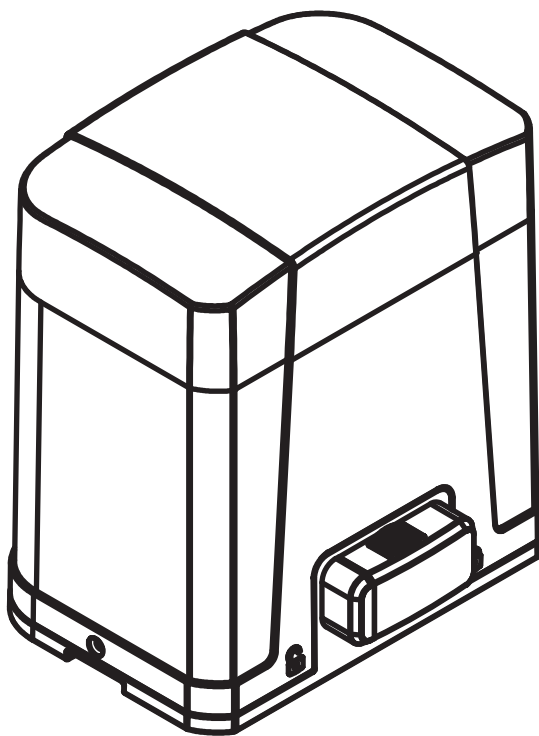


PL300E / PL400E / PL500E / PL800E

SLIDING GATE OPENERS

24V DC MOTOR

FOR RESIDENTIAL
USER MANUAL



Declaration of Conformity

Model: PL300E, PL400E, PL500E, PL800E, PR-1

1. Certificate of conformity of a product with the essential requirements art. 3.2 of the R&TTE Directive 1999/5/EC.
2. The above product has been tested with the listed standards and in compliance with the European Directive LVD 2006/95/EC.
3. The submitted sample of the above product has been tested for CE marking according to the following European Directives: 2006/42/EC Machinery Directive.

Comply with the following Standards:

EN 301489-1 V1.8.1: 2008
EN 301489-3 V1.4.1: 2002
EN 300220-1 V2.1.1: 2006
EN 300220-2 V2.1.2: 2007

EN 60335-1: 2002+A11:2004+A1:2004+A12:2006+A2:2006+A13:2008
EN 60335-2-103: 2003
EN 62233: 2008

EN 12445: 2001
EN 12453: 2001

And also declare that the machinery may not be put into service until the machine, which will be integrated or become one of the components, and announced to comply with the provisions as the required.

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1) Warnings

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

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

Keep all the components of PL300E / PL400E / PL500E / PL800E 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.

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance.

Cleaning and user maintenance shall not be made by children without supervision. The instructions shall state the substance of the following: **WARNING: Important safety instructions.** It is important for the safety of persons to follow these instructions. Save these instructions.

The instructions shall include the substance of the following:

- do not allow children to play with fixed controls. Keep remote controls away from children;
- explanation of mode indicators;
- details on how to use any manual release, and if applicable, state that activation of the manual release may cause uncontrolled movement of the driven part due to mechanical failures or an out-of-balance condition;
- when operating a biased-off switch, make sure that other persons are kept away;
- when closing a window that has been opened by a fire-sensing system, make sure that other persons are kept away;
- frequently examine the installation for imbalance and signs of wear or damage to cables, springs and mounting. Do not use if repair or adjustment is necessary;
- disconnect the supply when cleaning or other maintenance is being carried out, if the appliance is automatically controlled.

The installation instructions shall state the substance of the following: **WARNING: Important safety instructions.** Follow all instructions since incorrect installation can lead to severe injury.

The installation instructions shall specify the type, size and mass of the driven part, and locations where the drive can be installed. They shall state that the installer is to check that the temperature range marked on the drive is suitable for the location.

The installation instructions shall include the substance of the following:

- the necessary information for safe handling of a drive weighing more than 20 kg. This information shall describe how to use the handling means, such as hooks and ropes;
- before installing the drive, check that the driven part is in good mechanical condition, correctly balanced and opens and closes properly;
- information if the drive is intended to be installed at a height of at least 2,5 m above floor level or other access level;
- that the drive cannot be used with a driven part incorporating a wicket door (unless the drive cannot be operated with the wicket door open);
- ensure that entrapment between the driven part and the surrounding fixed parts due to the opening movement of the driven part is avoided;
- details for the installation of the drive and its associated components, including any noninherent protection devices or deformable edges;
- that the actuating member of a biased-off switch is to be located within direct sight of the driven part but away from moving parts. Unless it is key operated, it is to be installed at a minimum height of 1,5 m and not accessible to the public;
- that windows, having a gap exceeding 200 mm when open, are to be closed using a biased-off switch if the opening movement is controlled by a fire-sensing system;
- details on how to set controls;
- after installation, ensure that the mechanism is properly adjusted and that the protection system and any manual release function correctly;
- permanently fix the label concerning the manual release adjacent to its actuating member.

Rohs Warnings

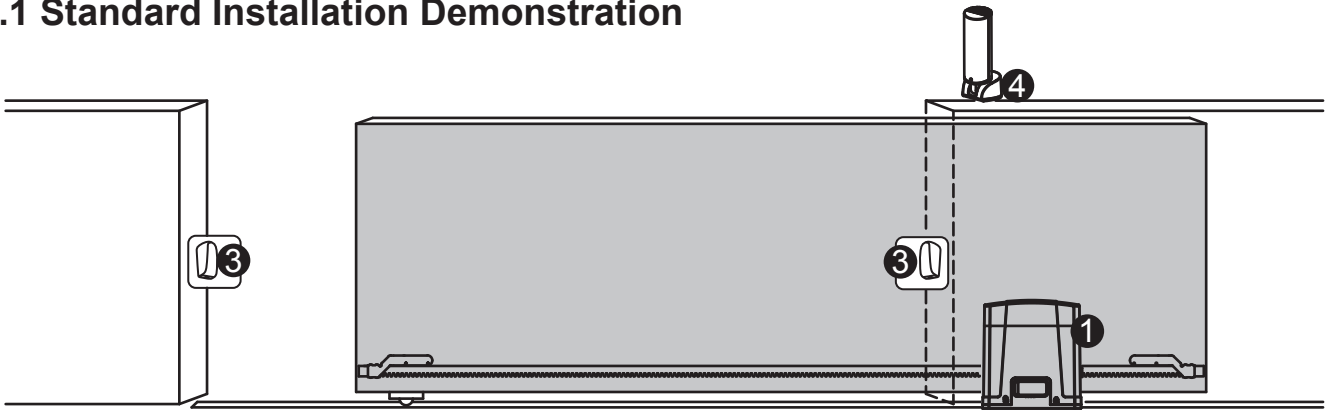


Correct Disposal of this product

This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

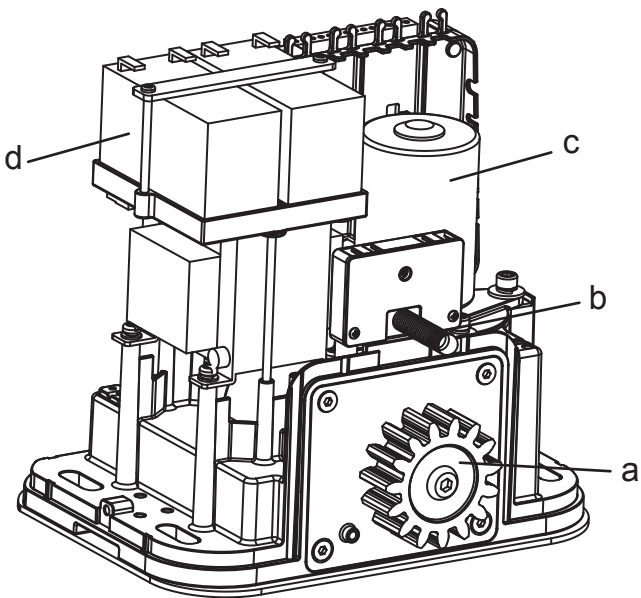
2. Installation:

2.1 Standard Installation Demonstration

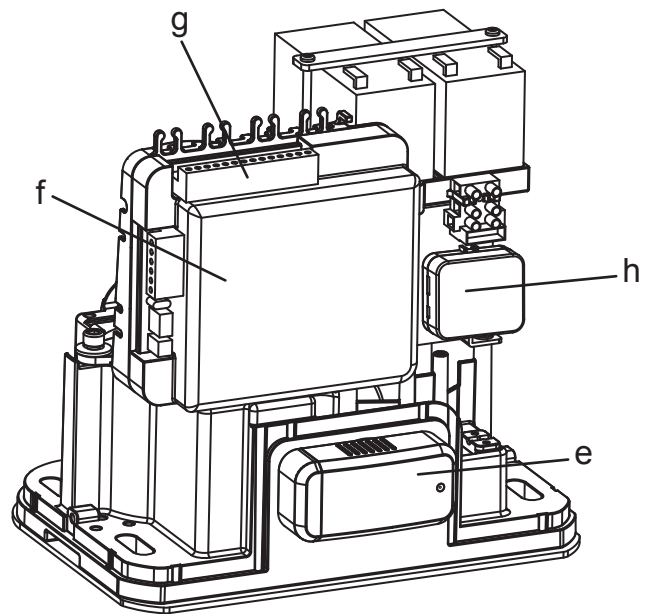


1. 24V DC sliding motor
2. Transmitter
3. Safety photo sensor
4. Flashing light

2.2 Description of Device

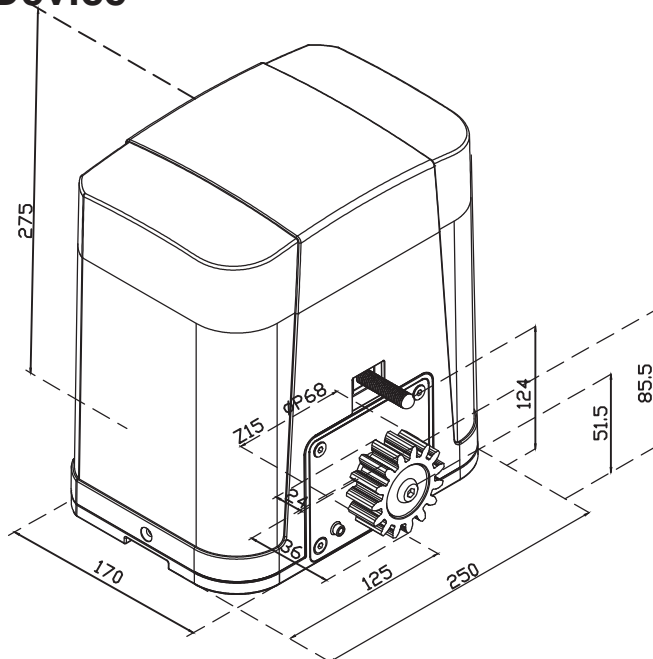


- a. Operation gear
- b. Limit switch device
- c. 24Vdc motor
- d. Back-up batteries (Optional)

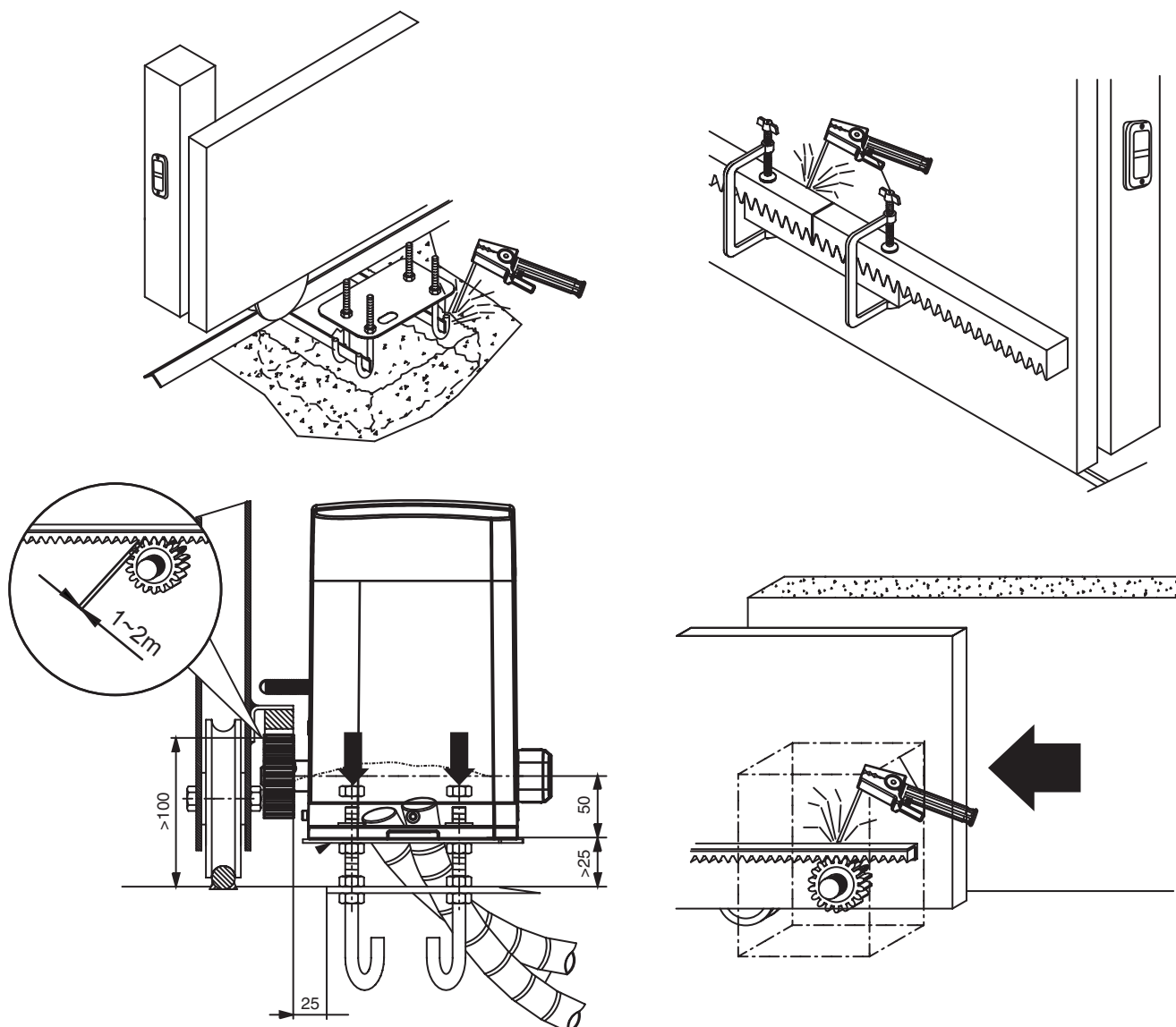


- e. Release device
- f. Control panel
- g. Terminals of devices
- h. Green Box (Optional)

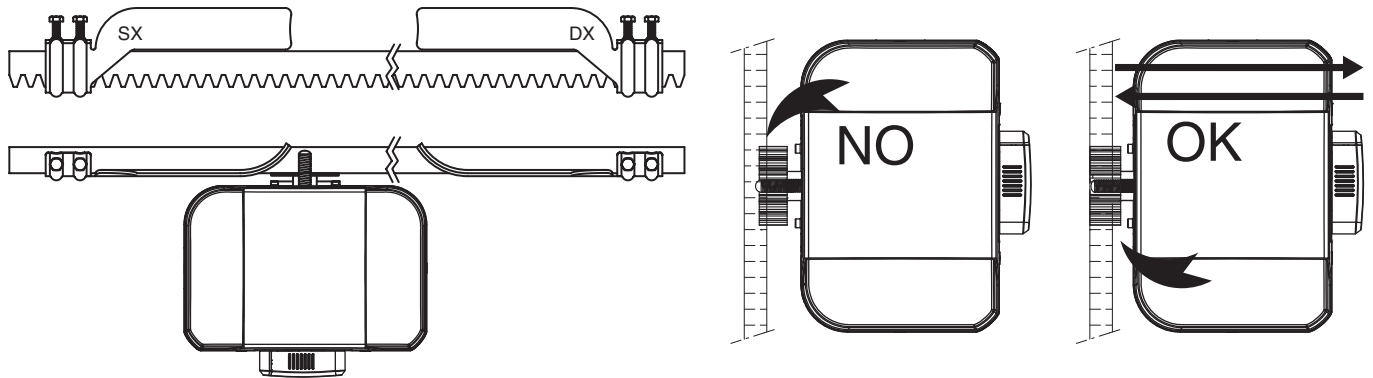
2.3 Dimension of Device



2.4 Installation of Motor Gear and Gear Rack



2.5 Checking for Installation



2.6 Emergency Release

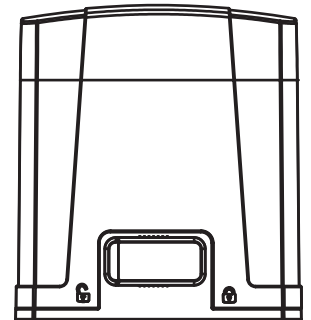
In the case of power failure for emergency release of the motor, please follow the procedure as below:

Step1. Push the lid of release chamber and move rightward

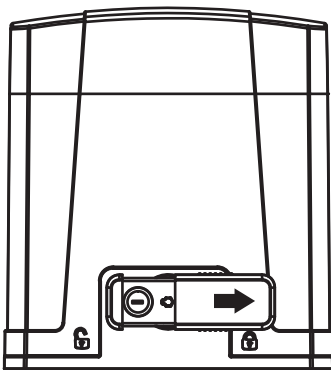
Step2. Insert the key and turn counterclockwise to unlock the device.

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

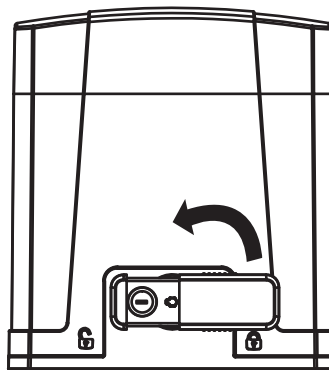
To restore the automation, simply reverse the above procedure.



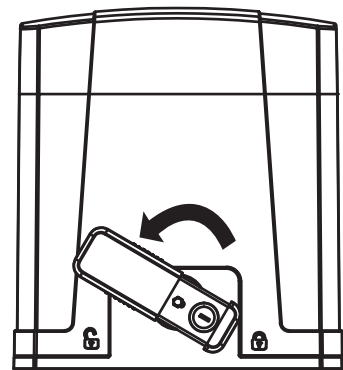
Step1.



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.

PF-1



⇒ PF-1 ③ + ④



⇒ TX1: ⑥ + ⑨

⇒ RX1: ⑥ + ⑦ + ⑨

TX2

RX2



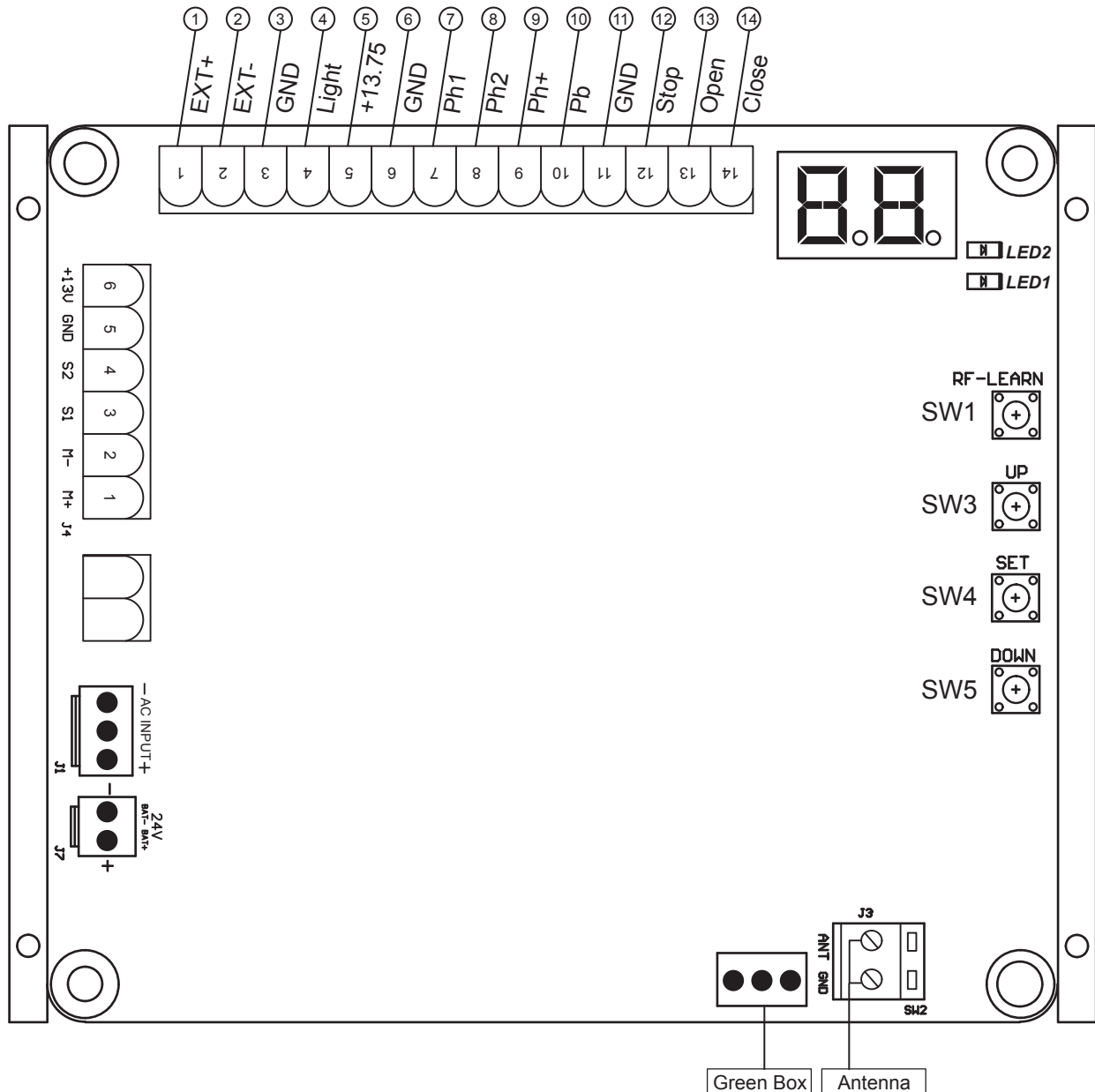
⇒ TX2: ⑥ + ⑨

⇒ RX2: ⑥ + ⑧ + ⑨

PPB-1 PKS-1



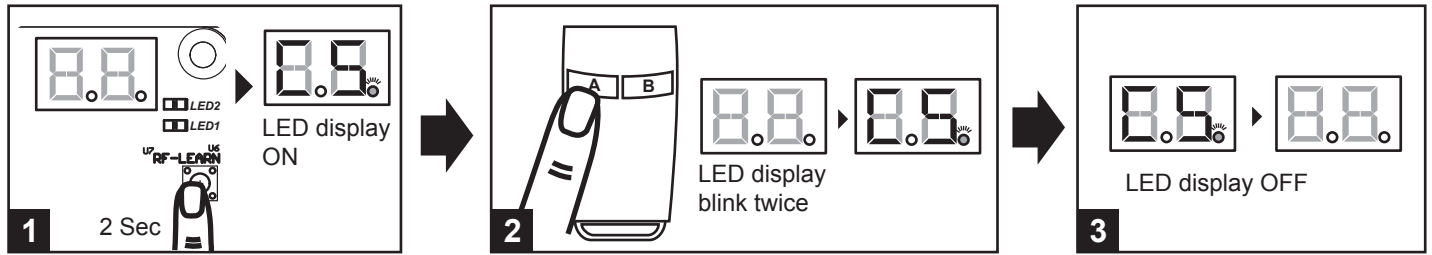
⇒ PPB-1, PKS-1: ⑩ + ⑪



3.2 Transmitter Memorizing and Erasing Process

(1) Transmitter Memorizing: Press "RF Learn" button for 2 seconds, and the LED display shows "CS"; then press the transmitter left button (A); the LED display will blink twice and then be off. The transmitter learning is completed. **1 2 3**

(2) Erasing Memory: Press "RF Learn" button for 5~6 seconds as right LED display is on, then wait for LED display off.



3.3 System Learning, Reset Process, and LED Display

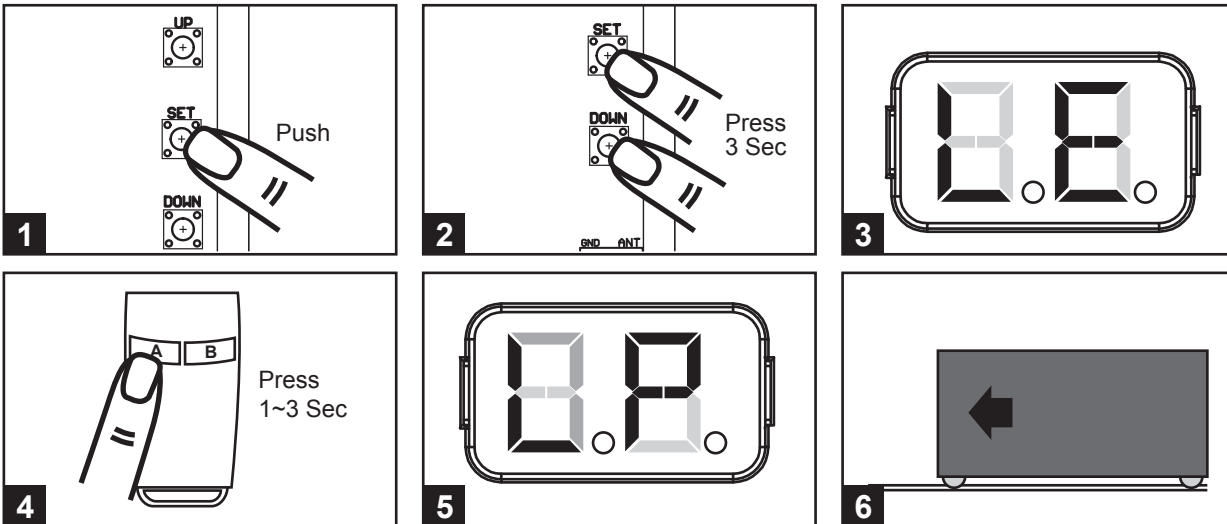
! CAUTION: Before proceeding to system learning, the transmitter memorizing process has to be completed.

(1) To Complete the System Learning:

Step1: Press "SET"; then press "SET" + "DOWN" for 3 seconds, and the LED display shows "LE" **1 2 3**

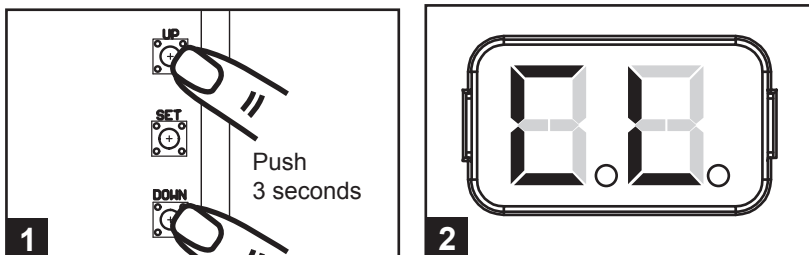
Step2: Press left button (A) on time, the LED display should show "LP" **4 5**

Step3: The gate goes to Auto-learning, please wait for the learning process to be completed **6**



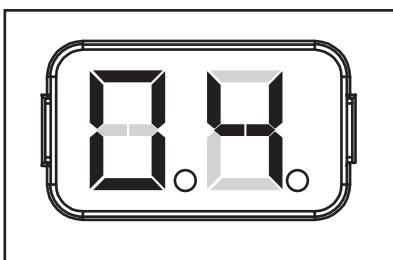
(2) To Reset Factory Setting:

Press UP and DOWN for 3 seconds, and the LED display shows "CL"








(3) Motor current auto-detection

The LED display shows the current consumption of the motor



"0.4" : During the system learning procedure, the control panel will automatically detect the current consumption from each motor, indicate the resistance level of the gate while the motor operation. If this reading increase instantly or stay in high reading, please check if any object in between of the gate moving area, and contact your installer for inspection.

LED Display	Programmable Functions
	"-L": The system learning is not done.
	"OP": The system is in normal operation To program, press SET button for 3 seconds, when the LED display change from OP to 1, press UP or DOWN to change function settings (1 to P). Then press SET to enter the sub function within each group, press UP or Down to select sub functions and press SET for confirmation.

LED Display	Programmable Functions
	"LE": Enter learning mode and then wait for learning instructions.
	"LP": The system learning is in progress. The Auto-learning process of gate moving: "Gate open to the end- stop close to the end- stop."
	"CL": Reset Factory Setting.

3.4 Programmable Function Settings

LED Display	Definition	Function	Value	Description
1	Options ofGate Opening direction	1-1	Clockwise Opening	1. The function can adjust the direction of gate opening. 2. The factory setting is "1-1".
		1-2	Counterclockwise Opening	
2	Automatic Closing	2-0	No automatic closing	1. This function can cause the gate to close automatically after the paused time. 2. The factory setting is "2-2": 15 Secs as the pause time.
		2-1	5 seconds	
		2-2	15 seconds	
		2-3	30 seconds	
		2-4	45 seconds	
		2-5	60 seconds	
		2-6	80 seconds	
		2-7	120 seconds	
		2-8	180 seconds	
3	There actions of the photocells / safety edge / loop detector when they detecting obstacles	3-1	Please the function setting after 8	1. Please do the function setting after H & J 2. The factory setting is "3-1".
		3-2		
		3-3		
4	Motor Speed (% full speed)	4-1	50% Learning Speed	1. The function can adjust the running speed of motor. 2. The factory setting is "4-4".
		4-2	70% Learning Speed	
		4-3	85% Learning Speed	
		4-4	100% Learning Speed	
5	The deceleration setting for gate moving	5-1	75% of full distance	1. The factory setting is "5-1".
		5-2	80%	
		5-3	85%	
		5-4	90%	
		5-5	95%	
6	Deceleration Speed (% full speed)	6-1	80%	1. The factory setting is "6-4"
		6-2	60%	
		6-3	40%	
		6-4	25%	
		6-5	10%	
7	Over current setting	7-1	2A	1. The function can adjust the running force of motor to be compatible with the gate weight. 2. The factory setting is "7-5".
		7-2	3A	
		7-3	4A	
		7-4	5A	
		7-5	6A	
		7-6	7A	

LED Display	Definition	Function	Value	Description
8	Open Partially (Pedestrian mode)	8-1	3seconds	1. The function can adjust the time of opening partially. 2. The factory setting is "8-2".
		8-2	6seconds	
		8-3	9seconds	
		8-4	12seconds	
		8-5	15seconds	
		8-6	18seconds	
9	Pre-flashing	9-0	The flashing light blinks when the gate starts to move.	1. The factory setting is "9-0".
		9-1	The flashing light blinks 3 seconds before the gate starts to move.	
A	Over current reverse setting	A-0	Stop	1. The factory setting is "A-3". 2. The reverse function only operate 3 times and then stop. 3. If gate reverses, the auto close function will be cancelled.
		A-1	Reverse 1 second	
		A-2	Reverse 3 second	
		A-3	Reverse to the end	
C	Open-stop-close-stop function key	C-1	A key	1. The factory setting is "C-1".
		C-2	B key	
		C-3	C key	
		C-4	D key	
E	Open Partially function key	E-0	No function in transmitter	1. The factory setting is "E-2".
		E-1	A key	
		E-2	B key	
		E-3	C key	
		E-4	D key	
F	External device control function key	F-0	No function in transmitter	1. The factory setting is "F-3".
		F-1	A key	
		F-2	B key	
		F-3	C key	
		F-4	D key	
H	Photocell 1 function	H-0	Close	1. The factory setting is "H-0".
		H-1	Open	
J	Photocell 2 function	J-0	Close	1. The factory setting is "J-0".
		J-1	Open	
L	Emergency Stop Button	L-0	Close	1. The factory setting is "L-0".
		L-1	Open	
P	Remote Logic	P-1	Open-Stop-Close-Stop	1. The factory setting is "P-1".
		P-2	Open-Stop-Close	

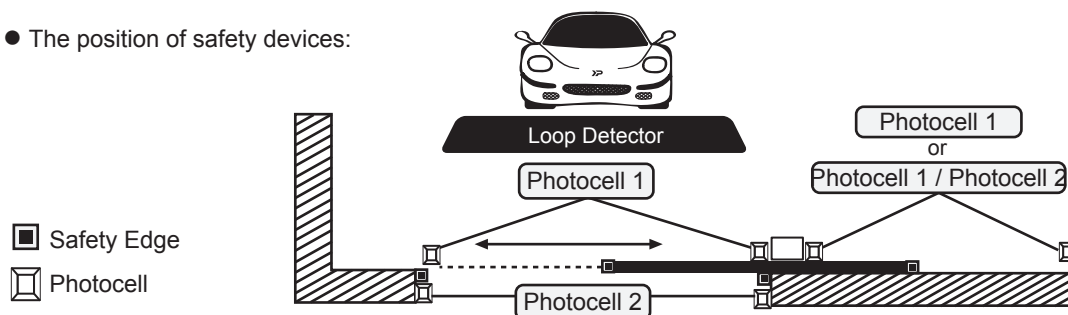
- F3 function settings:

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 Recognition of LED

LED Indication	Descriptions
LED1 Photocells	LED1 will be on when the first pair of the photocells are activated.
LED2 Photocells	LED2 will be on when the second pair of the photocells are activated.

4. Technical Characteristics:

4.1 Technical Data Sheet Of Series

Motor	PL300E	PL400E	PL500E	PL800E
Gear type	Worm Gear	Worm Gear	Worm Gear	Worm Gear
Peak thrust	3500N	4500N	5500N	7000N
Nominal thrust	3000N	4000N	5000N	2600 RPM
Engine RPM	3400RPM	3800RPM	3800RPM	3800 RPM
Absorbed Power	72W	100.8W	144W	120W
Power supply	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Nominal input power	3A	4.2A	6A	6A
Maximum gate weight	Up to 300 KG	Up to 400 KG	Up to 500 KG	Up to 800 KG
Maximum gate length	4M	5M	6M	8M
Maximum operating current	3A for Maximum 10 secs	4A for Maximum 10 secs	5.5A for Maximum 10 secs	5.5A for Maximum 10 secs
Operating Temperature	-20°C~+50°C	-20°C~+50°C	-20°C~+50°C	-20°C~+50°C
Dimension LxWxH mm.	250*170*275mm	250*170*275mm	250*170*275mm	250*170*275mm
Weight	7.5kg	8kg	8kg	9.5 kg
Speed	24.25 cm/s	27.10 cm/s	27.10 cm/s	18.55 cm / sec

4.2 PH-2 Photocell Data Sheet

Detection type	Through beam
Operating distance	25 meters
Response time	100ms
Input voltage	AC/DC 12~24V
Operating Temperature	-20°C~+60°C
Protection class	IP54
Dimension	96mm * 45mm * 43mm

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°C~+50°C
Dimension	71.5mm * 33mm * 14mm

4.4 PF-1 Flashing Light Data Sheet

Application	For outdoor use
Installation	Wall mounted vertically
Operating Temperature	-20°C~+50°C
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:

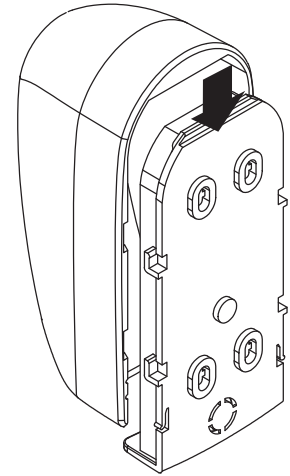
5.1. PHOTOCELL INSTALLATION GUIDE

The safety photocells are security devices for control automatic gates. Consist of one transmitter and one receiver based in waterproof covers; it is triggered while breaking the path of the beams.

SPECIFICATION:

Detection Method	Through Beam
Sensing Range	25M
Input Voltage	AC/DC 12~24V
Response Time	100MS
Emitting Element	IR LED
Operation Indicator	Red LED(RX): ON(When Beam is Broken), Green(TX):ON
Dimensions	96*45*43mm
Output Method	Relay Output
Current Consumption Max	TX: 35MA/Rx: 38MA (When beam aligned properly); TX: 35MA/ Rx: 20MA (When beam is broken)
Water Proof	IP54

Figure 4(1)



INSTALLATION:

Wire Connection of PH-2 Photocells See **figure 4(2)**

TX: Connect terminals 1 and 2 on the transmitter with the terminals Ph+ and GND on the P600B PCB.

RX: Connect terminals 1, 2 and 4 on the receiver with the terminals Ph+, GND and Ph1 on the P600B PCB.

And use an extra wire to connect terminals 2 and 5 on the receiver as a bridge.

Figure 4(2)

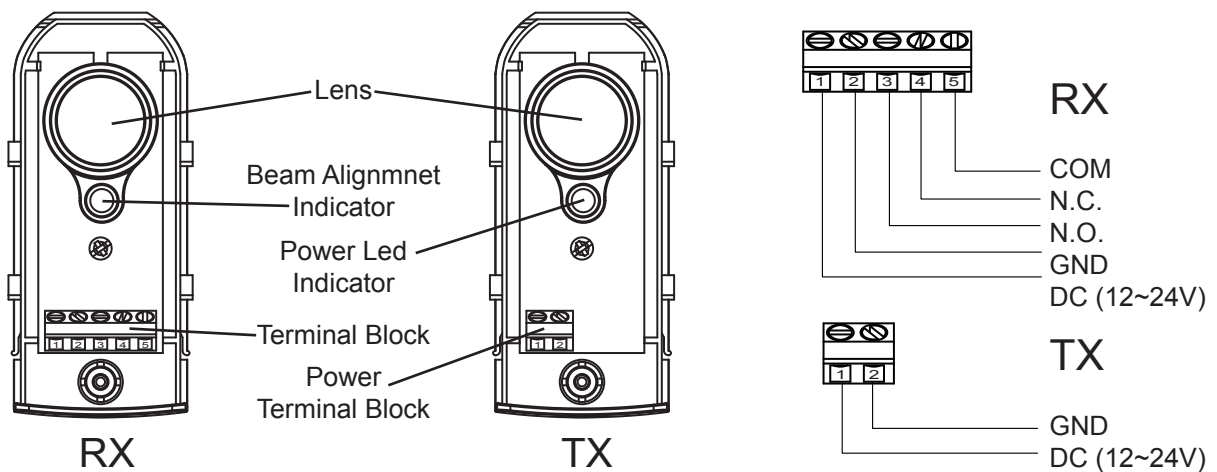
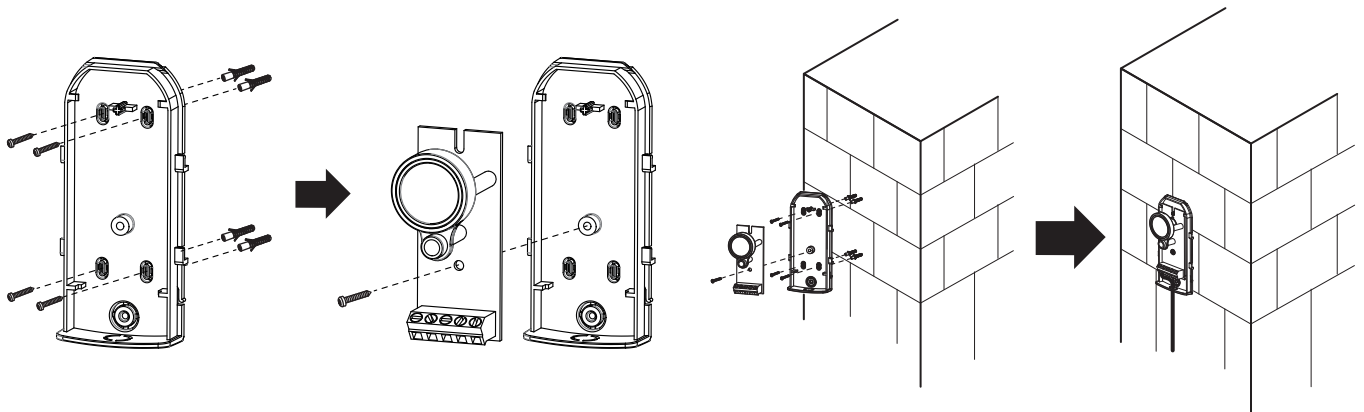
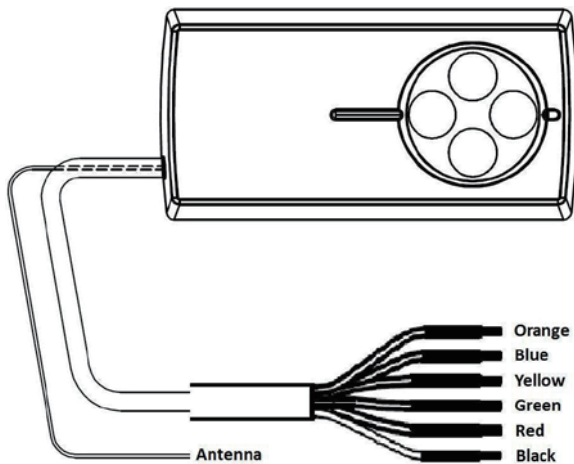


Figure 4(3)



5.2 Wire Connection and Setting of PRB-1 External Receiver 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:

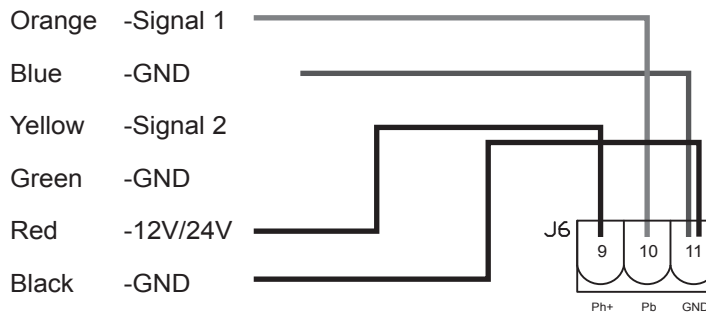
In order to use one 4 channel remote to operate with additional device besides the original gate automation system. Install a receiver box to connect with the 2nd device (such as another Slider) or the 3rd device (Such as garage automation system)

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 Slider, shown as below) use button C on the same remote to control the 2nd device

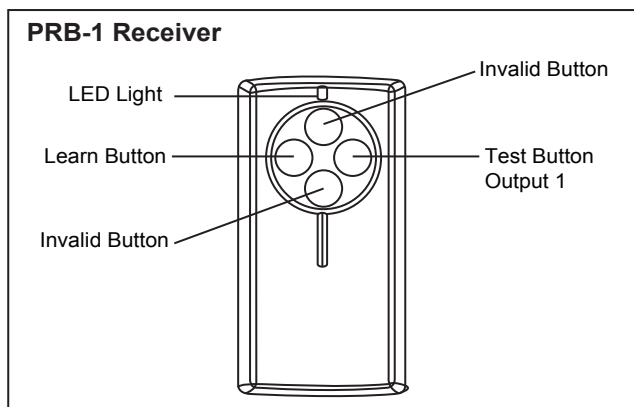
3rd device: install an external receiver box, connect the output 2 to the 3rd device (such as garage door), use the Button D now to operate.

2. Wire Connection:



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

3. Device Testing & Remote Memorization



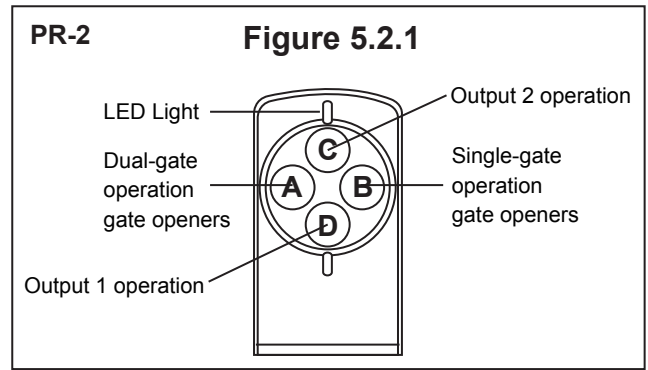
- After connect all necessary cables properly , press Test Button to exam if the output 1 is working, the gate opener should operate.
- If Output 1 is functional, press and hold Learn Button for 1 second, the LED light should be "ON"
* If the LED does not respond, please check the cable connection again
- 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"

4. Memory Erasing

Press and hold learn button on the receiver box for 10 seconds.

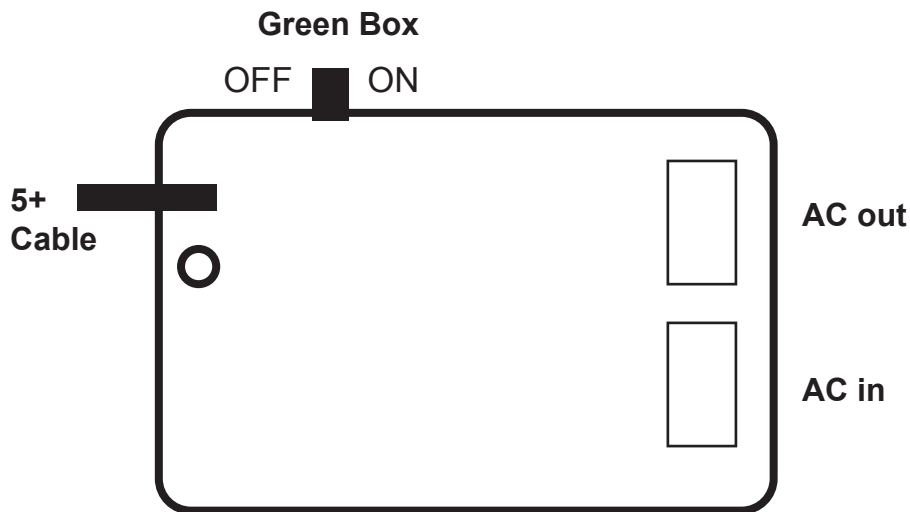
5. 4 Channel Transmitter Operation

Please refer to figure 5.2.1



5.3 Green Box Installation Guide

Green Box is for purpose when gate opener is in standby mode to allow it enter the power saving mode.



Installation manner:

AC IN: connect the electricity

AC OUT: connect the power of gate opener, and connect the transformer

5V CABLE: connect 3 pins white socket of control board

Please make sure the switch of Green Box is off before proceeding the system learning and installation of device. Wait for the system learning and installation of device to be completed, power on the Green Box

Gate opener will enter power saving mode without receiving any instruction in 1 min, and red LED light on Green Box will be activated. Gate opener start the operation, red LED light and power saving mode will turn off.

CAUTION:

In case of loop or installation of photocell which need power consumption anytime, please do not install Green Box.