add or delete code. (Add/Delete) ③ Press and hold the button for more than 6 seconds. After the button is rotated twice, the orange LED flashes twice and then release the button. After releasing the button, the blue light flashes, indicating that the motor enters the network distribution mode. (Network distribution time limit is 3 minutes) ④ Press and hold the button for more than 10 seconds. After the motor turns for 3 times, the orange LED flashes 3 times. Release the button to indicate that the motor has switched direction successfully. After the direction is switched successfully, the original system function settings will be retained. (Direction Switching) ⑤ Press and hold the button for more than 16 seconds. After the button rotates 4 times, the orange LED flashes 4 times. Release the button. This means the motor has returned to factory mode. All previous system function settings and transmitter codes have been deleted and the system has entered storage mode. (Restore factory settings)
<p>14. Warehousing Model</p>	<ul style="list-style-type: none"> ① When the motor is in normal mode, press and hold the trip head button for 2 seconds, the motor will start to rotate as a prompt, the orange LED will flash once, and then release the button; press and hold the trip head button for 2 seconds again, the motor will start to rotate as a prompt, the orange LED will flash once, and then release the button. The orange light will flash 3 times to enter storage mode (sleep mode). <p>Notice:</p> <ul style="list-style-type: none"> a. When the motor is in storage mode, short press the travel head button and the orange light flashes 3 times as a reminder. b. Press and hold the travel head button for 2 seconds, and the motor will start to rotate to exit the storage mode (sleep mode).

	<p>① APP Download:</p> <p>a.</p>
<p>15. Z-Wave Network Distribution</p>	<p>① Equipment added:</p> <p>a. First let the APP enter the scan to add the device</p> <p>b. Put the motor into pairing mode:</p> <p>Method 1: Directly operate the H button on the motor travel head</p> <p>Press and hold the motor travel head H button for more than 6 seconds; after the motor is rotated twice, the orange LED flashes twice; after releasing the button, the blue light flashes, indicating that the motor has entered the distribution network mode;</p> <p>Method 2: Use the transmitter to operate</p> <p>Short press the transmitter Prg key, turn it once, short press the transmitter Down key, turn it once, and finally short press Up, turn it once. The blue light flashes to indicate that the motor has entered the distribution network mode. (Prg+Down+Up)</p> <p>Note: If it is inconvenient to operate the H button on the motor travel head, you can use method 2 to put the motor into the distribution network mode.</p> <p>c. After pairing is successful, the indicator light on the H button will stay on for 10 seconds and then go out.</p>
	<p>② Device unbinding:</p> <p>a. Put the motor into pairing mode:</p> <p>Method 1: Directly operate the H button on the motor travel head</p> <p>Press and hold the motor travel head H button for more than 6 seconds; after the motor is rotated twice, the orange LED flashes twice; after releasing the button, the blue light flashes, indicating that the motor has entered the distribution network mode;</p> <p>Method 2: Use the transmitter to operate</p> <p>Short press the transmitter Prg key, turn it once, short press the transmitter Down key, turn it once, and finally short press Up, turn it once. The blue light flashes to indicate that the motor has entered the distribution network mode. (Prg+Down+Up)</p> <p>Note: If it is inconvenient to operate the H button on the motor travel head, you can use method 2 to put the motor into the distribution network mode.</p> <p>b. After the pairing is successfully unpaired, the indicator light on the H button will go out immediately and stop flashing.</p>

	Note: After the motor is paired, if you need to pair it with another gateway, you must unbind it first.
16. Motor running time protection function	① When the motor is running without any operation, the maximum running time is 6 minutes, after which it will automatically stop.
17. Low power standby function	① In normal working mode, the motor stops running for 6 seconds and then enters standby mode; the transmitter operation can wake up the motor and switch from standby mode to working mode. ② After the motor returns to factory mode by pressing and holding the motor travel head button for 16 seconds, the motor will enter storage mode. After entering storage mode, the motor cannot be controlled to run. At this time, you need to press and hold for 2 seconds until the motor starts to rotate before exiting.
18. Battery low voltage alarm	① When the battery voltage is too low, the orange LED will flash 8 times to indicate a low voltage alarm when the motor starts running; ② For 8.4V system, if the battery voltage is lower than 7V, there will be a low voltage prompt
19. Charging Tips	① When the USB charger is just plugged in, the blue LED flashes 6 times as a reminder; when the charging reminder is turned on, the blue LED flashes 3 times every 8 seconds to indicate that it is charging; when the battery is fully charged, the blue LED light is always on.
20. Stop function when encountering obstacles	① The motor will automatically stop if it encounters resistance during movement
21. Remote control distance	① Indoor test without RF interference, the distance is greater than 30 meters

4、Revision History

Revisions	Revision Date	Revisions	prepared by
V1.0	2025/04/16	First Edition	Cai Kaiyuan