

GTR502 & GTR503

ARTICULATED ARM OPENERS

**24V DC MOTOR FOR RESIDENTIAL
USER MANUAL**



Reuse
Reduce
Recycle



1.1 WARNING:

This user manual is only for qualified technicians who is specialized in installations and automations.

- (1) All installations, electrical connections, adjustments, and testing must be performed only after reading and understanding of all instructions carefully.
- (2) Before carrying out any installation or maintenance operation, disconnect the electrical power supply by turning off the magneto thermic switch connected upstream and apply the hazard area notice required by applicable regulations.
- (3) Make sure the existing structure is up to standard in terms of strength and stability.
- (4) When necessary, connect the motorized gate to reliable earth system during electricity connection phase.
- (5) Installation requires qualified personnel with mechanical and electrical skills.
- (6) Keep the automatic controls (remote, push bottom, key selectors...etc) placed properly and away from children.
- (7) Only original parts should be used for any repair or replacement. Any damage caused by incorrect parts and methods will not be covered under warranty.
- (8) Never operate the automated opener if you suspect that it might be faulty or damaged.
- (9) The motors are exclusively designed for the gate opening and closing application, any other use is deemed inappropriate. Improper usage should void all warranty, and the user accepts sole responsibility for any risks thereby may accrue.
- (10) The system may only be operated in proper working order. Always follow the standard procedures by following the instructions in this installation and operating manual.
- (11) Only command the remote when you have a full view of the gate.
- (12) A safety beam or photocell should be fitted to any automated opener.

Check your local council for regulations.

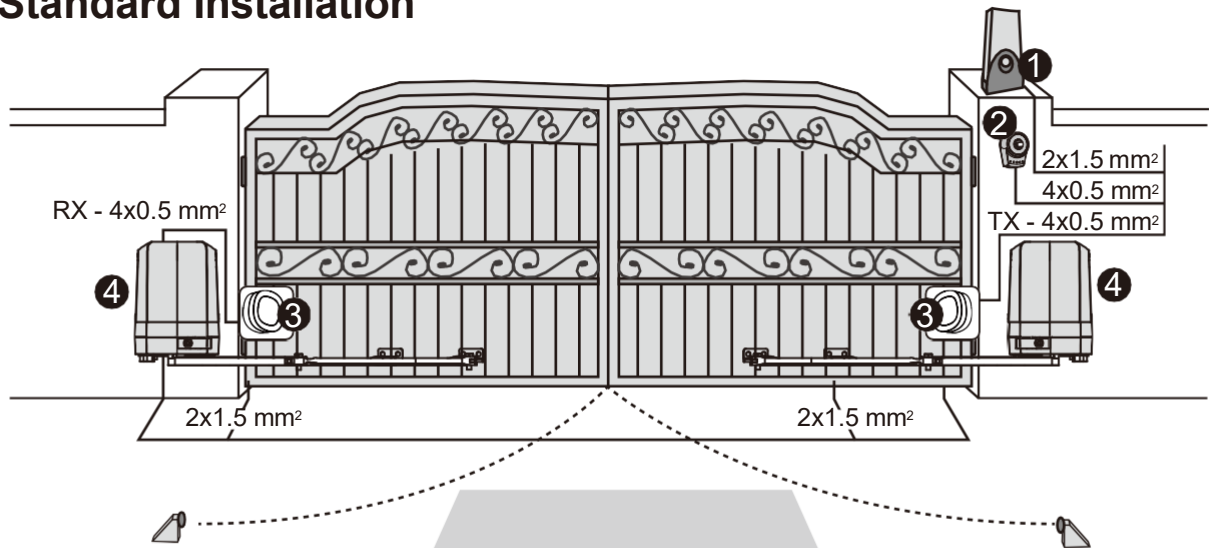
Please keep this installation manual for future reference.

CONTENTS

1.2 Installation	4
1.2.1 Standard Installation	4
1.2.2 Dimension Chart	4
1.2.3 Components of Installation	5
1.2.4 Installation of Articulated Arm Opener	5
1.2.5 Emergency Release	6
2.1 Wiring Connection	7
2.1.1 Master Motor is installed at right side	8
2.1.2 Master Motor is installed at left side	9
3. Get Started	10
3.1 Step 1: Remote Memorizing	10
3.1.1 Memorizing	10
3.1.2 Remote learning without control board	10
3.1.3 Deleting all memory of all remotes	10
3.2 Step 2: System Learning	11
3.3 Gate-moving Logic	12
3.4 Checking the Gate Movement	12
3.5 LED Indication	12
3.5.1 Function of the LED Display	12
3.6 Parameter	13
3.6.1 Parameter Learning	13
3.6.2 Parameter	13
3.6.3 Photocell Logic	16
4. Dimension	17
5. Technical Features	18
6. Maintenance	18
7. Technical Support	19

1.2 Installation

1.2.1 Standard Installation



1. 24V DC blinker with integrated antenna
2. Push Button
3. Photocells
4. 24V DC articulated arm opener
5. TM3 Transmitter

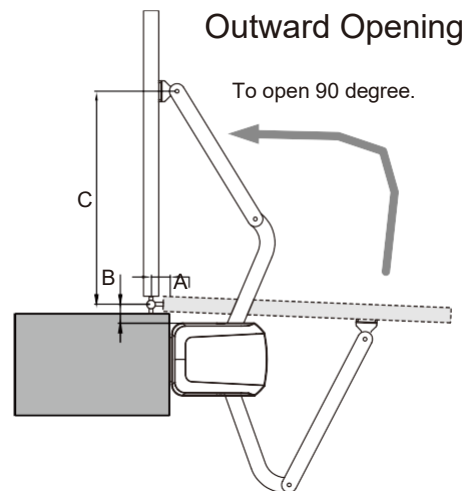
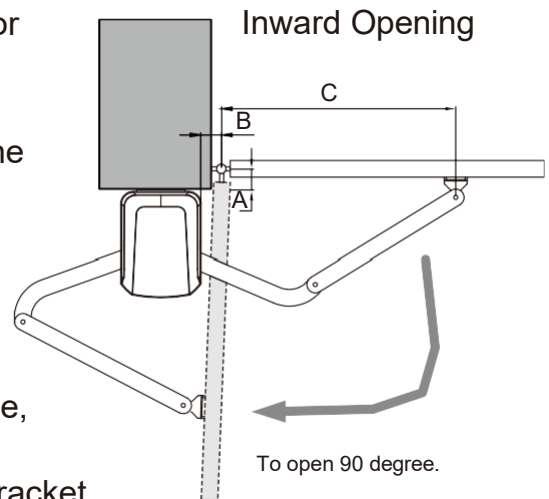
1.2.2 Dimension Chart

Please comply with the measures shown on the chart for proper installation. If necessary, please adjust the gate structure to the best operation.

Before starting the installation, please make sure that the gate moves smoothly and that:

- 1) Hinges are properly positioned and greased.
- 2) There are no obstacles in the operating area.
- 3) No friction between two leaf gates and on the ground while moving.
- 4) Installation reference: to open the gate with 90 degree, please refer the data table below:

- A: Distance between the gate hinge and the wall bracket.
 B: Distance between the gate hinge and the motor side.
 C: Distance between the gate hinge and the fixing point of the arm.

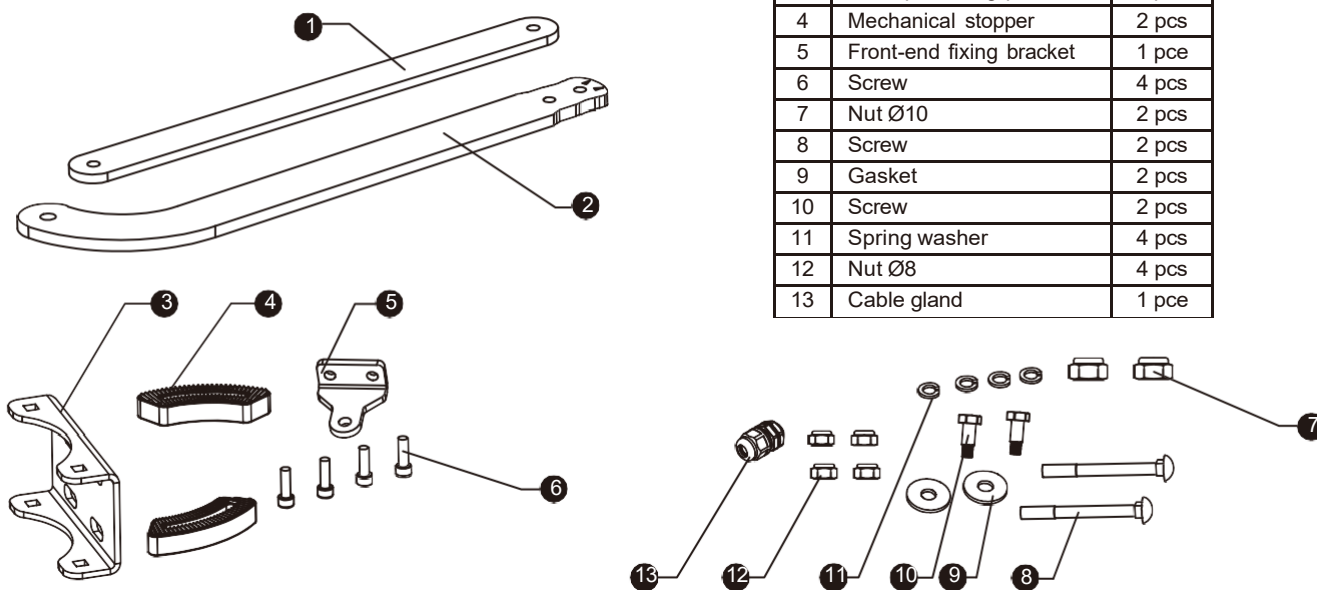


		B		
		50	100	150
A	C ↙	50	100	150
	50	625	575	545
	100	615	565	540
	150	600	550	/
	200	585	535	/
	250	565	515	/
300	540	/	/	

unit: mm

1.2.3 Components of Installation

1	Straight arm	1 pce
2	Curved arm	1 pce
3	U-shaped fixing plate	1 pce
4	Mechanical stopper	2 pcs
5	Front-end fixing bracket	1 pce
6	Screw	4 pcs
7	Nut $\varnothing 10$	2 pcs
8	Screw	2 pcs
9	Gasket	2 pcs
10	Screw	2 pcs
11	Spring washer	4 pcs
12	Nut $\varnothing 8$	4 pcs
13	Cable gland	1 pce

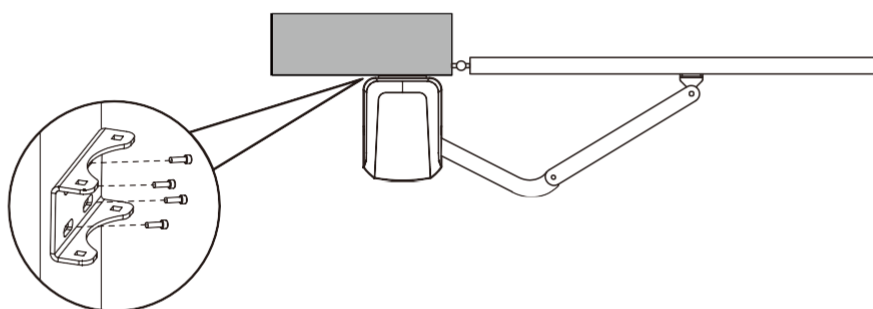
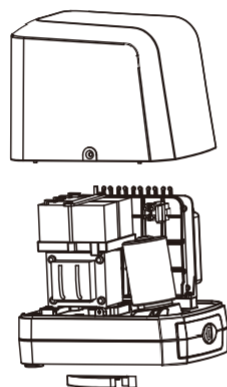


1.2.4 Installation of Articulated Arm Opener

1. Refer to the Dimension Chart to choose the correct dimensions of the motors and position to be installed.
2. Check if the mounting surface of the brackets to be installed is smooth, vertical, and rigid.
3. Arrange the cables for power supply cable of the motors, make sure power supply cable is connected to motor.
4. Motor installation and setting for mechanical stopper in opened and closed position.

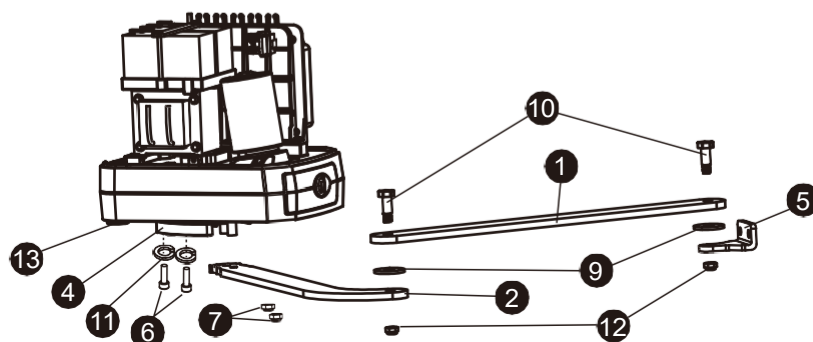
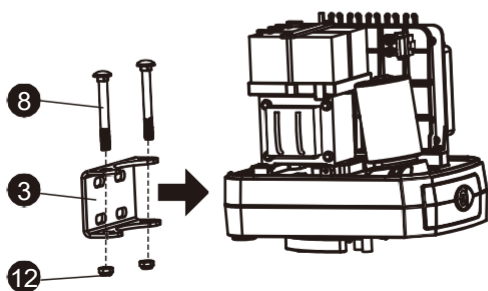
1) Remove the upper cover and mechanical stoppers on the bottom of motor.

2) Place the gate in the full closed position and fix the U-shaped fixing plate on the wall.



3) Install the motor on the U-shaped fixing plate with corresponding screws and nuts.

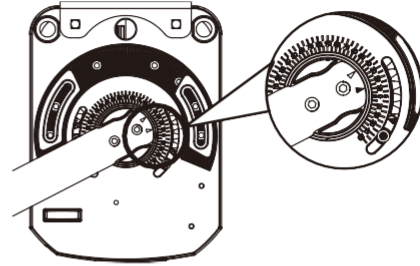
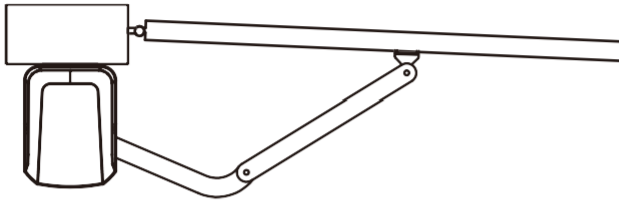
4) After positioning the front of curved arm on the bottom of motor, release the motor and position the straight arm on the end of curved arm and mounting bracket with corresponding screws and nuts.



5) Closed position adjustment:

5.1 After the full closed position decided, fix the corresponding mechanical stopper at the position.

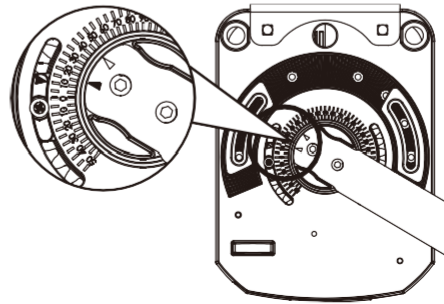
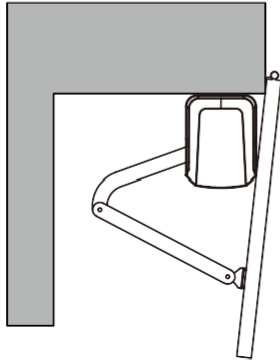
5.2 After the full closed position decided, make the pointer on limit switch aligned with the pointer on the curved arm.
(Red points shown on the figure below indicate the pointers)



6) Opened position adjustment:

6.1 Adjust the gate to full opened position and after the position decided, fix with corresponding mechanical stopper.

6.2 Adjust the gate to full opened position and after the position decided, make the pointer on the limit switch aligned with the pointer on the curved arm. (Red points shown on the figure below indicate the pointers)



1.2.5 Emergency Release

1) Insert the release key to the release slot.

2) Turn the release key anti-clockwise.

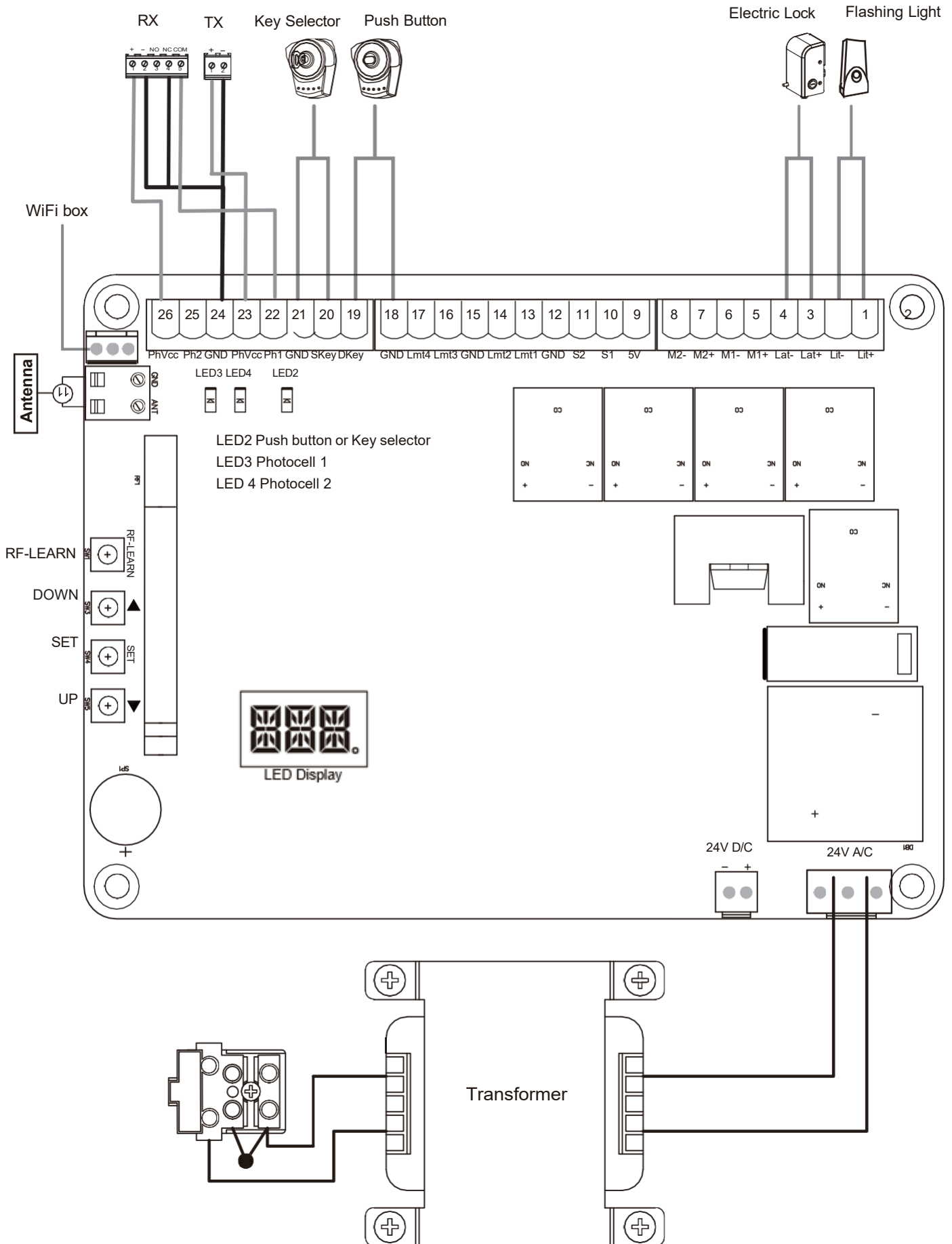
3) Pull out the release bar.

4) Turn the release key clockwise to fix the release bar, the release bar must be in pulled out position when turning the release key clockwise.



2.1 Wiring Connection

Figure 2(1)



2.1.1 Master Motor is installed at right side

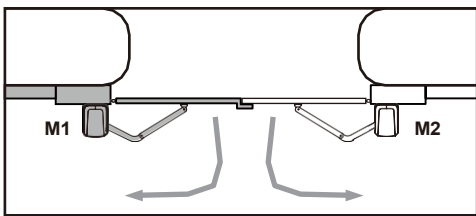
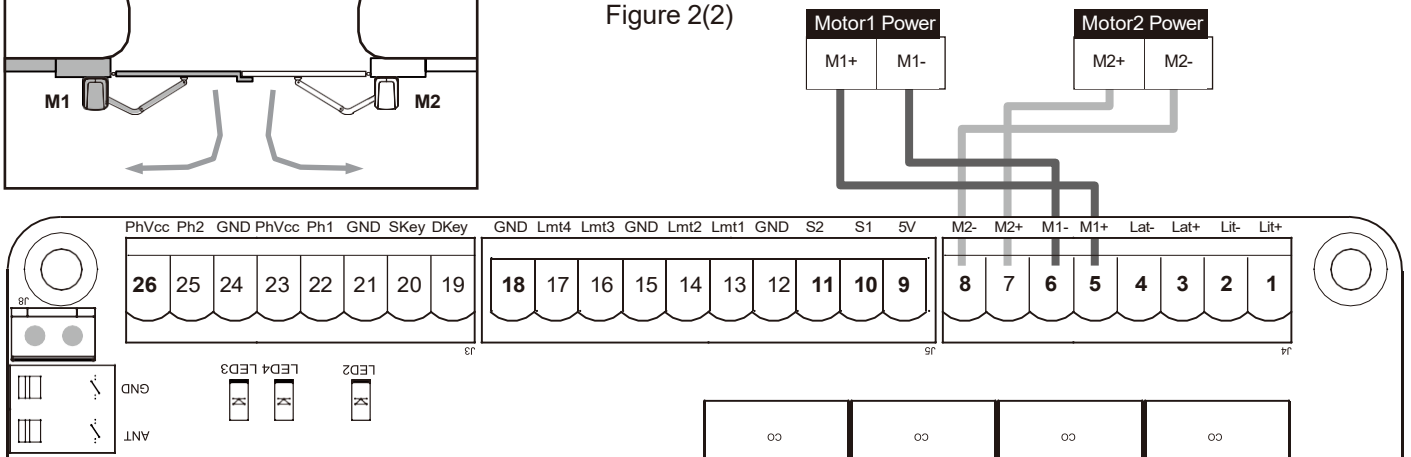
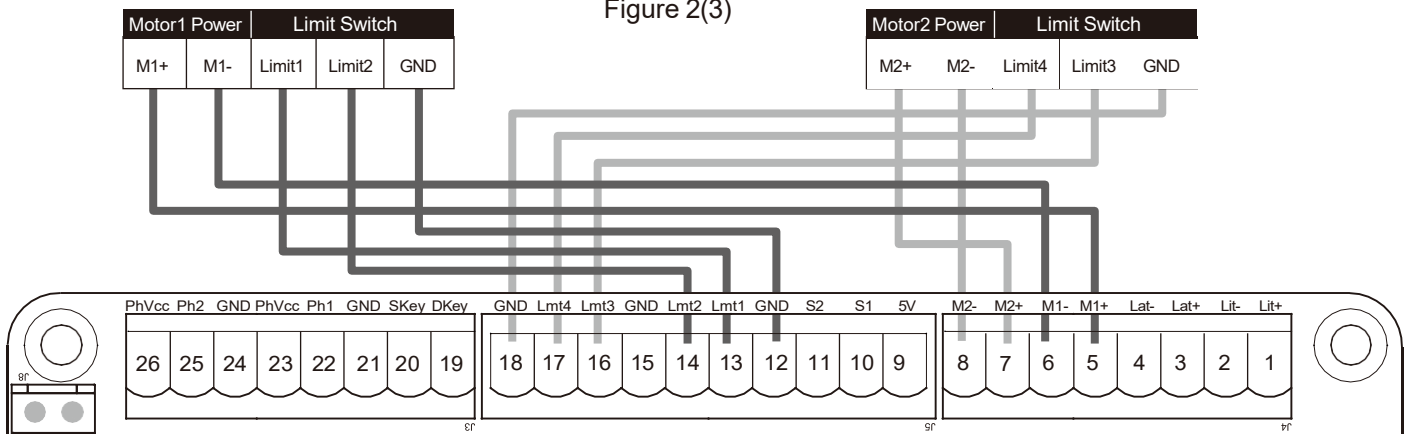


Figure 2(2)



Motor with Limit switch

Figure 2(3)



Remark:

- Limit1, Limit3 (Open limit)
- Limit2, Limit4 (Close limit)

2.1.2 Master Motor is installed at left side

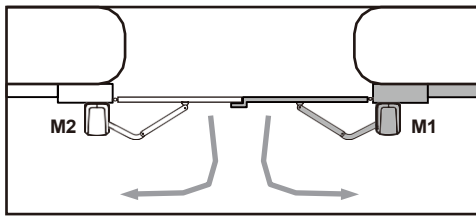
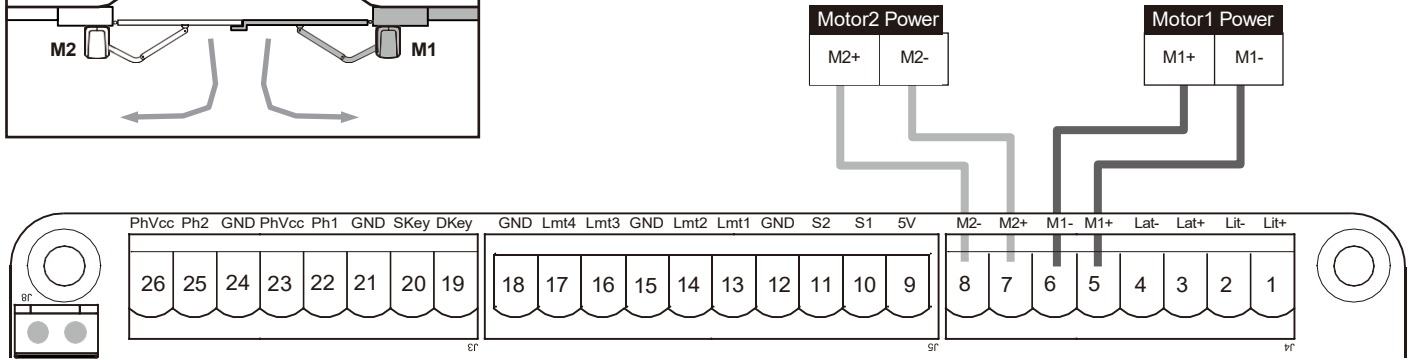
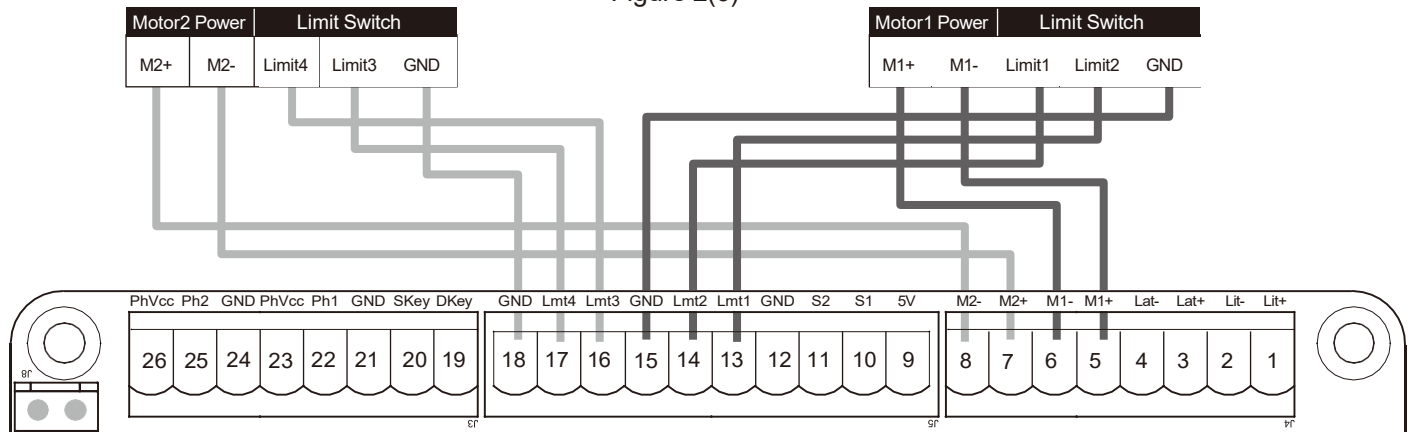


Figure 2(5)



Motor with Limit switch

Figure 2(6)



Remark:
 Limit1, Limit3 (Close limit)
 Limit2, Limit4 (Open limit)

3. Get Started

Note:

(A) Remote memorizing must be done before system learning.

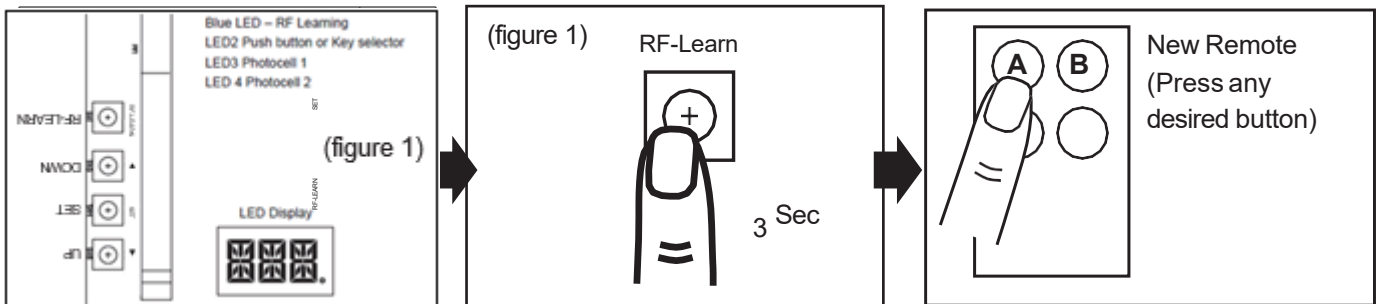
(B) **Verifying the GATE CONDITION.**

- 1) Release the gear with the release key and move the gate to the middle so the gate can move in both opening and closing directions; then lock the gear.
- 2) Operate the gate to opened and closed position several times and make sure the gates touches the limit switch at least 2~3 cm before the mechanical stop.

3.1 Step 1: Remote Learning

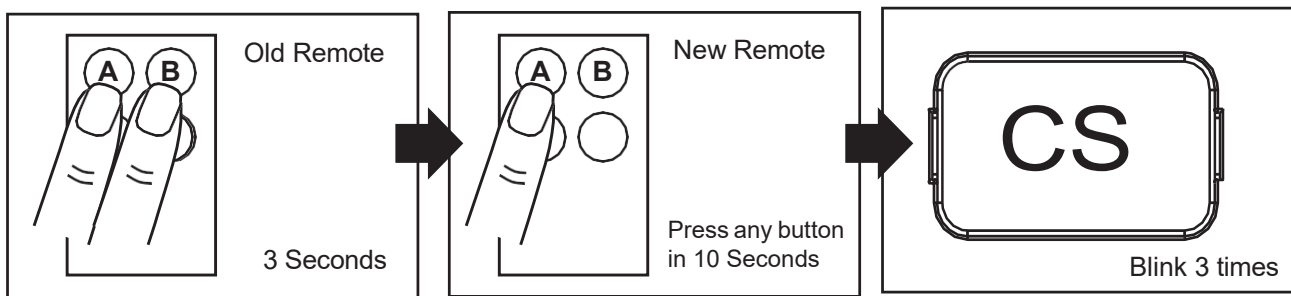
3.1.1 Learning

1. Press "RF Learn" button for 3 seconds, and the LED display shows "CS". Then press any desired button on the remote; the LED display will blink "CS" three times and stay on. After 7 seconds without any new remote input the LED will be off. The transmitter learning is completed.



3.1.2 Remote learning without Control board:

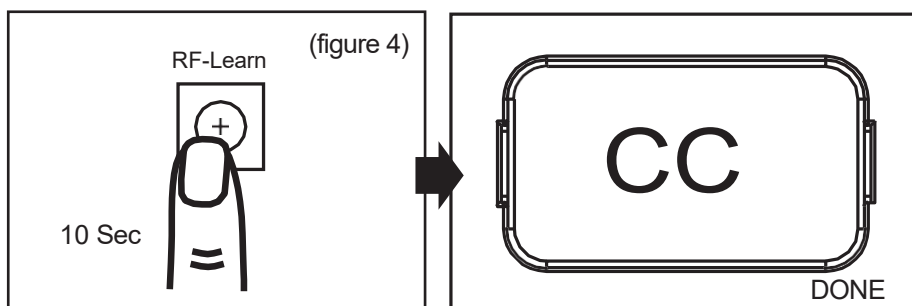
- (1) Press the A & B buttons on the OLD remote and hold down for at least 5s, then release them. (the alarm will buzz 2 secs, and LED will display "CS")
- (2) Press any desired button on the NEW remote within 10 seconds (the alarm will buzz 3 times, LED blinks "CS" for 3 times)



3.1.3 Deleting all memory of all remotes:

With this operation all the memorized transmitters will be deleted.

- (1) Press and hold down RF-LEARN button (Figure 4) on the control board for 10 seconds.
- (2) Wait until the LED display shows "CC". All memory is deleted.



3.2 Step 2: System Learning

Note – Before performing system learning, check your system parameters. “F1” should be set to single or double (factory default is double)

Step1:

Press and hold SET & DOWN buttons for 3 secs, until the LED shows “LEA”.

Within 20 seconds, press the paired button on your remote, or the set button on the PC board.

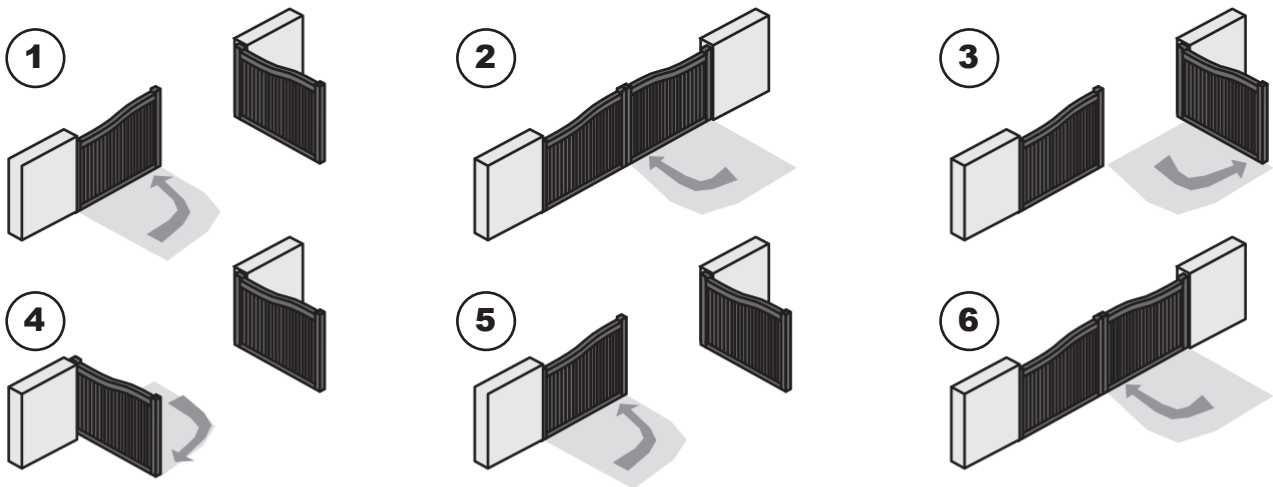
Note:

1. LED shows "D-G" tells the system, learning has been completed for Dual Gate installation.
2. LED shows "S-G" tells the system, learning has been completed for Single Gate installation.



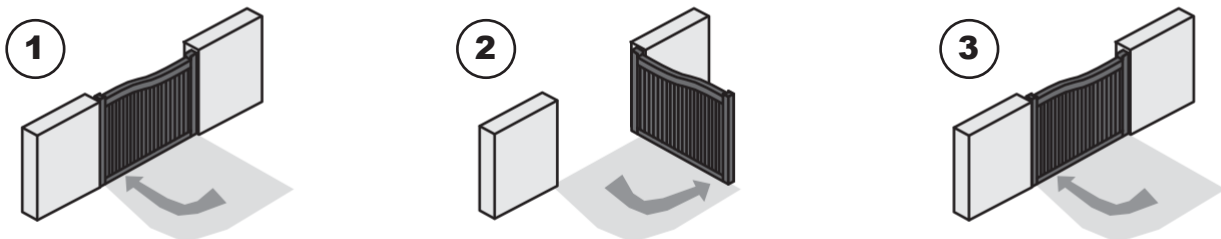
A. Dual Gate

- (1) Slave Gate Close → (2) Master Gate Close → (3) Master Gate Open →
(4) Slave Gate Open → (5) Slave Gate Close → (6) Master Gate Close



B. Single Mode :

- (1) Master Gate Close → (2) Master Gate Open → (3) Master Gate Close



Restore system default setting

Press and Hold the UP + DOWN button for 5 secs and panel restores back to default setting

3.3 Gate-moving Logic

- (A) In gate-opening phase: The gates stop if the transmitter/push button/key selector is activated, and close when the transmitter/push button/key selector is reactivated.
- (B) In gate-closing phase: The gates stop if the transmitter/push button/key selector is activated, and open when the transmitter/push button/key selector is reactivated.
- (C) In gate-opening or gate-closing phase: For safety purpose, the gates stop if encountering obstacles.

3.4 Checking the Gate Movement

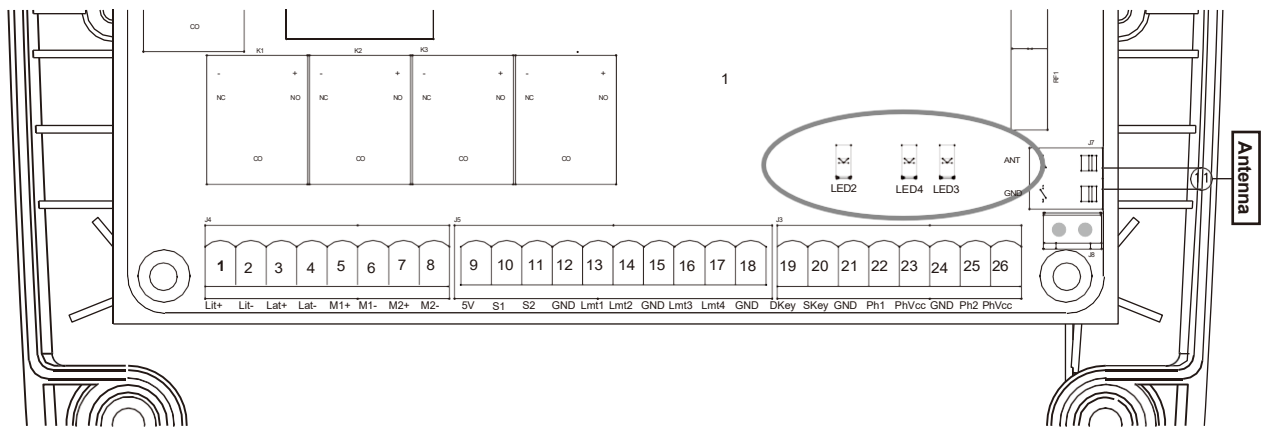
- 1). Release the gear with the release key and move the gate to the middle so that it can move in both opening and closing directions; then lock the gear.
- 2). Operate the gate to opened and closed position several times, and make sure the gates reaches the limit switch at least 2~3 centimeters before the mechanical stop.

3.5 LED Indication

LED2 D Key/S Key Key selector, or the push button is activated, LED2 will be on.

LED4 Ph1 LED4 will be on when Ph1 are triggered.

LED3 Ph2 LED3 will be on when Ph2 are triggered.

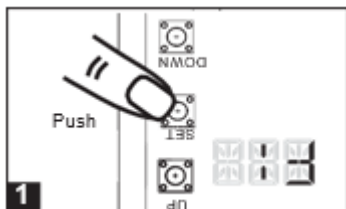


3.5.1 Function Of The LED Display

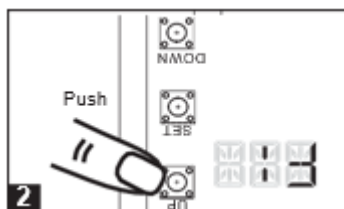
LED Display	Programmable Functions	LED Display	Programmable Functions
	[LEA] means system is in learning mode, do not interrupt during this procedure.		When the gate is stopped, the LED Display show 'STP' until next command has been made, after 10s no further movement, the LED turns to OFF
	[D-G] means system has completed the learning procedure for dual gate installation.		When the gate is closing, the LED Display shows 'CLS' for 2s and then change to Amp current indication
	[S-G] means system has completed the learning procedure for single gate installation.		LED display shows "S01" means the panel has not detected the M1+/M1- and M2+/M2- both been connected before the system learning procedure, check for motor wire connection, for dual gate system
	[N-L] means system learning failed.		LED display shows "S02" means the panel did not detected the M1+/M1- but detected M2+/M2- been connected, notice the installer to check the motor wire connection, if this is single gate system, motor wire should connect to M1+/M1- not on M2+/M2-
	The memory of the system is all deleted/cleaned by press and hold the UP + SET+ DOWN button together for 5s and the panel will be back to default settings		LED display show "S03" means same button on the remote has been identified for more than 2 functions
	When the gate is opening, the LED Display show 'OPN' for 2s and then change to Amp current indication		

3. 6 Parameter

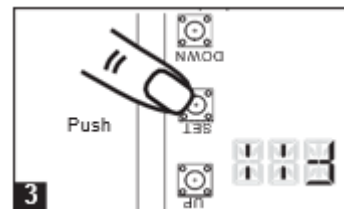
3.6.1 Parameter Learning



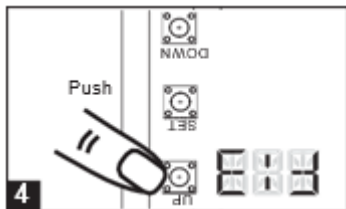
Press "SET" for 3 secs to get into the program setting display from F1



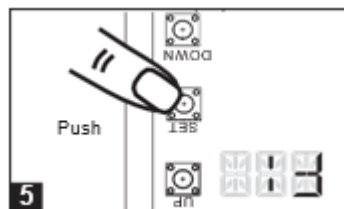
Press "UP" or "DOWN" to change setting items from F1 to FW.



Press "SET" button again to get into the sub-setting



Press "UP" for "DOWN" to change from F11 to F12



Press "SET" button again to confirm

3.6.2 Parameter

LED Display	Definition	Parameter	Table	Description
F1	Dual / Single Gate	F11	Single Gate	1. The factory setting is "F12"
		F12	Dual Gate (Default)	
F2	Motor Type	F21	Physical Stopper (Default)	1. The factory setting is "F21".
		F22	Limit Switch	
		F23	Hall Sensor	
F3	Overcurrent for Gate Opening	F31	2A	1. The factory setting is "F33".
		F32	3A	
		F33	4A (Default)	
		F34	5A	
		F35	6A	
		F36	7A	
F4	Overcurrent for Gate Closing	F41	2A	1. The factory setting is "F43".
		F42	3A	
		F43	4A (Default)	
		F44	5A	
		F45	6A	
		F46	7A	
F5	Motor Speed for Opening	F51	50% of full speed	1. The factory setting is "F55".
		F52	60% of full speed	
		F53	70% of full speed	
		F54	80% of full speed	
		F55	90% of full speed (Default)	
		F56	100% of full speed	
F6	Motor Speed for Closing	F61	50% of full speed	1. The factory setting is "F65".
		F62	60% of full speed	
		F63	70% of full speed	
		F64	80% of full speed	
		F65	90% of full speed (Default)	
		F66	100% of full speed	

LED Display	Definition	Parameter	Value	Description
F7	Deceleration Speed for Opening	F71	20% of full speed	1. The factory setting is "F73".
		F72	30% of full speed	
		F73	40% of full speed (Default)	
		F74	50% of full speed	
F8	Deceleration Speed for Closing	F81	20% of full speed	1. The factory setting is "F83".
		F82	30% of full speed	
		F83	40% of full speed (Default)	
		F84	50% of full speed	
F9	Deceleration Point for Opening	F91	75% of full distance	1. The factory setting is "F93".
		F92	80% of full distance	
		F93	85% of full distance (Default)	
		F94	90% of full distance	
		F95	95% of full distance	
FA	Deceleration Point for Closing	FA1	75% of full distance	1. The factory setting is "FA3".
		FA2	80% of full distance	
		FA3	85% of full distance (Default)	
		FA4	90% of full distance	
		FA5	95% of full distance	
FB	Time Gap b/w Two Gates (Opening)	FB0	0 sec	1. The factory setting is "FB1".
		FB1		
		FB2	4 sec	
		FB3	6 sec	
		FB4	10 sec	
		FB5	15 sec	
		FB6	20 sec	
		FB7	25 sec	
		FB8	30 sec	
FB9	35sec			
FC	Time Gap b/w Two Gates (Closing)	FC0	0 sec	1. The factory setting is "FC1".
		FC1	2 sec (Default)	
		FC2	4 sec	
		FC3	6 sec	
		FC4	10 sec	
		FC5	15 sec	
		FC6	20 sec	
		FC7	25 sec	
		FC8	30 sec	
FC9	35 sec			
FD	Auto-closing	FD0	Function OFF (Default)	<p>1. Auto-close mode activates when the gates move to the end position or stopped manually. If the transmitter, push button, or the key selector is activated before the auto-close counting, the gate will close immediately.</p> <p>2. The factory setting is "FD0".</p>
		FD1	3 sec	
		FD2	10 sec	
		FD3	20 sec	
		FD4	40 sec	
		FD5	60 sec	
		FD6	120 sec	
		FD7	180 sec	
FD8	300 sec			

LED Display	Definition	Parameter	Table	Description
FE	Safety Device Function Mode	FE1 FE2 FE3 FE4	Mode 1 (Default) Mode 2 Mode 3 Mode 4	1. Please see 3.6.3 photocell adjustment for photocell logic 2. The factory setting is "FE1".
FF	Pedestrian Mode	FF0 FF1	Function OFF Function ON (Default)	1. The factory setting is "FF1". 2. When it's set "FF0": there won't be any response while pressing remotes & D/Skey terminals 3. When it's set "FF1": *single gate installation >> master gate fully opens *dual gate installation >> master gate opens 50%
FG	Flashing Light	FG0 FG1	Function OFF (Default) Function ON	1. When function FG1, the light will flash for 3 seconds before the gate operates. If set OFF, the flash light will operate with motor at the same time. 2. The factory setting is "FG0".
FH	Photocell 1 Activation	FH0 FH1	Function OFF (Default) Function ON	1. The factory setting is "FH0".
FI	Photocell 2 Activation	FI0 FI1	Function OFF (Default) Function ON	1. The factory setting is "FI0".
FJ	Alarm Buzzer	FJ0 FJ1	Function OFF (Default) Function ON	1. The factory setting is "FJ0".
FK	Electric Latch Mode	FK1 FK2	Standard Gate Opening (Default) Release Gate Tension before Opening (Gate Reversing for 0.25s)	1. If the function is FK2, the motor will be reversed for 0.25 sec. to release the tension. 2. The factory setting is "FK1".
FL	LED Direction	FL0 FL1	When Terminal Block is at bottom (for swing gate motor) When Terminal Block is at top (for articulated-arm motor >> Default)	1. The factory setting is "FL1". The UP(▲) and Down(▼) buttons will switch according to the parameter setting. When FL0, button SW5 stands for ▲(UP) , and button SW3 stands for ▼(DOWN). When FL1, button SW3 stands for ▲(UP) , and button SW5 stands for ▼(DOWN)
FM	Over Current Reverses Time when Close	FN0 FN1 FN2 FN3 FN4 FN5 FN6	Function OFF (Default) 0.1 sec 0.2 sec 0.3 sec 0.4 sec 0.5 sec 0.6 sec	1. The factory setting is "FN0"
FN	A Button Function (Remote)	FO0 FO1 FO2 FO3 FO4	Function OFF Open-Stop-Close-Stop (Default) Pedestrian Mode Turn auto-closing OFF via remote Open ONLY	1. The factory setting is "FO1"
FP	B Button Function (Remote)	FP0 FP1 FP2 FP3 FP4	Function OFF Open-Stop-Close-Stop Pedestrian Mode (Default) Turn auto-closing OFF via remote Open ONLY	1. The factory setting is "FP2"
FR	C Button Function (Remote)	FR0 FR1 FR2 FR3 FR4	Function OFF (Default) Open-Stop-Close-Stop Pedestrian Mode Turn auto-closing OFF via remote Open ONLY	1. The factory setting is "FR0"
FS	D Button Function (Remote)	FS0 FS1 FS2 FS3 FS4	Function OFF (Default) Open-Stop-Close-Stop Pedestrian Mode Turn auto-closing OFF via remote Open ONLY	1. The factory setting is "FS0"

LED Display	Definition	Parameter	Table	Description
FT	D Key Function (PCB Terminal)	FT 1 FT2 FT3 FT4 FT5	PB Function : Open-Stop-Close-Stop (Default) Open ONLY Pedestrian Mode Close ONLY Fire Alarm Mode	1. The factory setting is " FT1" 2. Fire Alarm Mode: * Terminal Detect NO - normal operation * Terminal Detect NC - Open the gate and lock all the functions before returning to NO
FU	S Key Function (PCB Terminal)	F U 1 FU2 FU3 FU4 FU5	PB Function : Open-Stop-Close-Stop (Default) Open ONLY Pedestrian Mode Close ONLY Fire Alarm Mode	1. The factory settings " FU1" 2. Fire Alarm Mode: * Terminal Detect NO - normal operation * Terminal Detect NC - Open the gate and lock all the functions before return to NO
FW	Over current Sensitivity Setting	FW1 FW2 FW3 FW4 FW5 FW6 FW7 FW8 FW9 FWA	0.1 sec 0.2 sec 0.3 sec 0.4 sec 0.5 sec (Default) 0.6 sec 0.7 sec 0.8 sec 0.9 sec 1 sec	1. The factory setting is " FW5"

3.6.3 Photocell Logic

FE1 Photocell OPEN/CLOSE (Standard set up)

Position of Gate	When safety devices are activated	
Type of Safety Device	PH1 Photocell-CLOSE	PH2 Photocell-OPEN
FULLY CLOSED	No effect	Open not allowed
FULLY OPENED	Reload automatic closing time	No effect
STOP DURING MOVING	Reload automatic closing time	Open not allowed
CLOSING	Open	No effect
OPENING	No effect	Close

FE2 Safety Edge

Position of Gate	When safety devices are activated	
Type of Safety Device	PH1 Photocell-CLOSE	PH2 Safety Edge
FULLY CLOSED	No effect	Open not allowed
FULLY OPENED	Reload automatic closing time	
STOP DURING MOVING	Reload automatic closing time	OPEN/CLOSE not allowed
CLOSING	Open	Reverse to open for 2 seconds
OPENING	No effect	Reverse to close for 2 seconds

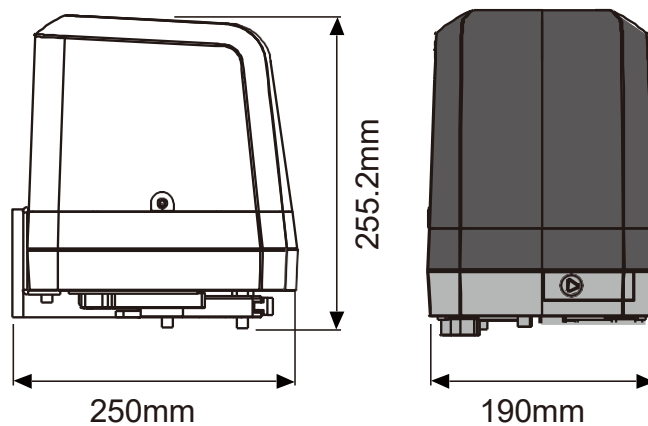
FE3 Open Only Device (Vehicle detector)

Position of Gate	When safety devices are activated	
	PH1 Opening Device	PH2 Photocell-CLOSE
FULLY CLOSED	Open	No effect
FULLY OPENED	Reload automatic closing time	
STOP DURING MOVING	Open	Reload automatic closing time
CLOSING	Open	Open
OPENING	No effect	No effect

FE4 Double photocell set up

Position of Gate	When safety devices are activated	
	PH1 Photocell-OPEN/CLOSE	PH2 Photocell-OPEN/CLOSE
FULLY CLOSED	No effect	No effect
FULLY OPENED	Reload automatic closing time	
STOP DURING MOVING	Reload automatic closing time	
CLOSING	Open	Open
OPENING	No effect	No effect

4. Dimension



5. Technical Feature:

Model	GTR502 & GTR503
Motor	24Vdc motor
Gear type	Electromechanical worm gear
Nominal thrust	2500N
Maximum Gate Weight	250 kg per leaf
Maximum Gate Length	2.5 meters per leaf
Operating Temperature	-20°C~+50°C
Dimension	256 x 187 x 267mm
Weight	6 kg

Model	CB19
Main power supply	230Vac/110Vac, 50Hz/60Hz
Back-up battery	2 x 12V x 1.3amp (Sold Separately)
Receiver board	433.92MHz; 200 transmitters memory
Installation	Built-in PCBA
Operating Temperature	-20°C~+50°C
Dimension	275mm x 195mm x 102mm

6. Maintenance

Conduct the following operations at least every 6 months. If you are a high intensity user, please shorten the period in between.

Disconnect the power supply:

- (1) Clean and lubricate the screws, the pins, and the hinge with grease.
- (2) Check the fastening points are properly tightened.
- (3) Maintain the wire connection are in good condition.
- (4) Regularly inspect inside motor cover for ants/insects infestations, spray as required.

Connect the power supply:

- (1) Check the power adjustments.
- (2) Check the function of the manual release.
- (3) Check the function of photocells or other safety devise.

7. Technical Support

For support or assistance with installing your gate motor, visit gatesupport.richmondau.com

Email technical support – gatesupport@richmondau.com

Or ring your local Richmond Wheel & Castor Branch

AU: 1300 474 246 **NZ:** 0800 61 71 81 **International:** +613 9551 2233

Richmond Wheel & Castor Co. declines all responsibility for any consequences resulting from improper use of the product or use which is different from the expected and specified in the present documentation.

Richmond Wheel & Castor Co. declines all responsibility for any consequences resulting from failure to observe Good Technical Practice when constructing closing structures (door, gates etc), as well as from any deformation which might occur during use.



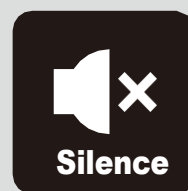
24V power supply
for great safety



Solid material apply
with lasting usage



Manual release device
with easy use and
highly protection



Worm gear application
give silence operation



Easy installation
and user friendly
interface