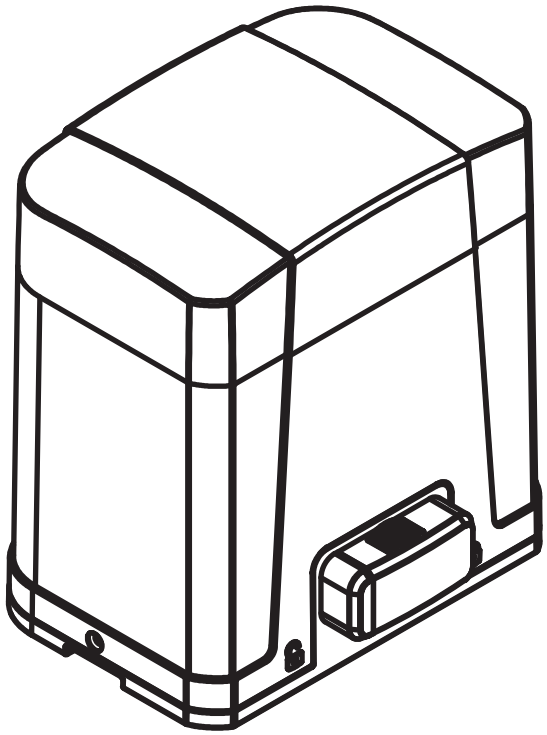
PL500 24V DC MOTOR

SLIDING GATE OPENERS

FOR RESIDENTIAL

USER MANUAL



INDEX

1) Warnings

Please read this instruction manual carefully before the installation of gate-automated system.

This manual is exclusively for qualified installation personnel. Powertech Electronics Inc. is not responsible for improper installation and failure to comply with local electrical and building regulations.

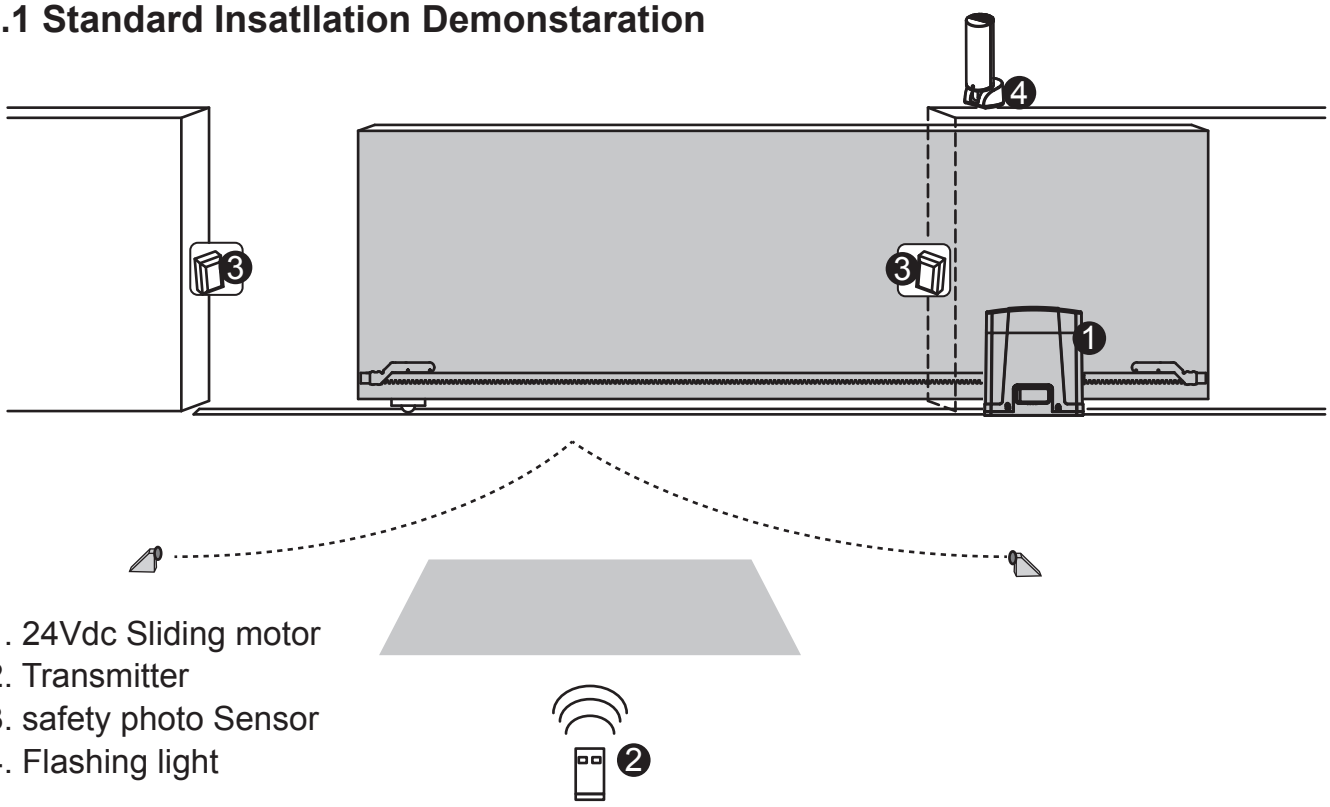
Keep all the components of PL500 system and this manual for further consultation.

- In this manual, please pay extra attention to the contents marked by the symbol:

- Be aware of the hazards that may exist in the procedures of installation and operation of the gate-automated system. Besides, the installation must be carried out in conformity with local standards and regulations.
- If the system is correctly installed and used following all the standards and regulations, it will ensure a high degree of safety.
- Make sure that the gates works properly before installing the gate-automated system and confirm the gates are appropriate for the application.
- Do not let children operate or play with the gate-automated system.
- Do not cross the path of the gate-automated system when operating.
- Please keep all the control devices and any other pulse generator away from children to avoid the gate-automated system being activated accidentally.
- Do not make any modifications to any components except that it is mentioned in this manual.
- Do not try to manually open or close the gates before you release the gear motor.
- If there is a failure that cannot be solved and is not mentioned in this manual, please contact qualified installation personnel.
- Do not use the gate-automated system before all the procedures and instructions have been carried out and thoroughly read.
- Test the gate-automated system weekly and have qualified installation personnel to check and maintain the system at least every 6-month.
- Install warning signs (if necessary) on the both sides of the gate to warn the people in the area of potential hazards.

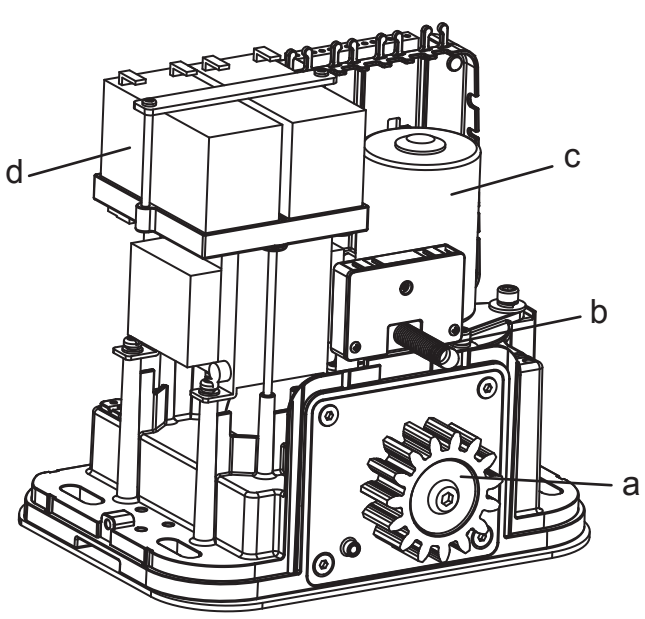
2. Installation:

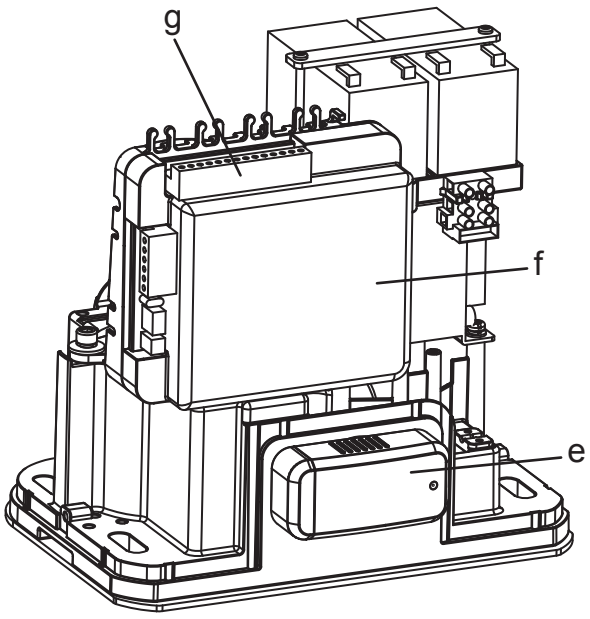
2.1 Standard Insatllation Demonstaration



1. 24Vdc Sliding motor
2. Transmitter
3. safety photo Sensor
4. Flashing light

2.2 Description Of Device

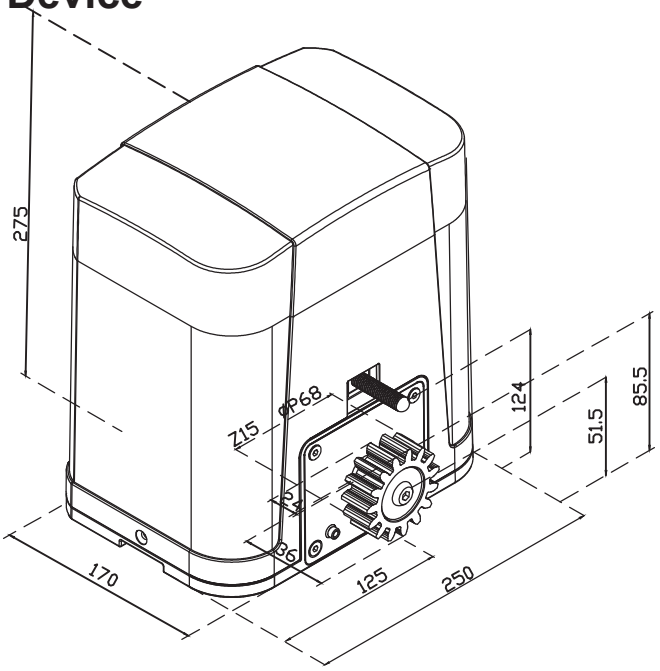




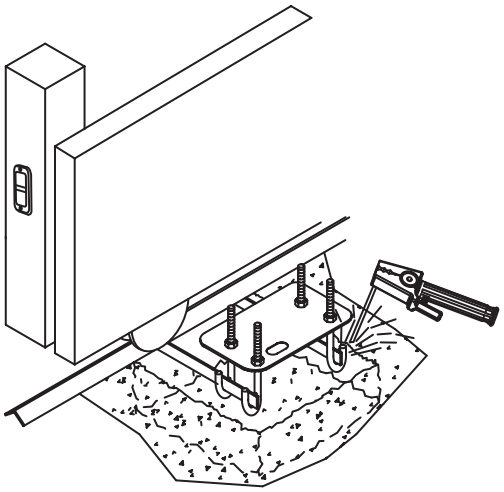
a. Operation gear
b. Limit switch device
c. 24Vdc motor
d. Back-up batteries

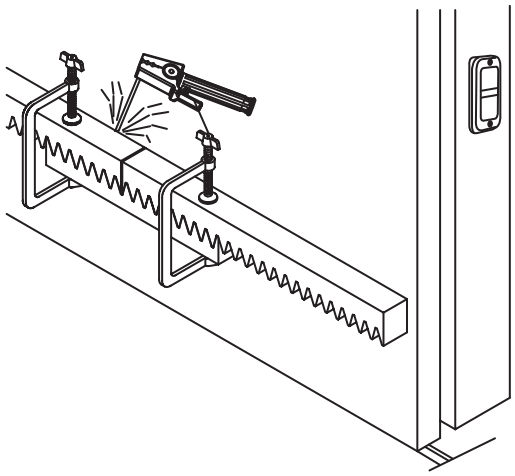
e. Release device
f. Control panel
g. Terminals of devices

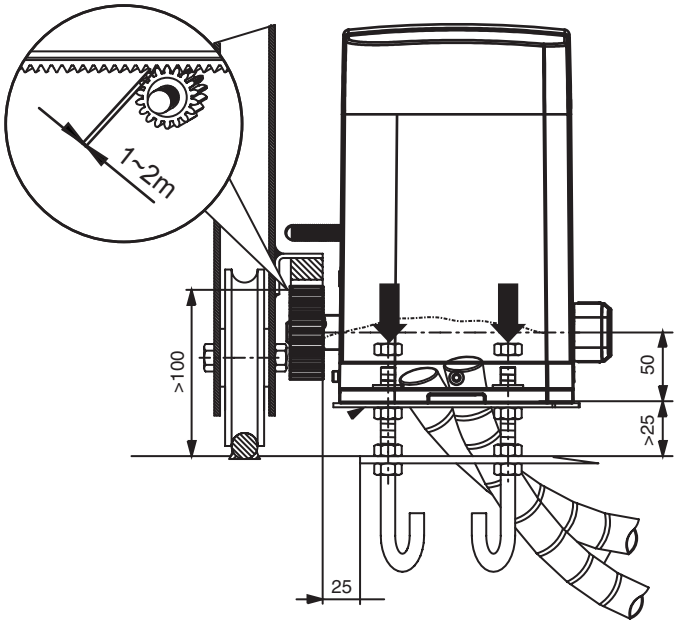
2.3 Dimenstion Of Device

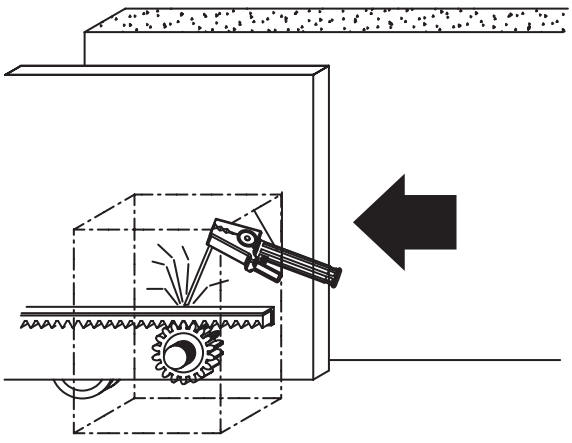


2.4 Installation Of Motor Gear And Gear Rack

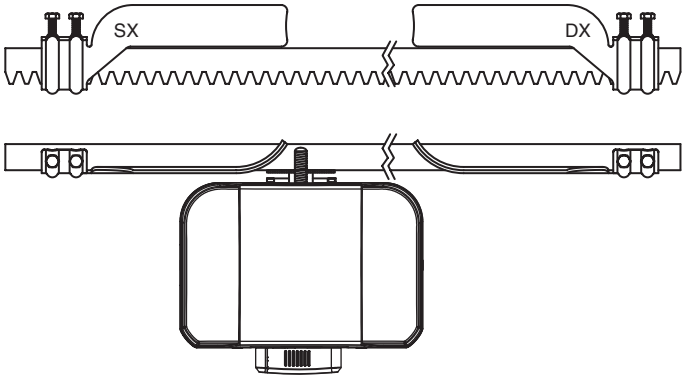


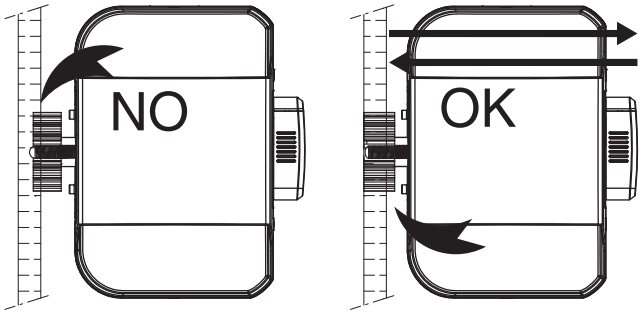






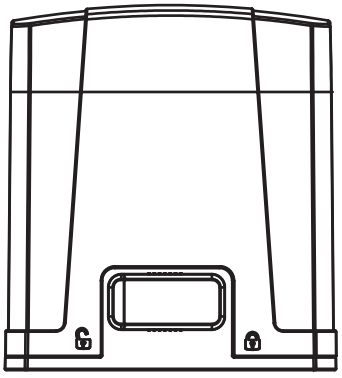
2.5 Checking For Installation





2.6 Emergency Release

In the case of power failure for emergency release of the motor, please follow the procedure as below:



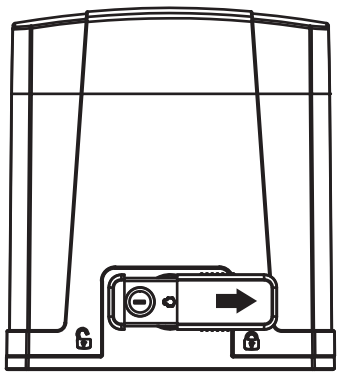
Step1. Push the lid of release chamber and move rightward

Step2. Insert the key and turn clockwise to unlock the device

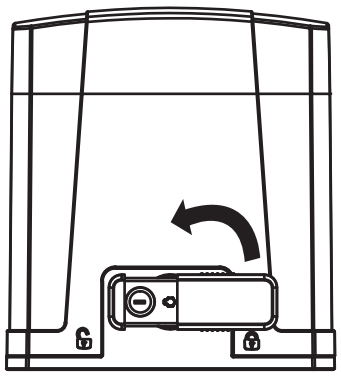
Step3. Turn counter-clockwise of the bar to release the motor

To restore the automation, simply reverse the above procedure.

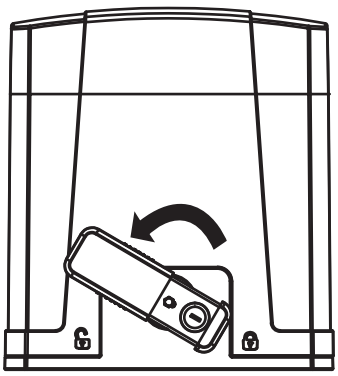
Step1.



Step2.



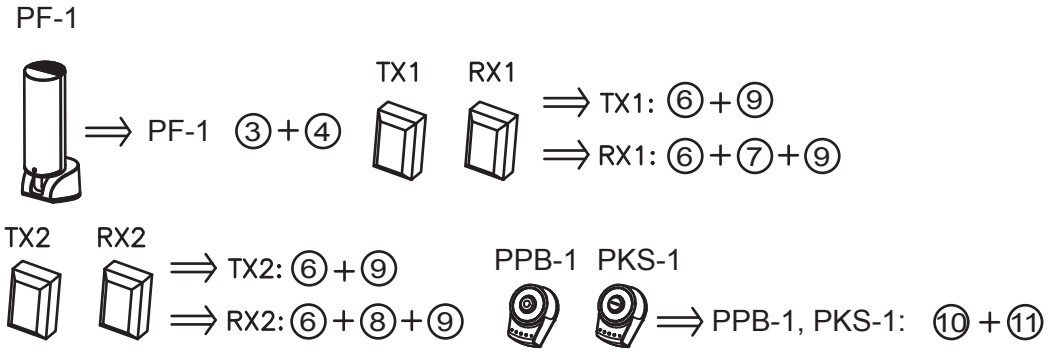
Step3.

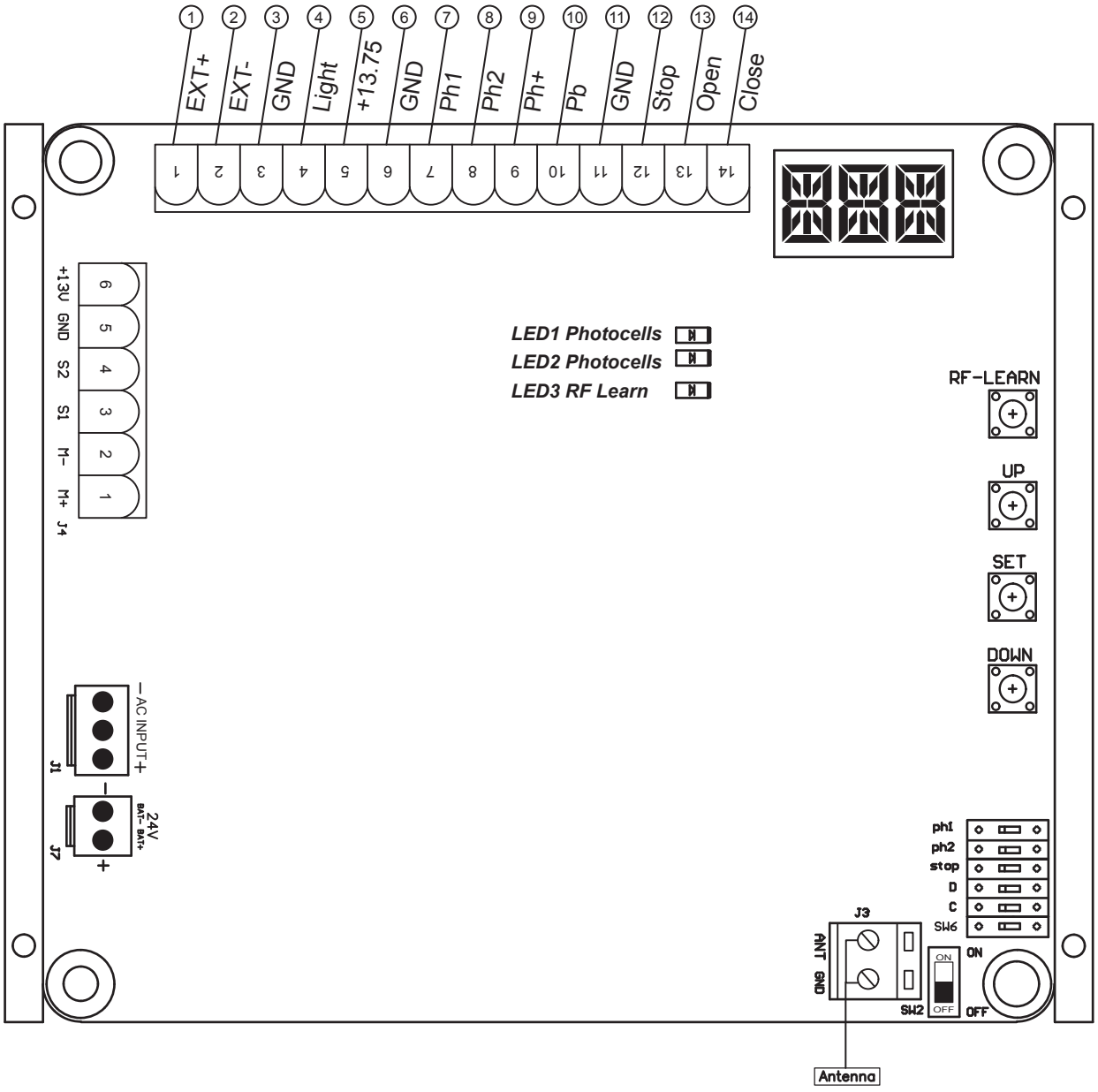


3. Setup And Function Setting:

3.1. Wire Connection

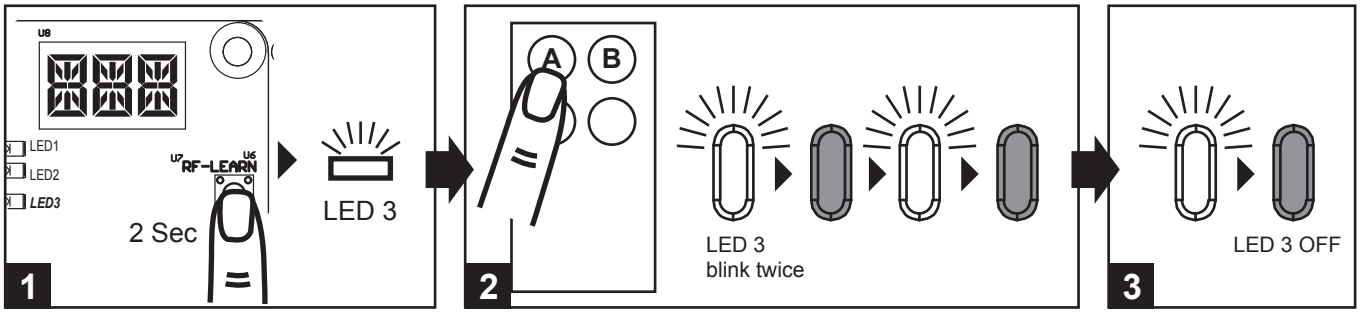
If the Led display is in normal performing refer to “4.2.1”, you can control the gate by either transmitters or the button on the board: “UP”-clockwise moving, “SET”- stop and “DOWN”- Counterclockwise moving.





3.2 Transmitter Memorizing

Press “RF Learn” button for 2 seconds, and the LED3 is on; then press the transmitter button (A); the LED3 will blink twice and then be off. The transmitter learning is completed.



3.3 System Learning And Led Display

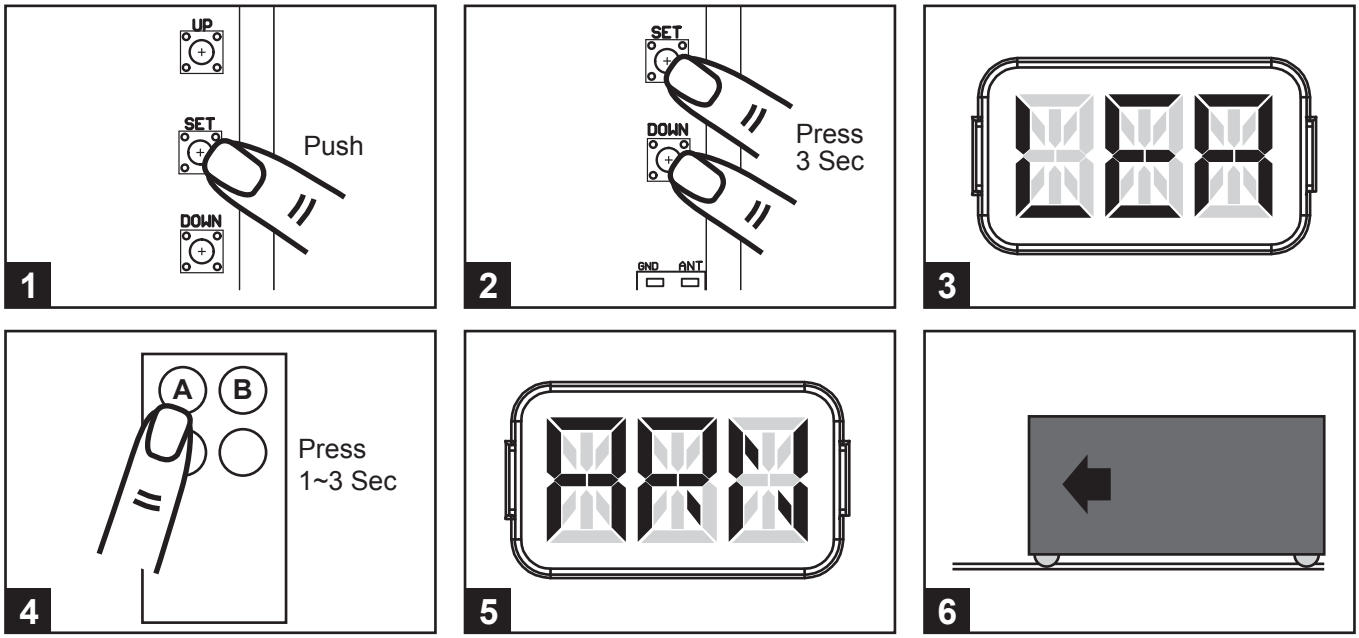
! CAUTION: Before proceeding to system learning, the transmitter memorizing process has to be completed.

To complete the system learning, follow the instructions below:

Step1: Press “SET”; then press “SET” + “DOWN” for 3 seconds, and the LED display shows “LEA”

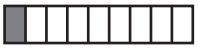
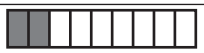
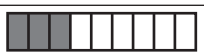
Stop2: Press button (A) on time, the LED display should shows “ARN”

Step3: The gate will goes to Auto-learning, please wait for the learning process to be completed



LED Display	Programmable Functions
	“N-L”: The Boxer system learning is not done.
	“RUN”: The Boxer system is in normal operation To program, press SET button for 3 seconds, when the LED display change from RUN to F1, press UP or DOWN to change function settings (F1 to FA). Then press SET to enter the sub function within each group, press UP or Down to select sub functions and press SET for confirmation.
	“LEA”: Enter learning mode and then wait for learning instructions.
	“ARN”: The system learning is in progress. The Auto-learning process of gate moving: “Gate open to the end- stop close to the end- stop.”

3.4 Programmable Function Settings

LED Display	Definition	Function	Value	Description
F1	Options of Gate Opening direction	F1-0	Clockwise Opening	1. The function can adjust the dir ection of gate opening. 2. The factory setting is "F1-1".
		F1-1	Counterclockwise Opening	
F2	Automatic Closing	F2-0	No automatic closing	1. This function can cause the gate to close automatically after the paused time. 2. The factory setting is "F2-3": 30secs as the pause time.
		F2-1	5 seconds	
		F2-2	15 seconds	
		F2-3	30 seconds	
		F2-4	45 seconds	
		F2-5	60 seconds	
		F2-6	80 seconds	
		F2-7	120 seconds	
		F2-8	180 seconds	
F3	The reactions of the photocells/ safety edge/ loop detector when they detecting obstacles	F3-1	Please refer to page 9, F3 settings	1. The factory setting is “F3-1”.
		F3-2		
		F3-3		
F4	Motor Speed	F4-1	Slow	1. The function can adjust the running speed of motor. 2. The factory setting is "F4-4".
		F4-2	Medium	
		F4-3	Fast	
		F4-4	Very Fast	
F5	Motor Force	F5-1	Light  Heavy	1. The function can adjust the running force of motor to be compatible with the gate weight. 2. The factory setting is "F5-4". 3. The motor force value: F5-1: 2A F5-6: 7A F5-2: 3A F5-7: 8A F5-3: 4A F5-8: 10A F5-4: 5A F5-9: 13A F5-5: 6A 4. As over current setting
		F5-2	Light  Heavy	
		F5-3	Light  Heavy	
		F5-4	Light  Heavy	
		F5-5	Light  Heavy	
		F5-6	Light  Heavy	
		F5-7	Light  Heavy	
		F5-8	Light  Heavy	
		F5-9	Light  Heavy	
F6	Pedestrian Mode	F6-0	3 seconds	1. The function can adjust the time of opening partially. 2. The factory setting is "F6-1". 3. Press button B on the remote to operate the pedestrian mode.
		F6-1	6 seconds	
		F6-2	9 seconds	
		F6-3	12 seconds	
		F6-4	15 seconds	
		F6-5	18 seconds	
F7	Pre-flashing	F7-0	The flashing light blinks when the gate starts to move.	1. The factory setting is "F7-0".
		F7-1	The flashing light blinks 3 seconds before the gate starts to move.	
F8	Deceleration point programming of total travel distance	F8-0	75%	1. The factory setting is “F8-0”.
		F8-1	80%	
		F8-2	85%	
		F8-3	90%	
		F8-4	95%	
F9	Deceleration Speed	F9-1	50% full speed	1. The factory setting is “F9-1”.
		F9-2	25% full speed	
FA	Auto - Reverse when object impacted	FA-0	No Auto - reverse	1. The factory setting is “FA-3”.
		FA-1	1 second	
		FA-2	3 seconds	
		FA-3	Reverse to the end	

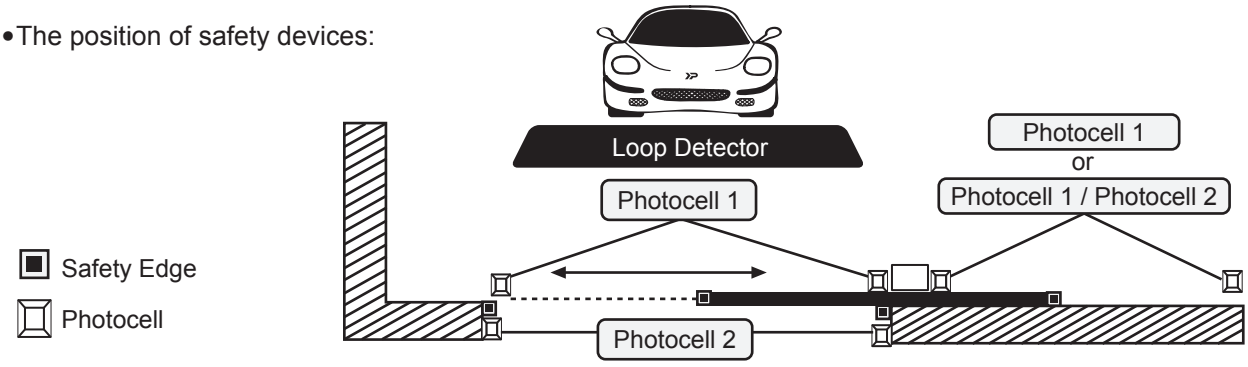
● F3 function settings:

Logic F3-1	The reactions of the photocells when detecting obstacles		
Gate Status	Photocell 2	Photocell 1	Photocell 1/ Photocell 2
Closed	Stop opening	No effect	Stop opening
Open	No effect	Reloads automatic closing time	
Stop during moving	Stop opening	Reloads automatic closing time	
Closing	No effect	Open	Locks and, on release, reverses to open
Opening	Closes the leaf	No effect	Locks and, on release, continues opening

Logic F3-2	The reactions of the safety edge/ photocell when detecting obstacles	
Gate Status	**Safety Edge**	**Photocell 1**
Closed	Stop opening	No effect
Open	Reloads automatic closing time	
Stop during moving	Stop opening/ closing	Reloads automatic closing time
Closing	Reverses to open for 2 seconds	Open
Opening	Reverses to close for 2 seconds	No effect

Logic F3-3	The reactions of the loop detector/ photocell when detecting obstacles	
Gate Status	**Loop Detector**	**Photocell 1**
Closed	Open	No effect
Open	Reloads automatic closing time	
Stop during moving	Open	Reloads automatic closing time
Closing	Open	Open
Opening	Open	No effect

• The position of safety devices:

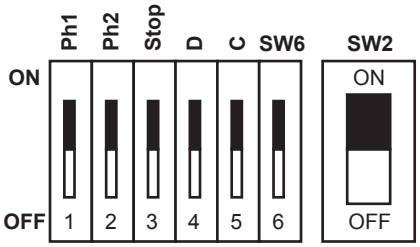


3.5 Testing And Checking

Make sure the notices included in 1.1 General safety precaution “WARNINGS” has been carefully observed.

- Release the gearmotor with the proper release key.
- Make sure the gate can be moved manually during opening and closing phases with a force of max. 390N (40 kg approx.)
- Lock the gearmotor.
- Using the Key selector switch, push button device or the radio transmitter, test the opening, closing and stopping of the gate and make sure that the gate is in the intended direction.
- Check the devices one by one (photocells, flashing light, key selector, etc.) and confirm the control unit recognizes each device.

3.6 Sw2/sw6 Setting:



	Default	Device	Description	Remark
SW6	1 – ON	Ph1 Photocell-1	Switch to ON if Ph1 is not connected; Otherwise, switch to OFF if Ph1 is connected	1 & 2 must switch to ON，if Ph1 & Ph2 are not connected to any devices
	2 – ON	Ph2 Photocell-2	Switch to ON if Ph2 is not connected; Otherwise, switch to OFF if Ph2 is connected	
	3 – ON	Stop	Switch to ON if “Stop (12)” is not connected; Otherwise, switch to OFF if “Stop” is connected to any device	
	4 – ON	Remote	Setting with SW2	
	5 – ON	Remote	Setting with SW2	
	6 – ON	None	No function	

	Default	Device	Description (coordinate with remote)	Remark
SW2	ON	2/4 Channel Transmitter	ON, Button B is pedestrian mode	With external device: SW6 4 - ON/OFF > Button C - ON/OFF; SW6 5 - ON/OFF > Button D - ON/OFF;
			If connected with external device (EXT+/EXT-; 1/2)，SW6 4-ON; Button C on the remote can operation the device	
			If connected with external device (EXT+/EXT-; 1/2)，SW6 5-ON; Button D on the remote can operation the device	
SW2	OFF	2/4 Channel Transmitter	OFF，Button B can operation the external device (EXT+/EXT-; 1/2)	If using a 2-channel remote and require the Button B to operation the external device，switch the SW2 to OFF
			OFF，SW6 4-ON; Button C is pedestrian mode; Button D no function	
			OFF，SW6 5-ON; Button D is pedestrian mode; Button C no function	

4. Technical Characteristics:

4.1 Techanical Data Sheet Of Series

Motor	PL500
Gear type	Worm Gear
Peak thrust	5500N
Nominal thrust	5000N
Engine RPM	3800 RPM
Absorbed Power	60W
Power supply	24 Vdc
Nominal input power	3A
Maximum gate weight	500kg
Maximum gate length	6 Meters
Maximum operating current	5.5A for Maximum 10 secs
Operating Temperature	-20oC~+50oC
Dimension LxWxH mm.	250 X 170 X 265
Weight	8 kg
Speed	21.9 cm / sec

4.2 PH-1 Photocell Data Sheet

Detection type	Through beam
Operating distance	30 meters
Response time	100ms
Input voltage	AC/DC 12~24V
Operating Temperature	-20℃~+60℃
Protection class	IP66
Dimension	59mm * 87mm * 38mm

4.3 PR-1 Transmitter Data Sheet

Application	Radio transmitter
Frequency	433.92Mhz
Coding	Rolling code
Buttons	2, for single-gate or dual-gate operation
Power Supply	3V with one CR2032 button type lithium battery
Operating Temperature	-20℃~+50℃
Dimension	71.5mm * 33mm * 14mm

4.4 PF-1 Flashing Light Data Sheet

Application	For outdoor use
Installation	Wall mounted vertically
Operating Temperature	-20℃~+50℃
Dimension	85mm * 60.5mm * 40.5mm

4.5 PRB-1 External Receiver Box Data Sheet

Power Supply	12V ~ 24V ac/dc
Radio Frequency	433.92Mhz
Max. remote memorized	200pcs
Dimensions	106mm* 53mm* 20mm (L*W*H)
Output terminals	Output 1 & Output 2

5. Additional Information:

5.1 PH-1 Photocells

1). Decide the installation position of the photocells. See ***Figure 3.3.6 (1)***.

2). Unscrew the screws and secure the photocells on the post A, B or C. See ***Figure 3.3.6 (2)*** and ***(3)***.

Figure 3.3.6 (1)

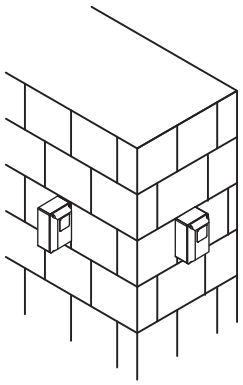


Figure 3.3.6 (2)

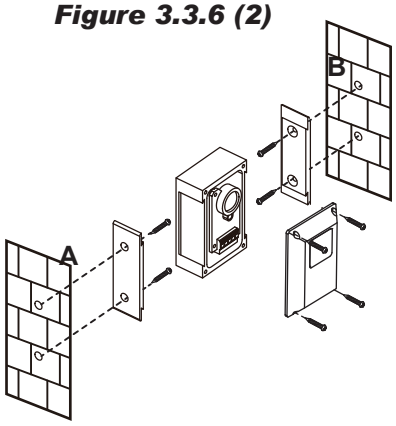
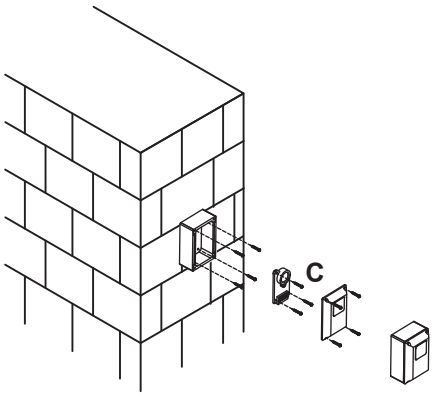


Figure 3.3.6 (3)



3). Wiring connection:

TX: Connect terminals 1 and 2 on the transmitter with the terminals GND and 24V on the PC200 PCB.

RX: Connect terminals 1, 2 and 4 on the receiver with the terminals GND, 24V and phot1 on the PC200 PCB. And use an extra wire to connect terminals 2 and 5 on the receiver as a bridge.

See Figure 3.3.6 (4) Figure 3.3.6 (5) and Figure 3.3.8 (5)

Figure 3.3.6 (4)

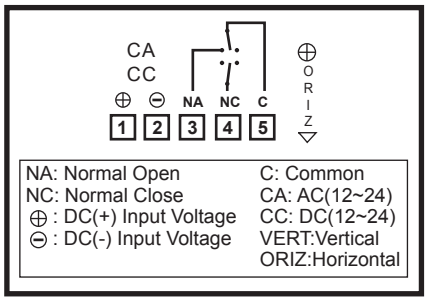
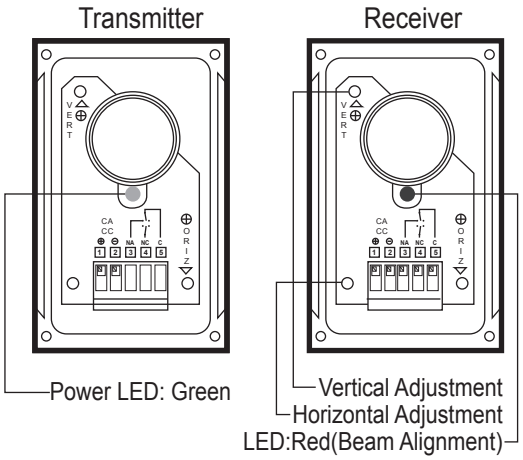
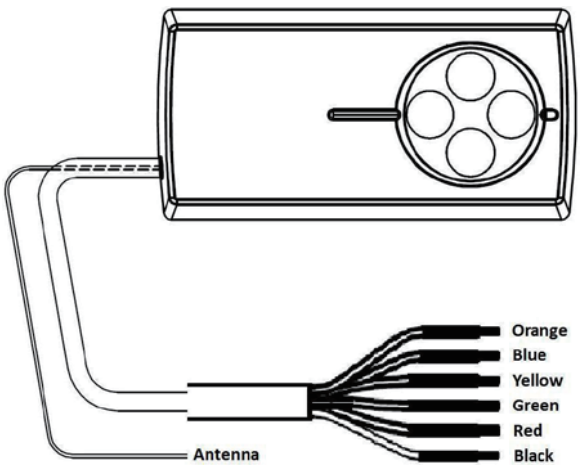


Figure 3.3.6 (5)



5.2 Wire Connection And Setting Of PRB-1 External Reciever Box



RB1 Receiver Box

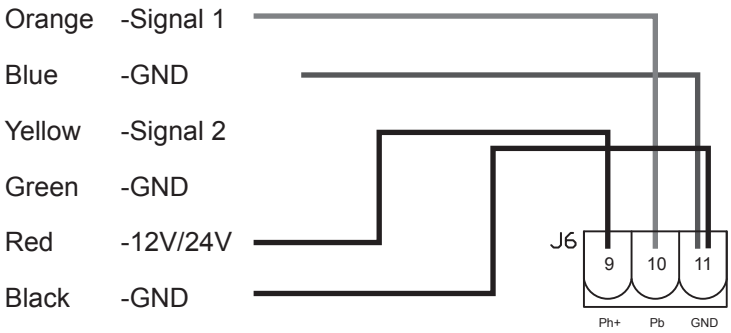
Orange	-Signal 1	Output 1 (Normally Open Relay)
Blue	-GND	
Yellow	-Signal 2	Output 2 (Normally Open Relay)
Green	-GND	
Red	-12V/24V	12V - 24V AC/DC
Black	-GND	

1. Situation:

In order to use one 4 channel remote to operate with additional device besides the original gate automation system. Install a receiver box to connect with the 2nd device (Such as swing/sliding gate opener) or the 3rd device (Such as garage automation system)

Original gate automation: Using Button A & B (Pedestrian Mode) on the remote to control gate opener
2nd device: Install an external receiver box, connect output 1 to the 2nd device (such as another Boxer Slider, shown as below) use button C on the same remote to control the 2nd device
3rd device: install an external receiver box, connect the output 2 to the 3rd device (such as garage door), use the Button D now to operate.

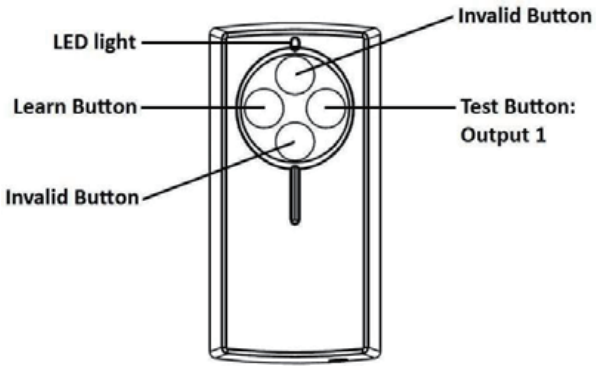
2. Wire Connection:



a. Orange cable (Signal 1) connect to terminal 10 (Pb) on the control board
b. Blue cable (GND) connect to terminal 11 (GND) on the control board
c. Red cable (12V/24V ac/dc) connect to terminal 9 (Ph+) on the control board
d. Black cable (GND) connect to terminal 11 (GND) on the control board

3. Device Testing & Remote Memorization

PRB-1 Receiver



a. After connect all necessary cables properly , press Test Button to exam if the output 1 is working, the gate opener should operate.
b. If Output 1 is functional, press and hold Learn Button for 1 second, the LED light should be “ON”
* If the LED does not response, please check the cable connection again
c. Press and hold Button C on the remote for 1 second after the LED is “ON”. The remote completed the memorizing process when LED light turns “OFF”

1095 Budapest, Mester utca 34.
Tel.: *218-5542, 215-9771, 215-7550, 216-7017, 216-7018 Fax: 218-5542
Mobil: 30 940-1970, 20 949-2688

1141 Budapest, Fogarasi út 77.
Tel.: *220-7940, 220-7814, 220-7959, 220-8881, 364-3428 Fax: 220-7940
Mobil: 30 531-5454, 30 939-9989

E-mail: delton@delton.hu Web: www.delton.hu

www.kaputnyitunk.hu