ECR Electronic Rolling Shutter Motor
Operation Manual

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Warning

Read this manual carefully before installation. Installation, testing, and maintenance must be carried out by specially qualified personnel.

Periodical maintenance should be carried out to ensure smooth operation. If you have any questions, feel free to contact our company.

- Our company is certified by the ISO9001 internal quality control system.
- THE PEOPLE'S INSURANCE COMPANY (GROUP) OF CHINA has underwritten our products liability insurance.
- New model chain system patent number: ZL 2004 2 0087351.2
- Break-proof chain insurance equipment patent numbers: ZL99209951.X, ZL02240227.6

Safety notice:

- The roller shutter door motors should be installed horizontally with precision.
- The roller axle of the shutter door should be concentric and horizontal.
- The motor must be properly earthed to prevent potential injury from electric shocks. The earthing connection bolts should be fixed to the chain wheel support board or electric appliance control box.
- The roller shutter should be free of any obstructions.
- The vertical hanging length of the chain must be adjusted within 3 - 6mm. Adjustment should be made before hanging the shutter onto the roller axis.
- It is strictly forbidden to pull on the motor down lead.
- The external power cord should have a minimum diameter of 1mm.
- Special attention should be given to protecting the motor from humidity and rain to prevent short - circuiting.
- The switch box has to be installed on a dry wall and placed at a height of over 1.5 meters. This is to ensure that children cannot operate the wall switch and remote controller.
- It is forbidden to stand under the door during installation.
- It is strictly forbidden to allow anyone or anything to pass under the operating door.
- It is strictly forbidden to install the motor in combustible or explosive areas.

- If you want to know more about the left mounting, please refer to parts four and five. You can also refer to the installation diagram.
- Add appropriate lubricating oil to the chain rollers after motor testing; continue to do so as required.
- The shutter motor must be installed at least 2.5 meters above the ground or an accessible passageway.

Reminder:

Please choose the safety equipment as follows if you install our shutter motor:

1. Safety brake: Guard against the sudden fall of the shutter when the motor is operating.
2. Photocell: Force the motor to stop and go up if the shutter motor goes down and there are some barriers under the door.

Prologue

ECR electronic rolling shutter motor is a product that our company has been producing for many years. It utilizes the most advanced production techniques combined with the latest available technologies to provide reliability and diverse functionality. The product has credible quality, is simple to install, and has proven to suit a wide variety of applications.

The motors can be installed on both the left and right sides.

1. Work Environment and Conditions

1. Working temperature: -15° C to 45° C.
2. Relative working humidity: ≤95% (40° C).
3. Short - term working:

a、 Continual single - phase operation should not exceed 7 minutes.

b、 Continual three - phase operation should not exceed 12 minutes.

2. Product characteristic:

- **A** simple and pleasing structural design with strong power.
- Good drive - to - size ratio.
- Selected elements ensure safe operation and reliability.
- Low noise levels.
- Small oscillations.

- Lightweight and easy to install.
- Simple manual operation; for example, in case of a power cut.
- Safety device with a national patent for chain - break.

3. Main specifications and technical parameters for ECR motor:

model	Input power (W)	Set load out put torque (N.m)	Set load lifting force (kg.f)	Set load out put turn speed (r/min)	Max lifting height (m) / Slats thickness (mm) / 15	Max external diameter of door (m)	Chain number	Weight of motor (kg)
240V 50Hz								
ECR-168-1P-(300)	600	168	300	5.0	6	0.38	10A	11.6
ECR-225-1P-(400)	600	225	400	5.0	6	0.38	10A	11
ECR-343-1P-(500)	690	343	500	4.8	6	0.38	10A	12.2
ECR-412-1P-(600)	710	412	600	4.8	6	0.38	10A	12.2
ECR-412-1P(600KS)	1090	412	600	10	6	0.38	10A	12.2
ECR-485-1P-(600Q)	1013	485	600	5.0	8	0.47	10A	14
ECR-647-1P-(800)	920	647	800	4.0	7	0.42	10A	14.2
ECR-647-1P-(800KS)	1250	647	800	8	7	0.42	10A	14.2
ECR-606-1P-(800CK)	1460	606	750	11	7	0.42	10A	14.2
ECR-809-1P-(1000)	1013	809	1000	3.5	8	0.47	10A	14.2
ECR-1401-1P-(1300)	1985	1401	1300	4.4	7	0.45	12A	23.5
ECR-1617-1P-(1500)	1768	1617	1500	3.3	9	0.48	12A	28
415V 50Hz								
ECR-168-3P-(300)	460	168	300	5.0	6	0.38	10A	11.6
ECR-225-3P-(400)	460	225	400	5.0	6	0.38	10A	11
ECR-343-3P-(500)	490	343	500	4.8	6	0.38	10A	12.2
ECR-412-3P-(600)	490	412	600	4.8	6	0.38	10A	12.2
ECR-485-3P-(600Q)	780	485	600	5.0	8	0.47	10A	14
ECR-647-3P-(800)	750	647	800	4.0	7	0.42	10A	14.2
ECR-809-3P-(1000)	780	809	1000	3.5	8	0.47	10A	14.2
ECR-1401-3P-(1300)	1050	1401	1300	4.4	7	0.45	12A	23.5
ECR-1617-3P-(1500)	1250	1617	1500	5.2	8	0.48	16A	23.5
ECR-506-3P-(627F)	1250	506	627	11.5	8	0.45	12A	23.5
ECR-2450-3P-(2000)	1350	2450	2000	3.6	12	0.65	16A	27.5
ECR-582-3P-(720F)	1350	582	720	10	8	0.45	12A	27.5
ECR-3062-3P-(2500)	2660	3062	2500	4.0	12	0.65	16A	28

4. Installation and Testing:

The ECR (300 - 1000) electronic rolling shutter motor is standard produced for right - side installation (viewed from inside). If you wish to install it on the left side, you need to

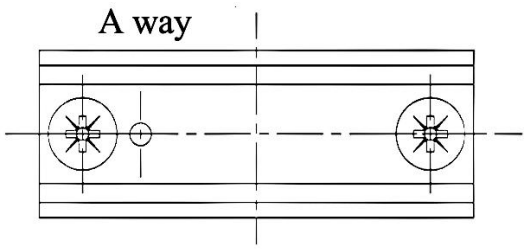
loosen the four bolts on the brake - shell. This will enable you to turn the shell 180º and then re - tighten the bolts.

Note: The white and green lines of the switches should change positions.

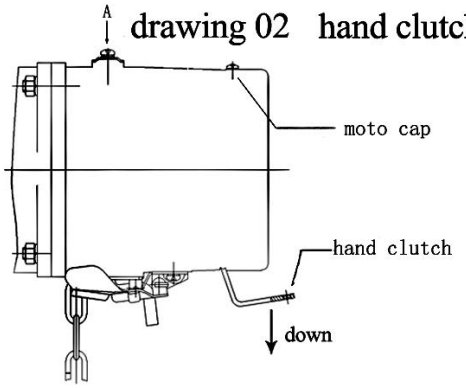
The ECR (1300 - 2000) electronic rolling shutter motor is standard produced for right - side installation (viewed from inside). If you wish to install it on the left side, you need to loosen the four bolts on the brake - shell. This will allow you to turn the shell 180º and then tighten the bolts again. The white (up) and green (down) lines of the switches should change positions. Turn the pawl on the shell 180º and re-tighten it (drawing 01).

The hand chain can only move the shutter door up during a power cut. Due to the pawl, you cannot use the hand chain to move the shutter door down when the power is off. You can operate the hand hook on the brake - shell to move the shutter door down. Please refer to the instructions in part five (drawing 02).

drawing 01 one-way pawl



drawing 02 hand clutch



The support board of the chain - wheel can be installed horizontally, depending on the specific situation, as shown in Fig. 3. Alternatively, it can be fixed within a range of 0 - 45 degrees. When the support board is not installed horizontally, the brake - shell must be turned so that the loop - type hand - pull chain can lie vertically in a normal manner.

Note: Special attention must be paid to the joint of the shell - body and the top cover of the motor. When you are certain that there is no gap, then tighten the bolts (diagonally). If a gap exists and is not allowed, the braking efficiency could be affected.

The phase order must not be violated for three - phase motors. When the lift - up direction is reversed, the motors must be immediately stopped for readjustment of the phase order. If an interim power source is used for testing, attention should be paid to connect in the correct sequence when the normal power source is introduced.

The correct operation method is as follows: When the rise-up button on the white line is pressed, the motor should turn counterclockwise, allowing the position limiting device to function. See Fig. 1 for details. Otherwise, the shutter door will be out of control and damaged.

Testing:

Screw cap position limiting slide piece model (Fig 2.1)

Before testing, loosen the locking bolt (No. 3) of the position limiter. Then, pull the hand chain to lift the door 1 meter above the floor. Press the ′up′, ′stop′, and ′down′ buttons and observe the functions of the rolling shutter operation to check if they are correct. After confirming that the door is working properly, open the door up or down to the desired position. Turn the position limiter slide piece (No. 6) until it touches the joggling switch (No. 2) and you hear a ‘tick-tack’ sound. Tighten the locking bolt (No. 3) and repeat the testing until the limiter is in the best position. Finally, tighten the locking bolt again.

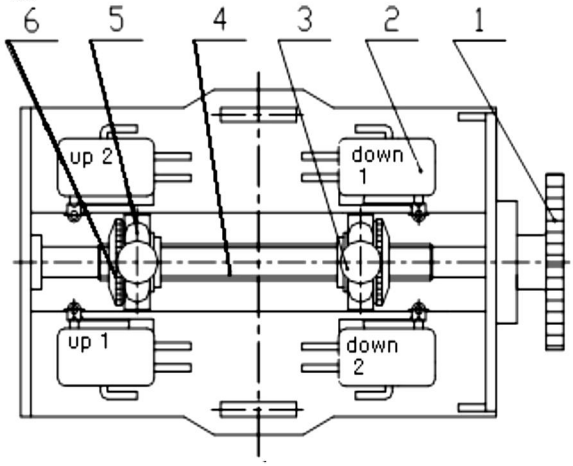
Gear form screw nut position limiting board model (Fig 2.2)

Before testing, loosen the two locking bolts (No. 3) of the position limiter. Hold the middle of the position limiter board (No. 6) with your fingers, push it 4mm to the left side (←), and pull away the (↓) screw 4mm. The position limiting board will now be separated from the gear form screw. Turn the gear form screw nut (No. 5) to set the door position; the method is the same as above. After setting the door position, hold the middle of the position limiting board (No. 6) and push it back up (↑) to make the position limiting board fit into the gear backlash. (If it cannot fit, turn the gear form screw nut to adjust it.) Then, push the position limiting board to the right side (→) 4mm to reach the bottom of the gear backlash. Tighten the locking bolt (No. 3) and repeat the testing until the limiter reaches the desired position.

If the shutter motor is installed, debugged, or operated for a long time, the inside of the motor will heat up and the thermal protection will force the motor to stop operating. Until the temperature difference between the motor and the cooling medium falls below 2K, the motor will restart operating.

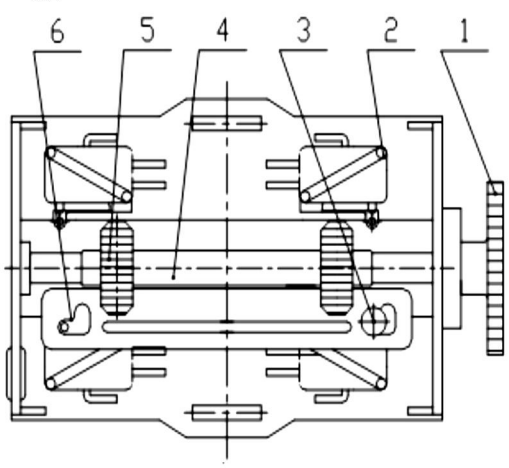
Fig 1 **Position Limiting Diagram**

1.1



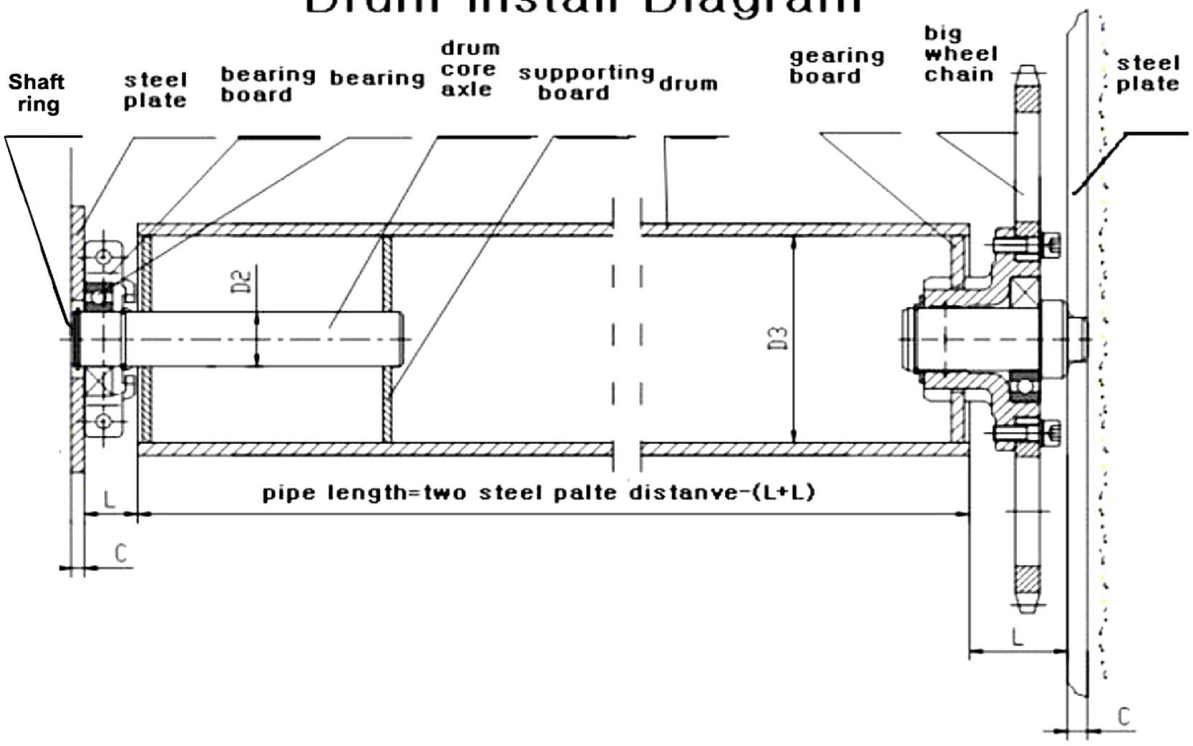
1. gear 2. joggling switch 3. locking bolt
4. gearing wire 5.position limiting screw nut
6.position limiting slide piece

1.2



1. gear 2. joggling switch 3. locking bolt
4. gearing wire 5.gear form screw nut
6. position limiting board

Fig 2 Drum install Diagram

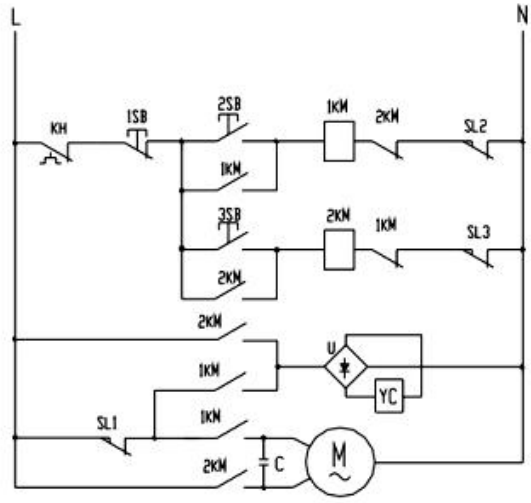


Drums install diagram data

model	D2	D3	L	C	Bearing	remark
300Kg	Φ30	4″	35	4	206	
400Kg	Φ30	4″	35	3	206	
500Kg	Φ35	4″/ 5″	35	4	207	
600Kg	Φ35	5″	35	4	207	
800Kg	Φ35	6″	45	5	207	
1000Kg	Φ40	6″	45	5	208	
1300Kg	Φ40	8″	45	12	UCF208	
1500Kg	Φ40	8″	55	12	UCF208	
2000Kg	Φ60	10″	Left 85 Right 120	16	UCF212	

(with white mark)black(zero) (non mark)black(fire)

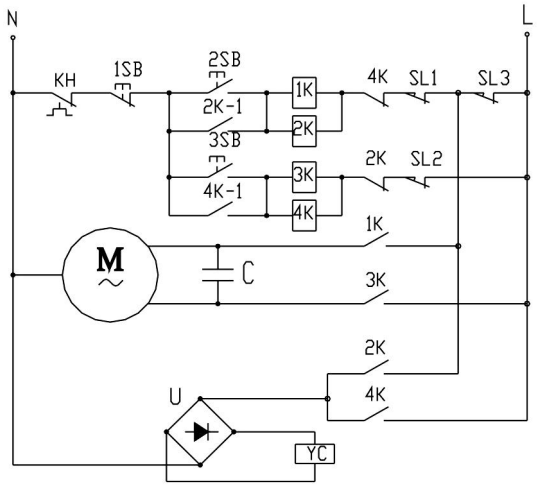
240V Electric Wiring Diagram



(300kg—1500kg)

Symbol	Name	Size & Model	Quantity
KH	Heat Protector	JOK—SF—1	1
1SB、2SB、3SB	Switch	2 open, 1 close	1
SL1、SL2、SL3	Top and bottom Buttons	JWL—1—11	3
1KM、2KM	AC contactor	CJXZ—6.3/0.1	2
C	Capacitor	16-30μf 450VAC	1
U	Rectifier		1
YC	Magnet coil		1
M	Single—phase Motor	~240V	1

240V Electric Wiring Diagram

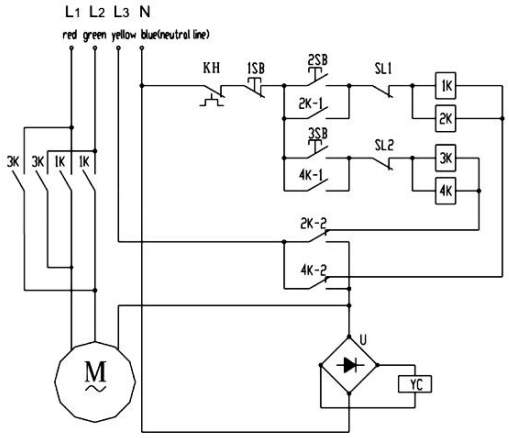


(300kg—1500kg)

Symbol	Name	Size & Model	Quantity
KH	Heat Protector	JOK—SF—1	1
1SB、2SB、3SB	Switch	2 open, 1 close	1
SL1、SL2、SL3	Top and bottom Buttons	JWL—1—11	2-4
1K—4K	Small relay	JQX—13F	4
C	Capacitor	16-30μf 450VAC	1
U	Rectifier		1
YC	Magnet coil		1
M	Single—phase Motor	~240V	1

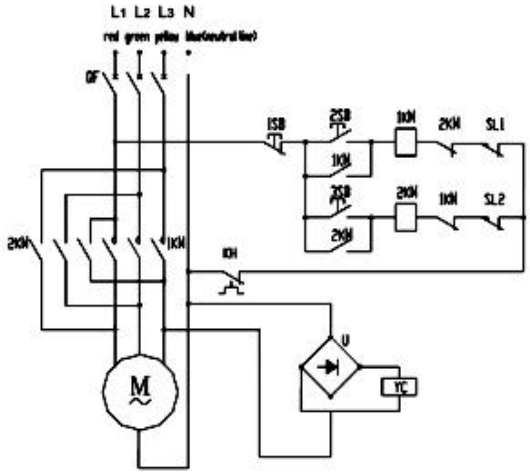
(300k—2000kg)

415V Electric Wiring Diagram



Symbol	Name	Size&Model	Quantity
KH	Heat Protector	JOK-SF-1	1
1SB、2SB、3SB	Switch	2 open.1 close	1
SL1、SL2	Top and bottom Buttons	JWL-1-11	2-4
1K-4K	Small relay	JQX-13F	4
U	Rectifier		1
YC	Magnet coil		1
M	Treble-phase Motor	~415V	1

415V Electric Wiring Diagram



(1300kg—2000kg)

Symbol	Name	Size&Model	Quantity
KH	Heat Protector	JOK-SF-1	1
1SB、2SB、3SB	Switch	2 open.1 close	1
SL1、SL2	Top and bottom Buttons	JWL-1-11	2-4
1KM、2KM	AC contactor	CJXZ-6.3/0.1	2
U	Rectifier		1
YC	Magnet coil		1
M	Treble-phase Motor	~415V	1

5. Usage

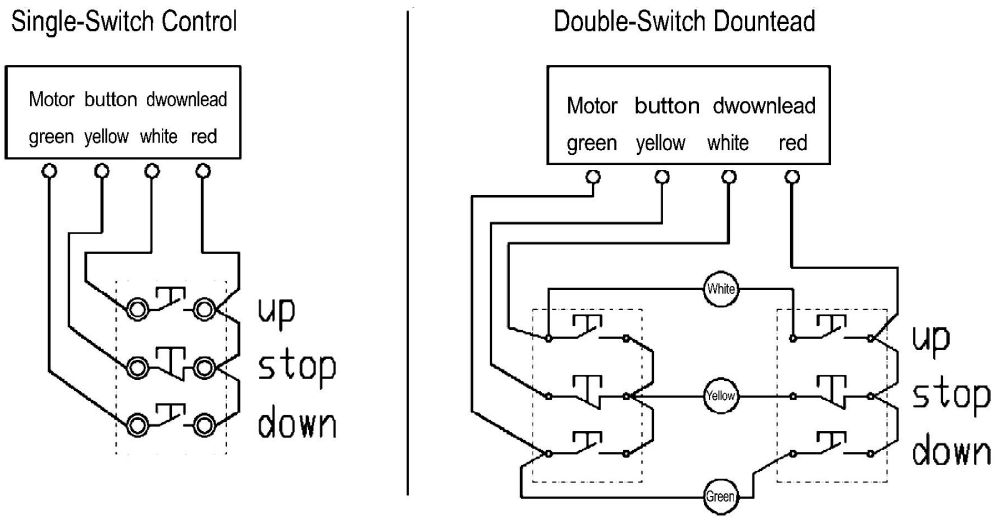
Press the “up” or “down” buttons. If there is no reaction, press the “stop” button to avoid potential damage to the motor.

Check to see if there are any obstacles beneath the shutter door before closing it. Passage under the shutter is forbidden during the process of opening or closing the door.

When closing the shutter with the power off, lightly pull on the shutter door loop to achieve a downward, even, and controlled speed. Relax the pull on the pulling loop when the door is almost closed and then pull again to close it completely.

When opening the shutter with the power off, strictly avoid raising the shutter above the height of the limiting position. Otherwise, it may be out of control.

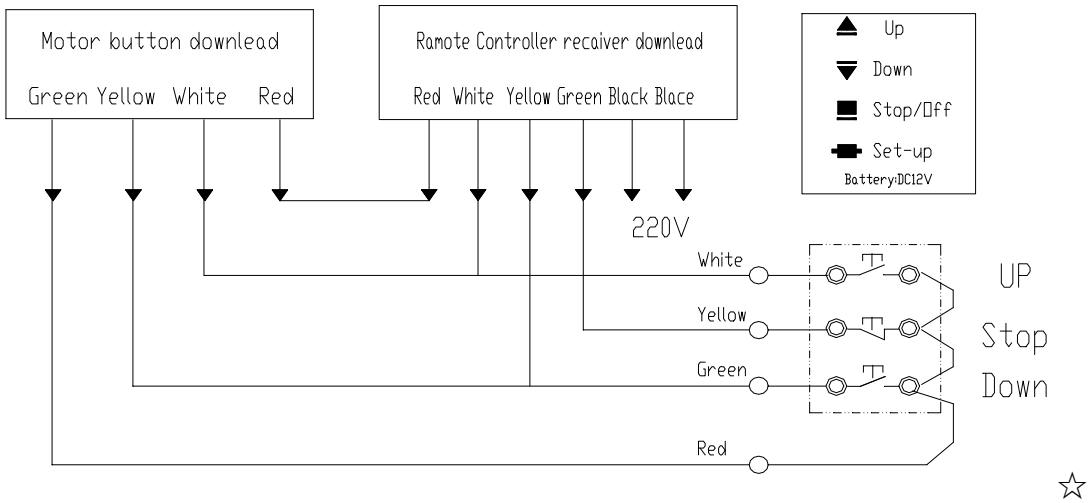
Motors for fire shutter doors are equipped with separate control boxes. Specially qualified personnel should undertake regular and preventative maintenance and inspection.



☆The above diagram shows right-side installation. See Connection diagram

For left-side installation - change the position of the white and green lines.

Remote control and rolling shutter motor (button switch) connect diagram



☆

Refer to the connection diagram for right - side installation; swap the positions of the white and green lines for left - side installation.

☆ Expose the pipe in the middle of the button line. Cut off the end of the yellow line to expose the lead line, and connect them separately.

6. Trouble shooting

Problem	Analysis	Solution
No stopping at the upper and lower positions.	Incorrect phase connection or position failure	Cut off the power, conduct checks, make adjustments, and carry out replacements.
Up only, or down only	Circuit contact fails; voltage is too low.Electromagnetic iron has weak attraction force.	Polish contacts or replace relays, adjust the contacts of the voltage button, and replace the magnetic coil.
No reaction	Button contact fails, limit switch contact fails, circuit is cut off, and there is no neutral wire connection.	Adjust and change joggling switch and relay, connect neutral wire
Non-stop Operation	Relay contact is fused, and the joggling switch is out of control.	Repair or replace the joggling switch and relay.
Non-operation, only noise	Machine blocked, voltage too low	Remove the block and adjust the voltage.
The shutter slides down after braking.	Excessive abrasion of the brake piece	Check the spring of the brake and add the shim.

7. Type Selection Formula

Output torque T

Total weight of shutter door G = Motor type – total lifted weight Kg

Radius of rolling axle R × 9.8

G = door material/㎡ × length × width (see attachment for details)

material	aluminum alloy	net door	PVC steel	stainless steel	Fireproof door
KG×㎡	5～6	12	8～14	10～18	25～36

Type and drum selection drawing:

This diagram is drawn according to the national standard GB14102 - 2005 <Fireproof Rolling Shutter>, with a deflection ≤ L/400, considering the rolling shutter motor output torque, the gross weight of the shutter, and the span length.

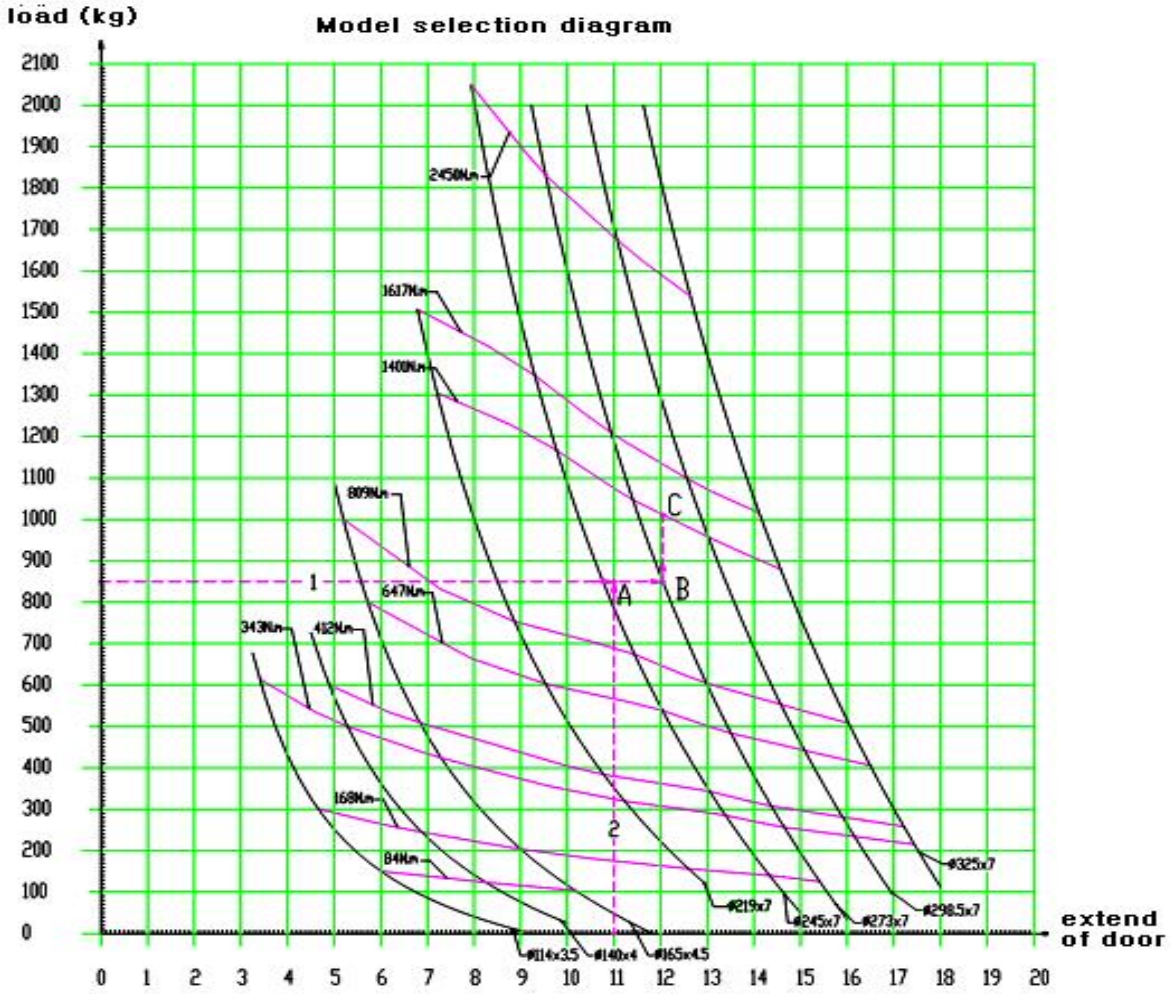
Selection method:

a) For single shutter type selection, the weight G is the actual weight × (1.1~1.2).

b) Then, according to the shutter model selection weight (kg), find the relevant point on the Y - coordinate. And across 1: According to the maximum width (m) of the door, find the relevant point on the X - coordinate, then move upwards to the vertical line 2 until it intersects with the Y - coordinate at point A. Then, along the right - hand horizontal

direction, reach the next point B on the pipe diameter diagonal line, which is the pipe diameter we need.

c) From point B, move up to the diagonal of the type selection line to get point C, which is the type of motor we need.



For example, if the maximum weight of the shutter is 850 kg and the door width is 11 m, what size of pipe diameter and what kind of model should we choose?

a) Select 850 kg from the Y - coordinate as line 1. Then select 11 m from the X - coordinate as line 2 to reach the intersection at point A. Move along the right direction to the next point B. The pipe diameter and thickness Φ273 × 7 in the pipe diameter line at point B are what we need.

b) From point B, move up to the closest model line at point C. The position of model 1401 N.m is what we want.

- The deflection should be controlled to less than 1/400. Or, when the door width is more

than 5 m, with a thickness of more than 3 mm and a self - weight above 350 kg, 5 seamless pipes with a thickness of more than 3 mm and zinc - plated must be used to prevent the pipe axle from bending, which would lead to overload and a short lifespan of the motor, and even directly damage the teeth of the motor's gear.

- Single - phase shutter door motors have obvious voltage fluctuations. Therefore, attention should be paid to the voltage during type selection.

8. Accessories with motor

1. Chain wheel support ×1
2. Big chain wheel (includes axle connection) ×1
3. Rolling chain ×1
4. Drum core axle ×1
5. Axle and axle support ×1 set

9. Warranty period

The rolling shutter motor has a one - year warranty from the day of shipment. Parts are offered at a preferential price.

10. Options

1. Wireless remote control
2. UPS electricity storage device AT (220)
3. Fireproof electric control system (A.C models)

11. Note:

- The motors are produced for standard mounting to the right of the opening. If the customer wants to install it on the left - hand side, the chain safety device should be removed and installed on the other side.
- Due to the continuous improvement of products, the appearance, performance, and parameters in this manual may be modified without prior notice.

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