



Automation Systems

APC-SG802AC/APC-SG1602AC/APC-SG3002AC
Version 1.2

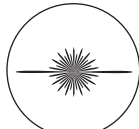
Sliding Gate Opener



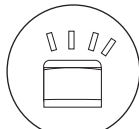
Keypad
Input



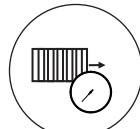
Push Button
Input



Safety Beam
Compatible



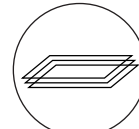
Courtesy Light
Output



Auto Close



Soft Start
Soft Stop



Induction Loop
Compatible



WARNING

ALL EQUIPMENT IS HIGH VOLTAGE AND SHOULD BE
INSTALLED BY A QUALIFIED ELECTRICIAN

Attention Installer

The manual should be read cover to cover at least once
prior to beginning installation

Congratulations on the purchase of your APC Australia® Gate Automation System.

For your convenience any Remote's and wireless buttons supplied with the kit are already paired with the system.

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Preliminary Checks

To ensure safety and an efficient automation make sure the following requirements are met:

1. The gate structure must be suitable for automation.
2. Make sure that the gate moves properly and uniformly without any irregular friction during their entire travel.
3. The gates wheels and track must be in good condition with no biting, no rust and wheels must be well greased.
4. The gates should be able to be freely opened and closed before installing the gate automation system.
5. It is strongly suggested to have a gate stop installed for the open position for emergency purposes.

Important Safety Information

Installer and owners should observe the following:

1. Make sure that there is sufficient space for the gate to slide open fully without interference.
2. Do not change with parts or components not supplied by the manufacturer, this includes sensors, buttons, and any component not listed in the compatibility list.
4. Make sure all wiring works are correct and in good condition before applying power to the system.
5. Turn off the power when doing any maintenance.
6. Ensure the control panel is not exposed to water to avoid short circuiting of the control panel.
7. Do not supply mains power directly to the AC motor.
8. Do not install the operating system if in doubt. Contact the manufacturer.
9. Do not cross the gate while it is operating, Safety sensors are only to prevent accidents or injuries.
10. Keep the remote controls in safe place and away from children.

Before beginning installation the manual should be read thoroughly concerning all aspects of the installation including all precautions and safety information.

Proper steps should be taken to ensure efficient and safe installation for vehicles, property and persons within the operators working radius.

The system is fitted with an over current sensing feature to assist in preventing damages, injuries and death.

All precautions must be taken by the installer that adjustments are set correct based on the gates weight, height and length.

The system sensitivity should be set to allow consistent operation of the gates under normal operating conditions.

The system may not detect (Over current sense) against light loads

such as small object, young children and animals. It is the operators duty to ensure that the area is clear prior to operation.

Photo sensors or reflective sensors should always be installed to assist in accident or death prevention.

You agree to install this product following any and all safety requirements listed in this manual or required under local, state or national regulations. APC Automation Systems, its distributors, stockist or sellers are not liable for any direct, indirect, incidental, special or consequential damages or loss of profit whether based in contract or any other legal theory during the course of warranty or afterwards. If you do not feel capable of properly installing the operator based on the above information or otherwise do not proceed.

Photo evidence of the installation will be required to assist in warranty product claims.

Specifications and Features

APC-SG3002AC

Working temperature of motor: $-25^{\circ} \sim +55^{\circ}$

Working humidity: $\leq 85\%$

Power supply: $220V \pm 10\%$ 50Hz

Rated power: 1200W

Open(close) speed: 12m/min

Maximum pull: 65Nm

Maximum load: 3000kg

APC-SG802AC

Working temperature of motor: $-25^{\circ} \sim +55^{\circ}$

Working humidity: $\leq 85\%$

Power supply: $220V \pm 10\%$ 50Hz

Rated power: 450W

Open(close) speed: 12m/min

Maximum pull: 22Nm

Maximum load: 800kg

APC-SG1602AC

Working temperature of motor: $-25^{\circ} \sim +55^{\circ}$

Working humidity: $\leq 85\%$

Power supply: $220V \pm 10\%$ 50Hz

Rated power: 650W

Open(close) speed: 12m/min

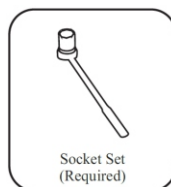
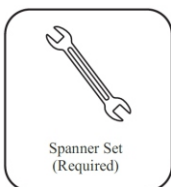
Maximum pull: 38Nm

Maximum load: 1600kg

Features

1. Totally integrated electrical mechanical system
2. Control board interface for photocell's, keypads, press buttons and other access control
3. Individual open and close terminals
3. Safety lamp connection
4. Automatic close
5. Wireless remote controls, keypads or press button compatible
6. Automatically stops and re-open when an obstacle is encountered using photocells.
7. Adjustable resistance sensitivity

Tools Required

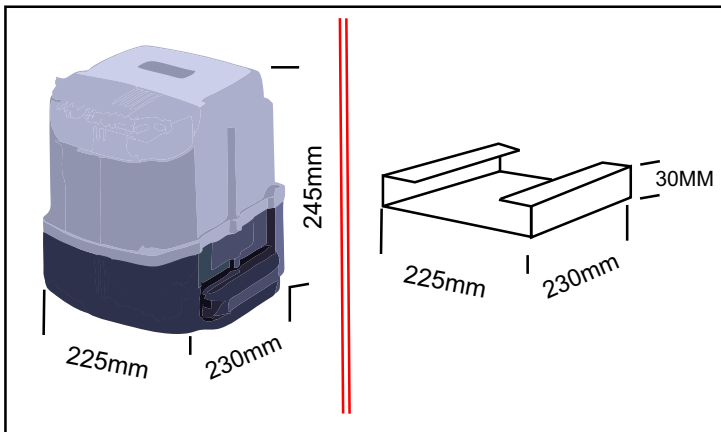


Standard Kit Contents

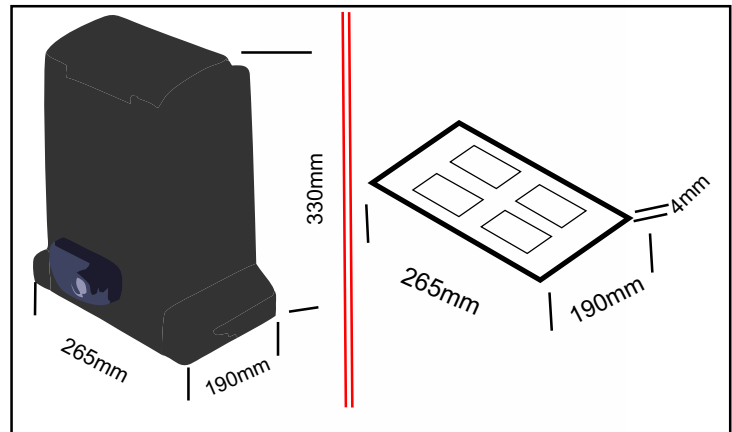
Standard Motor Kit Contents

1. Sliding Gate Motor
2. RHS Limit Switch Striker Plate
3. LHS Limit Switch Striker Plate
4. Motor cover screws
5. Motor Base Plate
- 6 Striker Plate Fixing Bolts
7. Override keys
8. Motor to mounting plate screws

Dimensions APC-SG802AC/1602AC



Dimensions APC-SG3002AC



Important Notes

1. Do not operate the gate if there are people or obstacles in the gate's path.
2. The power supply for the control board should be equipped with a separate switch with a fuse rated at 10AMP.
3. Always disconnect the power supply before attempting any service or repairs on the sliding gate.
4. The rack must be fixed securely and in a straight line parallel to the gate track, it must also sit squarely over the drive gear.
5. Ensure the gap between the rack and drive gear is adequate to avoid excessive load on the drive gear.
6. Confirm the direction of the moving gate, the supplied gate stops should be installed in a right position to avoid the motor running out of control.

Motor Positioning and fixing

A- Decide on the position that is most suitable to install the motor.

B- Temporarily fit the base plate under the motor housing and place in the position the gate opener will be fitted, be sure to position the base plate about 65mm away from the gate (see Diagram 1).

Note: Place one piece of Gear rack on top of the pinnion to ensure that you have the right height to install the gear rack

C- Mark around the base plate

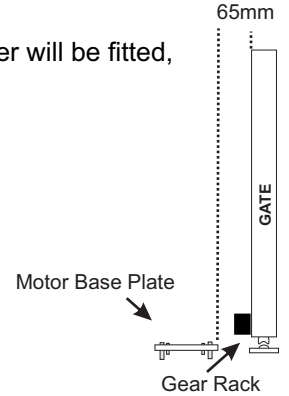
D- Remove the motor housing

E- Mark the 4 holes position to be drilled for the base plate.

NOTE: Ensure motor base plate is level, if not make the necessary adjustments to rectify.

F- Drill the 4 holes.

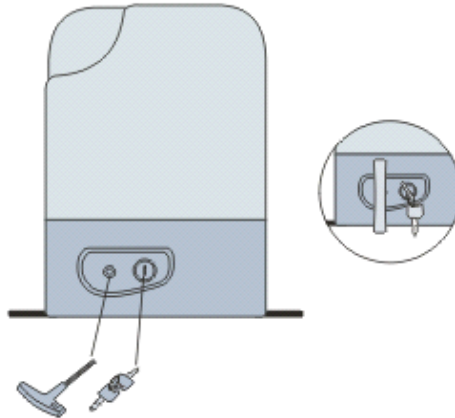
G- Fix the base plate using the appropriate screw (for metal) or dyna bolts (for concrete).



Clutch Override (APC-SG3002AC)

Using the supplied key unlock the manual override entry point by turning the key clockwise then use the allen key and turn the allen key anti-clockwise. Now you can open and close the gate manually.

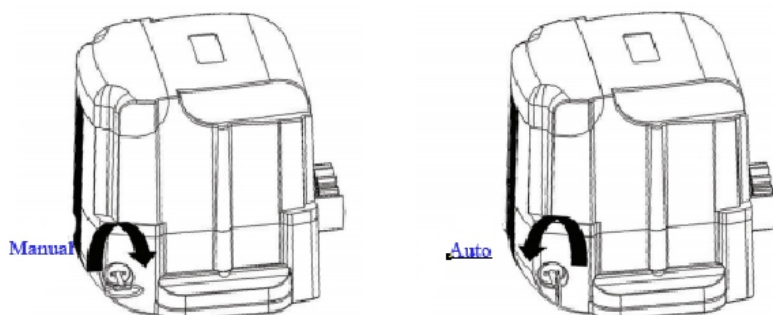
To return to automatic (re-engage) turn the allen key clockwise then turn the key anti-clockwise.



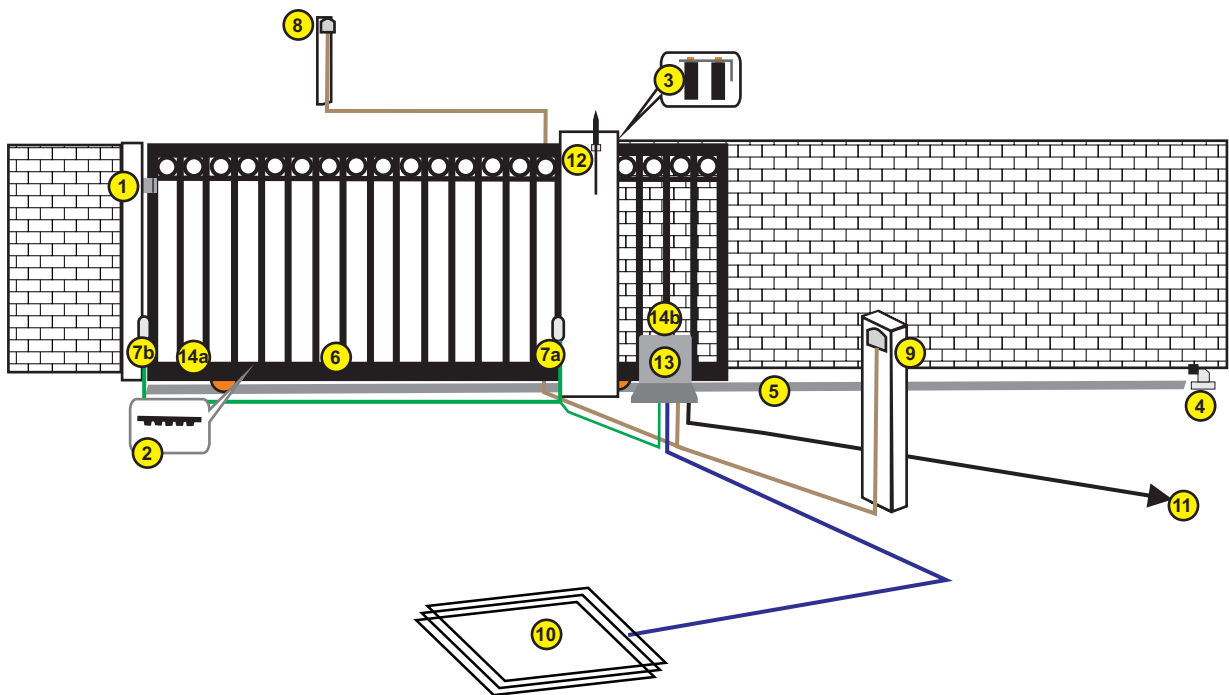
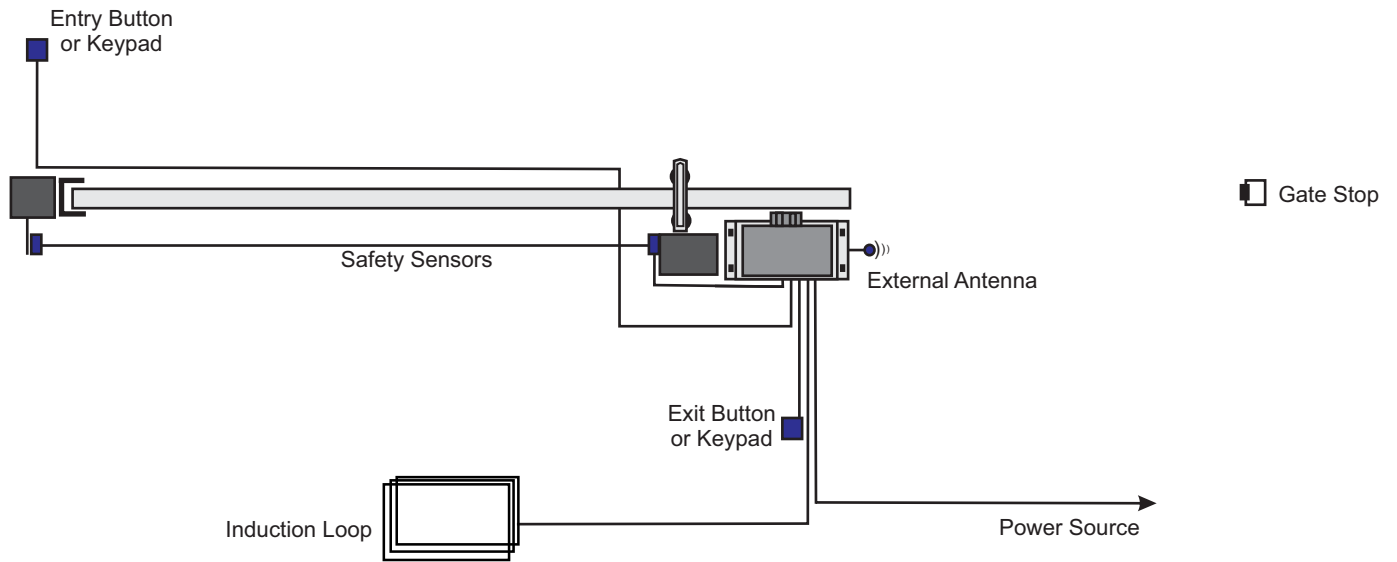
Clutch Override (APC-SG802AC/APC-SG1602AC)

Using the supplied key unlock the to manual override mode by turning the key clockwise. Now you can open and close the gate manually.

To return to automatic (re-engage) turn the key anti-clockwise.



Installation Layout



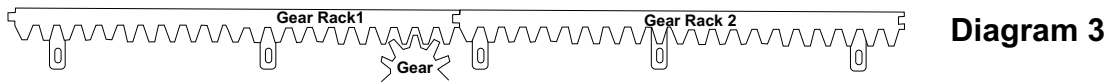
①	U Guide/Keep
②	Wheels
③	Rollers and Bracket
④	Gate Stop
⑤	Floor Track
⑥	Gear Rack
⑦a	PE Sensor Transmitter
⑦b	PE Sensor Receiver (Not required for Retro Reflective Sensor)
⑧	Entry Keypad/Push Button
⑨	Exit Keypad/Push Button
⑩	Induction Loop
⑪	Power Source
⑫	External Antenna
⑬	Gate Motor
⑭a	Open Striker
⑭b	Closed Striker

Accessories Requiring Wiring:

Keypad - 4 Core (Wireless available)
 PBD-K - 4 Core (Wireless available)
 PBS-K - 2 Core (Wireless available)
 PE Sensor
 Receiver - 4 Core
 Transmitter - 2 Core

Induction Loop - 1 Core teflon insulated cable

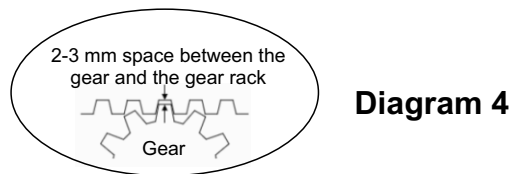
Each piece of rack will interlock into the next piece (see diagram 3)



- The best method for installation is to first close the gate using the manual override, sit the first piece on the gear of the motor (make sure it is 100% level first) then fix directly to the gate in the centre of the fixing hole of the rack. Now loosen the fixing and adjust the spacing between the motor gear and the gear rack (allow 2-3mm gap as illustrated in diagram 5)

- Re-tighten and fix the next remaining holes on the rack. Move the gate manually forward and backward along the installed rack to ensure that the gap between the rack and the gear is consistent throughout. Clip in the next piece of rack into the first (make sure it is 100% level first) then fix directly to the gate in the centre of the fixing hole of the rack.

- Again move the gate manually forward and backward along the installed racks to ensure that the gap between the rack and the gear is consistent throughout. Repeat the above method to complete the racks installation and always be sure to move the gate manually forward and backward every time you install another piece of the rack.



- The striker plates must be installed now to set the open and close positions for the motors operation. They are fixed onto the gear rack and should strike the limit switch spring on the motor to set the operating parameter (see diagram 6).

- Using the manual override open the gate to the desired open position and install the open striker then close the gate to the desired position and install the closed striker (small adjustment afterwards may be necessary to achieve the best results when the motor is powered later).

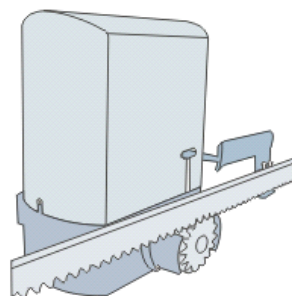
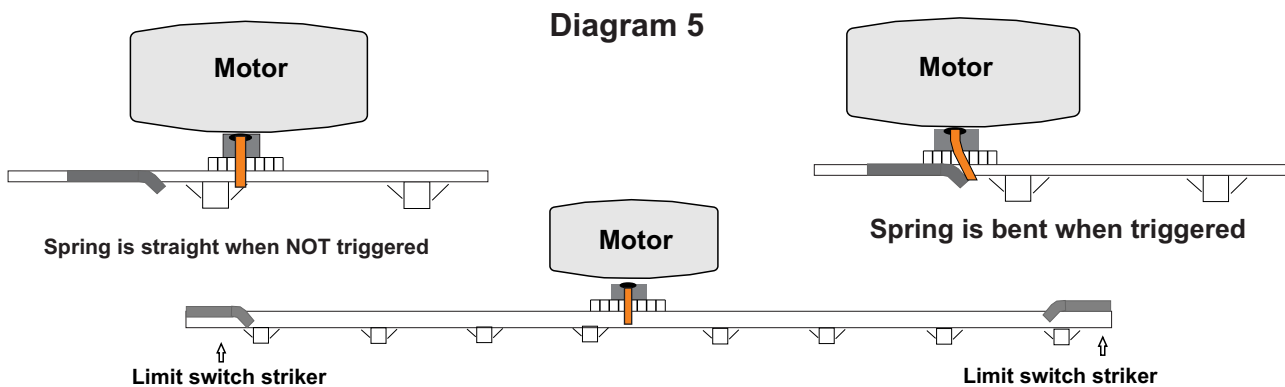
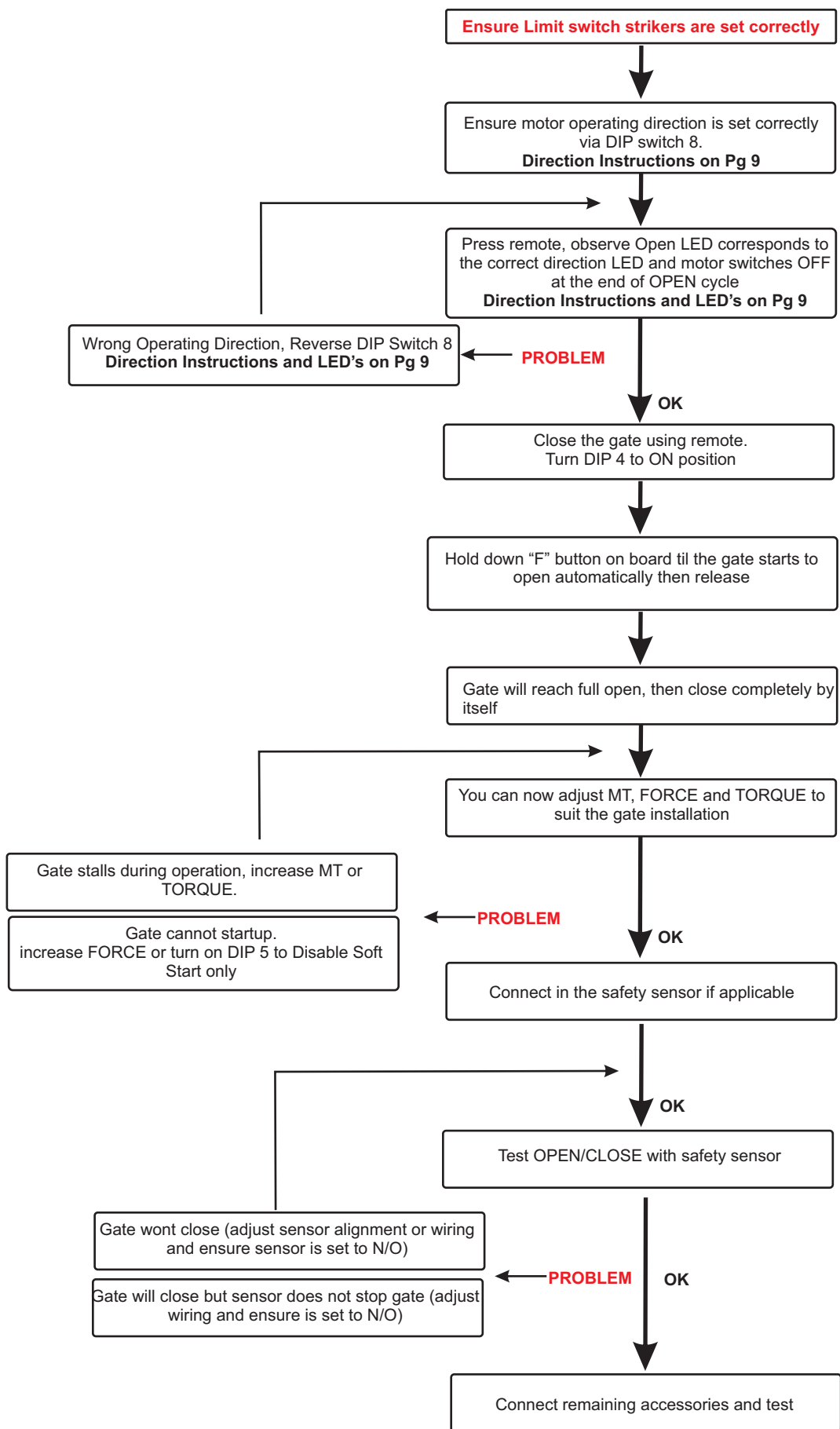
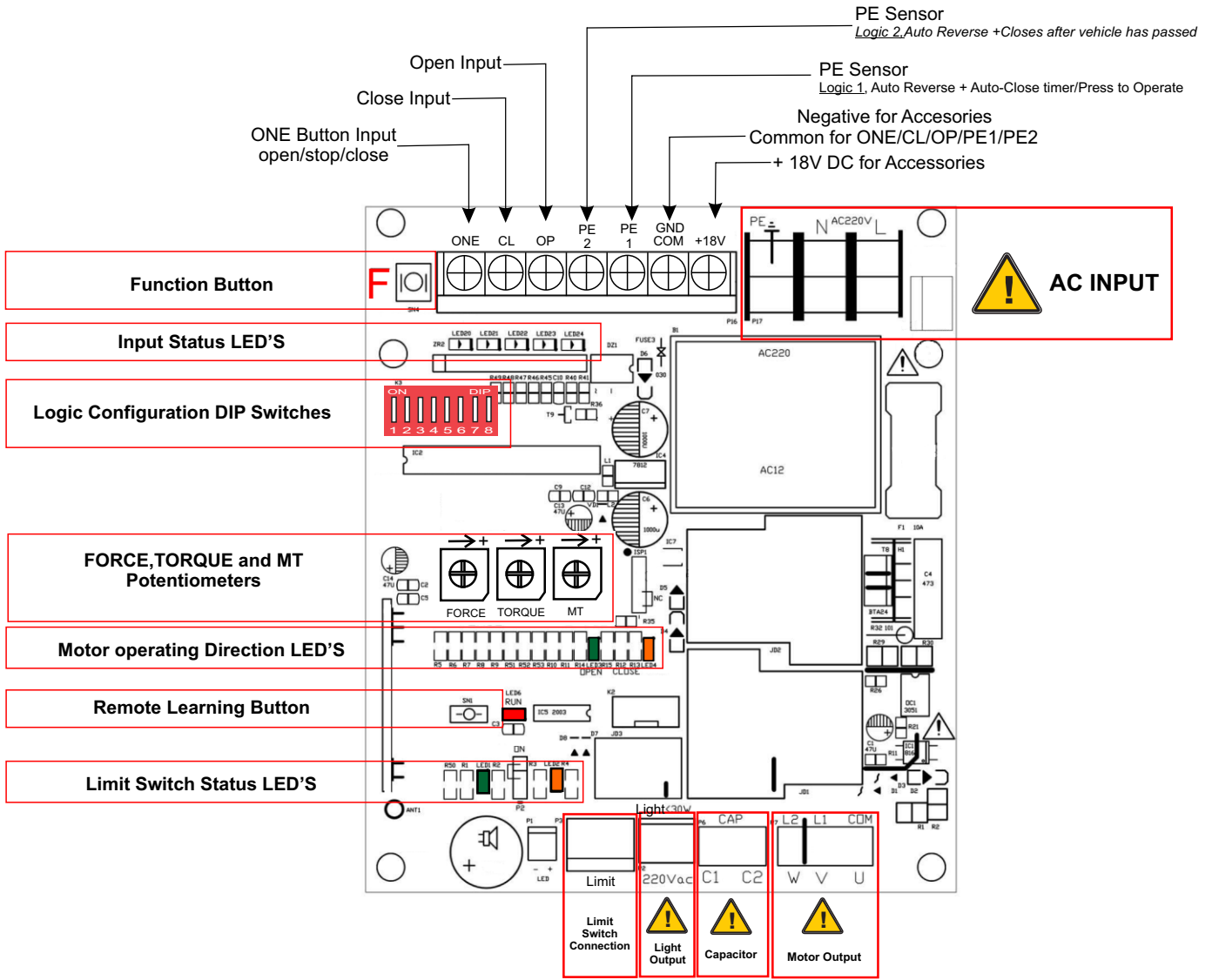


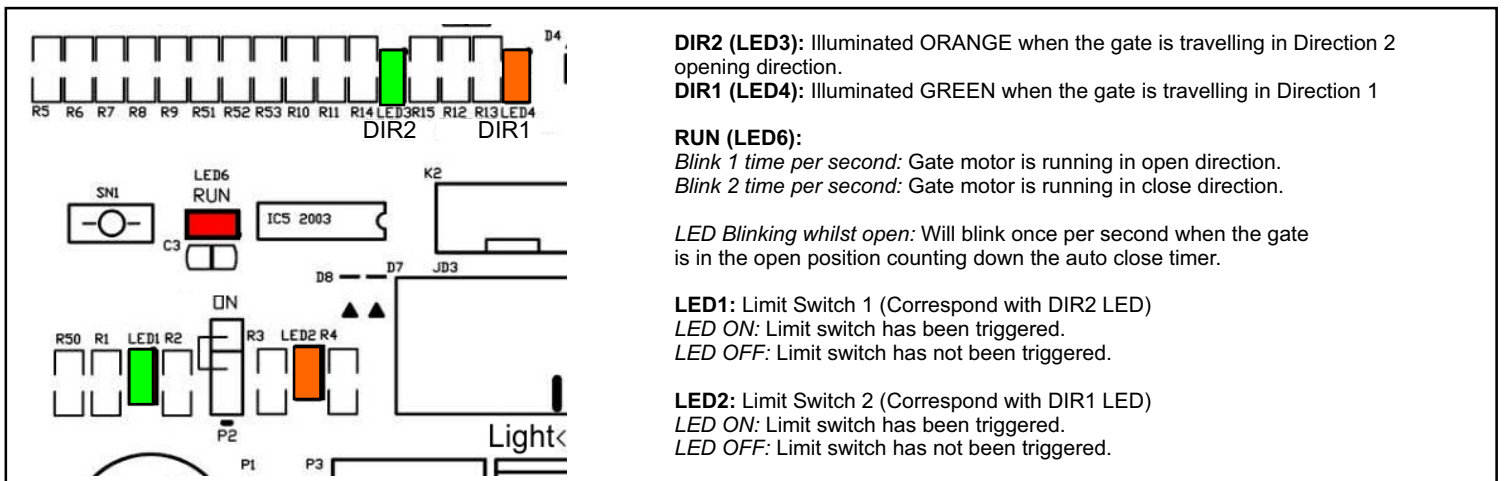
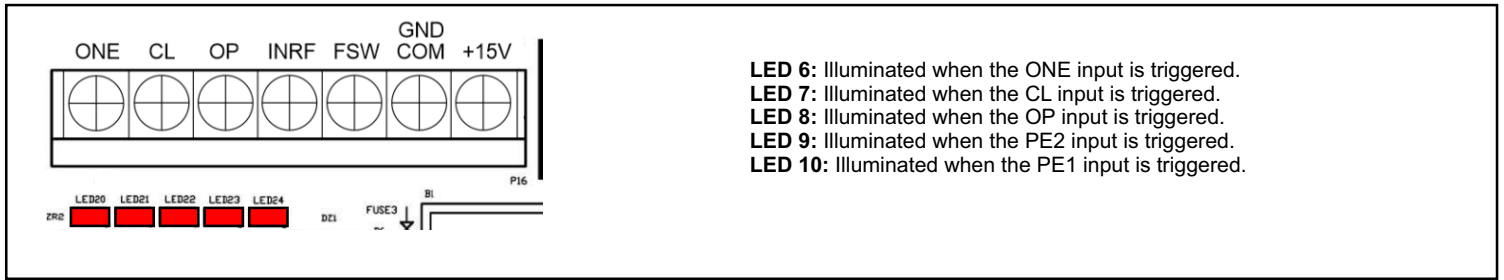
Illustration of gear rack, striker plate and the gate motor



Control Board Layout



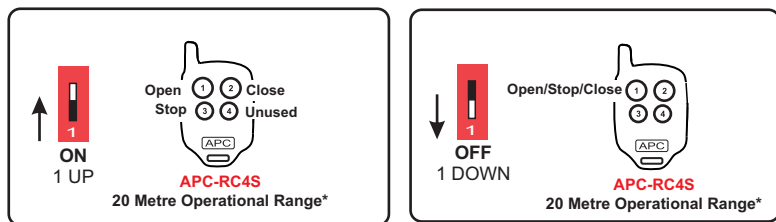
LED Indicators



Logic DIP Switch Adjustment

DIP 1 (Multi Key/Single Key)

Note 1: If DIP 1 is ON the button used for pairing will perform the open/stop/close function
Please see Wireless learning page for keypad operation



DIP 2 (Reserved)

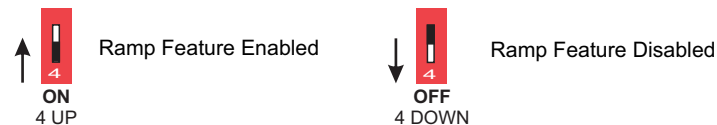
DIP 3 (Automatic Close)

The Automatic Close Dip switch is used to enable/disable the auto close feature. To set or adjust the auto close feature please see auto close adjustment.



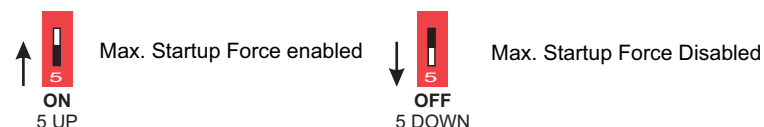
DIP 4 (Soft Start/Soft Stop)

The feature is used to slow start and slow stop the gate motor at each end of operation.
It requires a LEARN CYCLE to be performed to work correctly, please see performing a LEARN CYCLE.
Soft start can be disabled for heavier gates while retaining soft stop, see DIP 5.



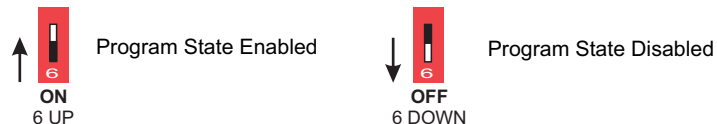
DIP 5 (MAX. Startup Force)

Maximum Startup Force feature is used if the gate is heavy and a slow start feature cannot be used to startup the gate due to lack of power it will allow the system to ignore soft start and FORCE.



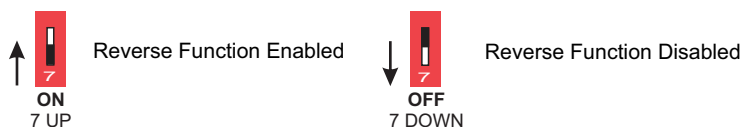
DIP 6 (Program State)

When enabled the board will be ready to learn the the auto close time depending on the settings. Please see further information on auto close adjustment and learn time adjustment.



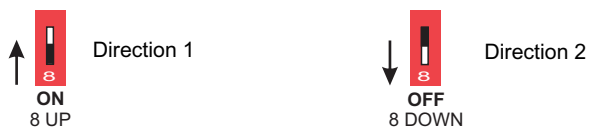
DIP 7 (Reverse Function)

The Reverse feature is used to set the system to revert back to the OPEN direction if it encounters an obstacle when closing. This feature sensitivity is configured using the FORCE potentiometer.



DIP 8 (Operating Direction)

Used to adjust the open/close direction. Switching DIP 8 will switch Left to open/Right to open.
Further information can be found in the setting the motor direction information.



Setting the operating direction

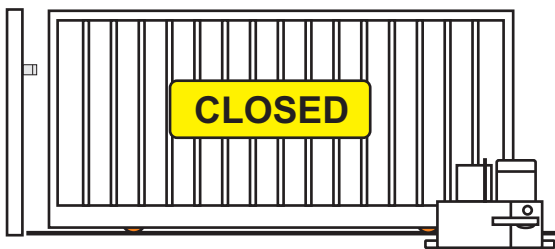
Before Power up

Adjust DIP switch 8 on the circuit board so that the system knows its opening and closing direction. Failure to do so will affect the safety system along with the learn cycle, automatic close etc.

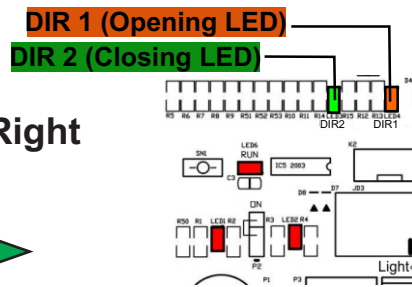
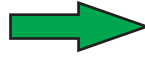
Open to the Right (DIRECTION 1)



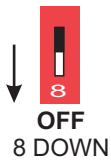
DIP 8 ON= Slides Right to OPEN



Opening Right

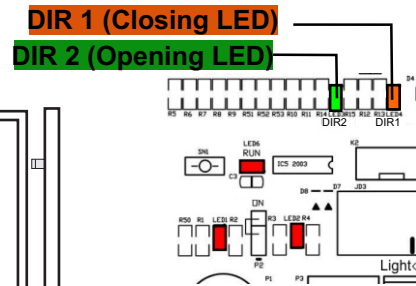
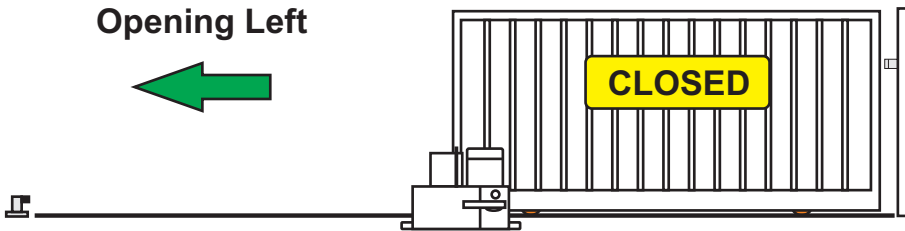


Open to the LEFT (DIRECTION 2)



DIP 8 OFF= Slides LEFT to OPEN

Opening Left



TORQUE Potentiometer



Adjusting the TORQUE potentiometer anti-clockwise will decrease the motor power and increase its ability to stall easily. Adjusting the TORQUE potentiometer clockwise will increase the motor power and decrease its ability to stall easily.

Note: TORQUE is not always a practical feature for higher weight gates, sloping driveways and it would be recommended to have this feature set somewhere in the higher range of its setting in such scenarios where it would not be practical to use and ensure the correct safety sensors are installed in such an application.

FORCE Potentiometer



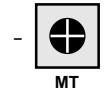
The FORCE adjustment is to adjust the resistance setting of the motor. The FORCE adjustment when adjusted clockwise will increase the resistance sensitivity, if adjusted anti-clockwise will decrease the resistance sensitivity.

Note 1: DIP 7 Reverse Function must be ON for this feature to be enabled.

Note 2: If DIP 5 MAX FORCE is ON then this feature will be disable for the first 2-3 seconds of the cycle.

Note: FORCE is not a valid feature for higher capacity gate motors and will see minimal difference.

MT Potentiometer



The MT adjustment is to adjust the power of the motor for the first and last 200mm of the cycle. The MT adjustment is only IF DIP4 is On to enable the SOFT start and SOFT stop feature.

If the gate requires a higher starting power but you wish to retain a soft stop enable both DIP4 and DIP 5 and this will disable Soft start but retain soft stop.

Note 1: For this feature to work correctly you MUST run a LEARN CYCLE, please see page 12.

Note 2: There will be a slight pause when the motor is transitioning between speeds (approx 0.5s)

Remote and Wireless Equipment Pairing

Pairing APC Remote's

The original remote's supplied with the sliding gate opener system are already paired.

- Press the small STUDY button for ONE SECOND then release.
- Press the NUMBER 1 button on the remote for 1 second.
- Press the remote button to test operation.

Pairing APC Wireless Push Buttons

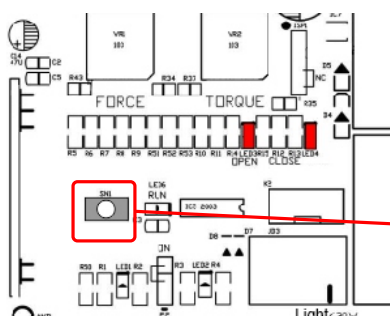
Ensure the switch is in the ON state using the supplied key

- Press the small STUDY button for ONE SECOND then release.
- Press the wireless push button for 1 second.
- Press the button to test operation.

Pairing APC Wireless Keypads

Use the default pin codes, after successful pairing then you can change the pin numbers

- Press the small STUDY button for ONE SECOND then release..
- Type 1 1 1 1 #
- Type 1 1 1 1 # again to test operation.



1
Press this STUDY button for ONE SECOND

2
Press the button on the remote button you wish to use for 1 second.
OR
Press the Wireless Push button.
OR
Type in the pin code on the Wireless Keypad.

Clearing the memory (Formatting)

- Press and hold the STUDY button for 5 seconds and a small BEEP will be heard. Release the STUDY button and all wireless equipment will be deleted.

Using your Wireless Equipment

Single Button Mode

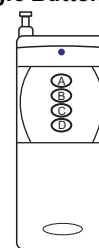
APC-RC4S
20 Metre Operational Range*

Multi Key Mode

APC-RC4S

Single Button Mode

APC-RC450S
400+ Metres
Operational Range*



Open/Stop/Close

On/Off Switch

Multi Key Mode

Open
Close
Stop

On/Off Switch



Type in the 4 digit pin code then press #

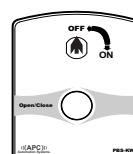
Single Button Mode
1111# For Open/Stop/Close
Multi Key Mode
1111# For Open
2222# For Close

NOTE: Keypad should be set to a TWO second Transmitting time (see manual).

APC-KP2W
15 Metre Operational Range*

Activate the Push Button by turning the key switch to the ON position.

Press the button to operate.



PBS-KW
5 Metre
Operational Range*

Single Button Mode
For Open/Stop/Close

Multi Key Mode
Each button can be configured for either open or close.

Learn Cycle

Before beginning this step you must first ensure that all your motor wiring connections and the direction switch are all set correctly, there are no loose wire strands and all connection points are joined and insulated correctly.

This feature is used to set the running time of the gate motor to allow the soft start and soft stop to operate at the correct times at each end of the cycle along with a general running time reference for the gate motor.

Check your Striker Plates prior to beginning!

Preliminary checks prior to protection time program

Ensure gear rack is not binding with **ZERO** resistance

Ensure gate is free of **ALL** bowing

Ensure that the motor is firmly fixed

Ensure that the connections are all correct with no loose wire strands

Ensure that limit switch strikers are set correctly

GATE MUST BE CLOSED BEFORE BEGINNING THE STEPS BELOW

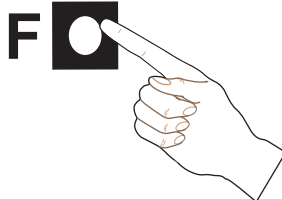
1

Turn DIP 4 to the ON position.



2

Press and **HOLD** the "F" Button, you will hear a "Bi" from the buzzer.



3

Release the F button **IMMEDIATELY** after the gate begins the opening movement.

4



The gate will open to the open position striker plate then the buzzer will make a "Bi" sound.

Now the gate automatically start closing.

5



Once the gate reaches the closed position striker plate then the buzzer will make a "Bi" sound.

6 **Learn Cycle Complete**

Turn DIP 4 to the OFF position if you do not need Soft Start/Stop.



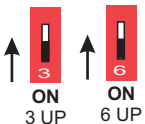
OR

Leave DIP 4 in the ON position to retain Soft Start/Stop.



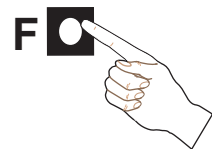
Setting the Automatic Close Timer

1 Turn DIP 3 and DIP 6 to the ON position.



2 Press and release the "F" Button to the same amount of seconds you wish the auto close time to be will hear a "Bi" from the buzzer.

Example: Press the "F" button 30 times for 30 seconds.
Maximum auto close time is 120 seconds.



3

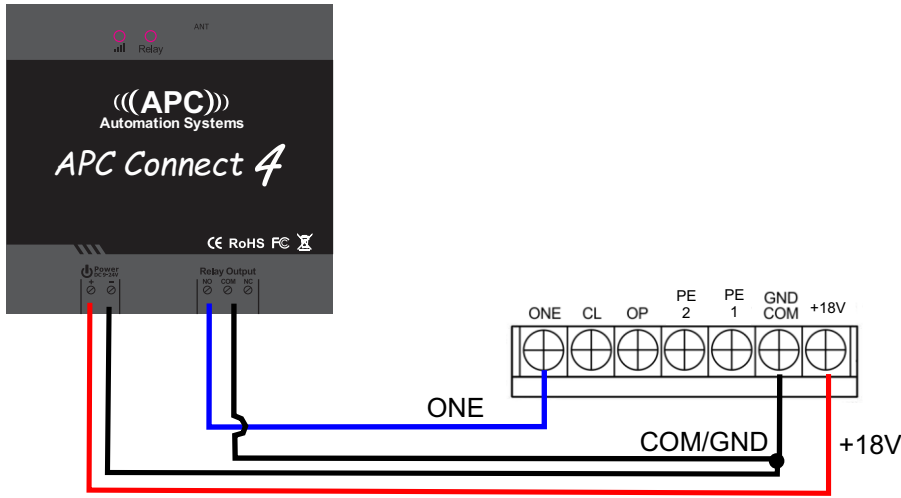
Turn DIP 6 **ONLY** to the OFF position.

Auto Close time learning is complete.



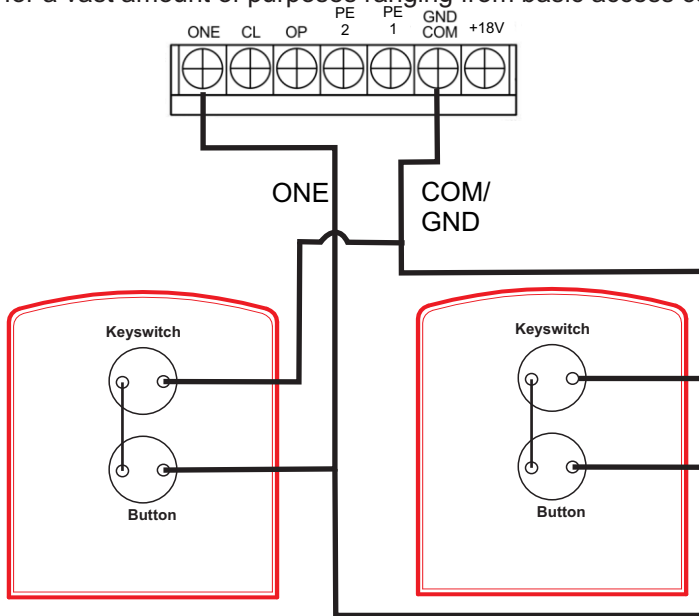
APC Connect 4 GSM Receiver

A GSM Receiver is the absolute most flexible form of access control. Providing there is good mobile reception at the gate the GSM switch can operate the gate from anywhere in the world. When receiving a call it will automatically reject the call and open or close the gate. SIM CARD IS NOT SUPPLIED.



APC Wired Push Button Connection

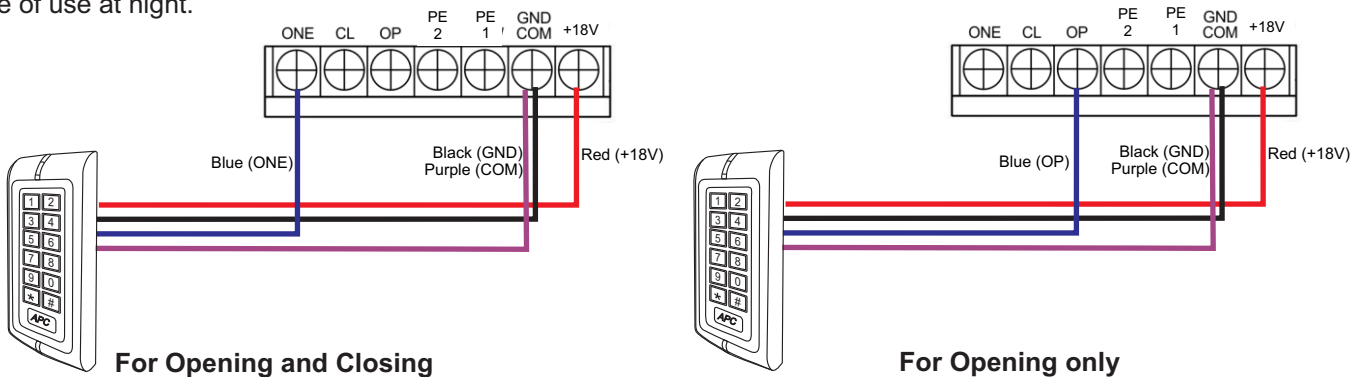
Push buttons are used for opening and closing the gates without using a remote. Push buttons can be used for a vast amount of purposes ranging from basic access control for visitors, workers to taking out the bins.



Connecting an APC Keypad (APC-KP1-C)

Unlike a push button entry switch using a keypad can provide a much higher security for access control for guests, workers, tenants etc.

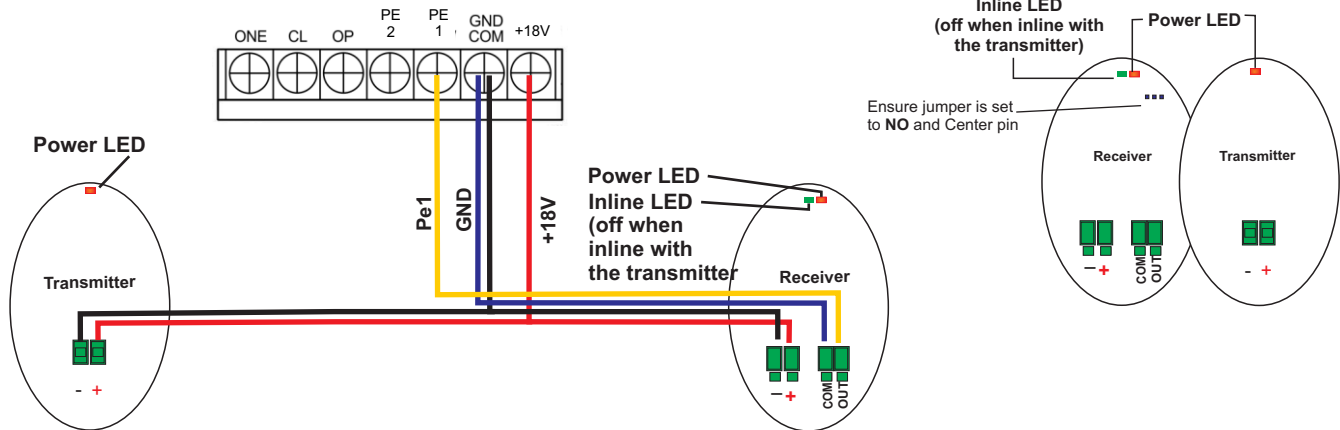
Using a keypad will allow you to manage the users by adding and deleting as required. Its backlit illumination also allows for ease of use at night.



Connecting a Single PE Sensor (APC-PE-2000)

APC-PE-2000 PE sensor (Transmitter & Receiver) **must be connected back to the control board**.
Install the PE-2000 Photoelectric sensor on the first entry point of the driveway from post to post at approx. 500mm above ground level.

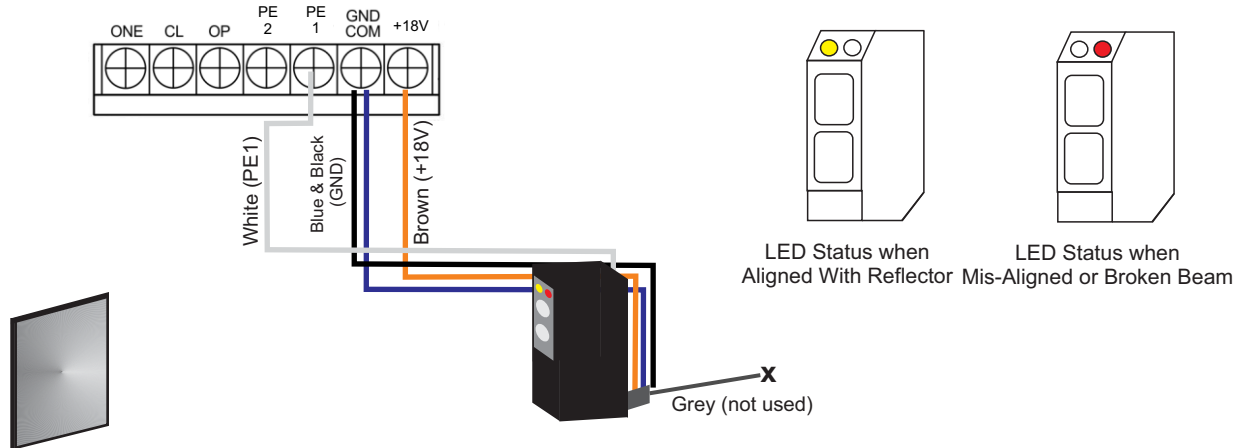
The Transmitter and the Receiver must be inline with each other
(The inline LED will be off when aligned with the transmitter).



Connecting a Single Retro Reflective Sensor (APC-RR-11)

APC-RR-11 Reflective sensor (Transmitter only) **must be connected back to the control board** (see wiring diagram).
Install the RR-11 Reflective sensor on the first entry point of the driveway from post to post at approx. 500mm above ground level.

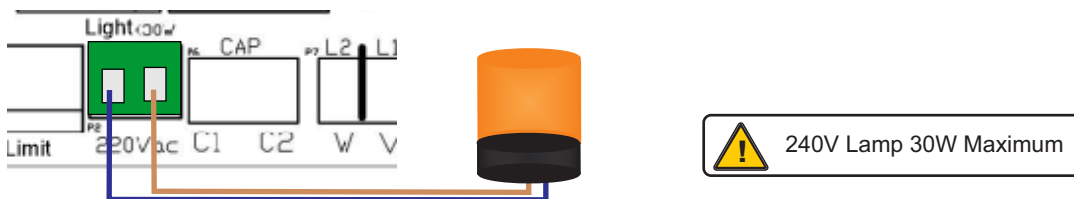
The Transmitter and the Reflector must be inline with each other
(The yellow inline LED will be ON when Aligned with the transmitter).



Connecting a 240V Light

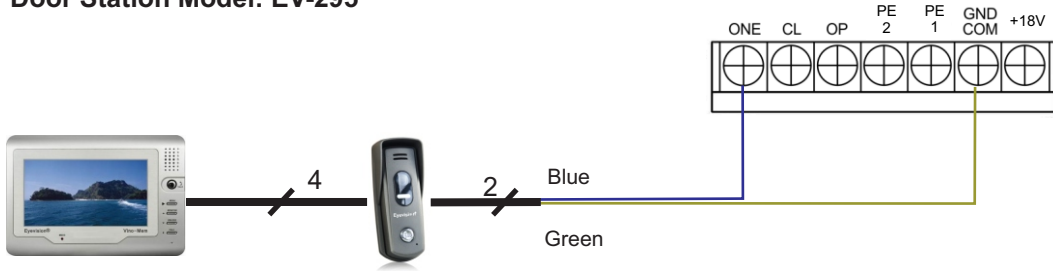
The light output on the system will operate whilst the gate is OPENING and whilst the gate is CLOSING. Whilst open the light output is in the OFF state.

The maximum load on this circuit should be no greater than 30 Watts, When using a higher load please use an external relay suited to the load requirements.

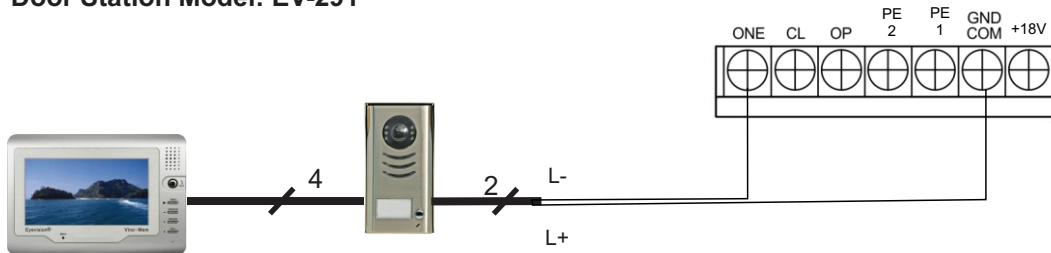


Eyevision® 4 Wire Intercom System Connection

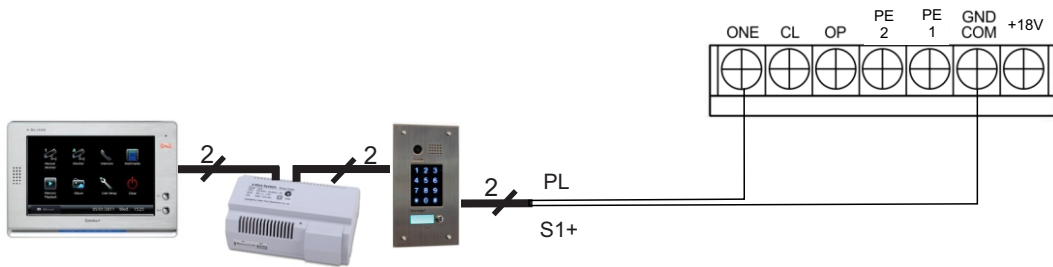
Door Station Model: EV-295



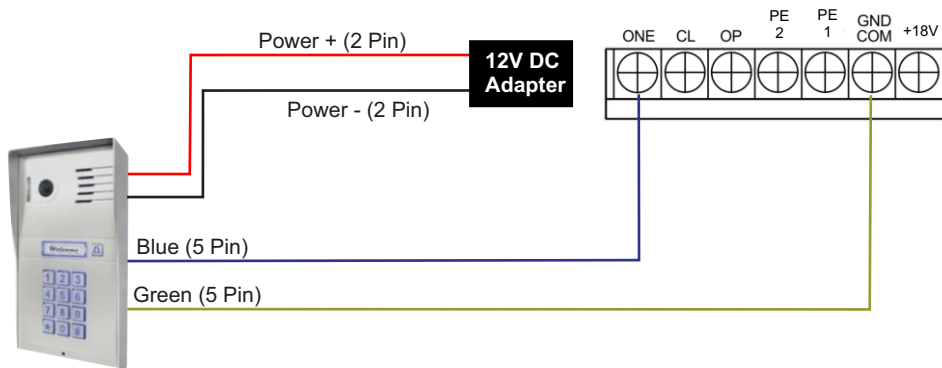
Door Station Model: EV-291



Eyevision® 2 Wire Intercom System Connection

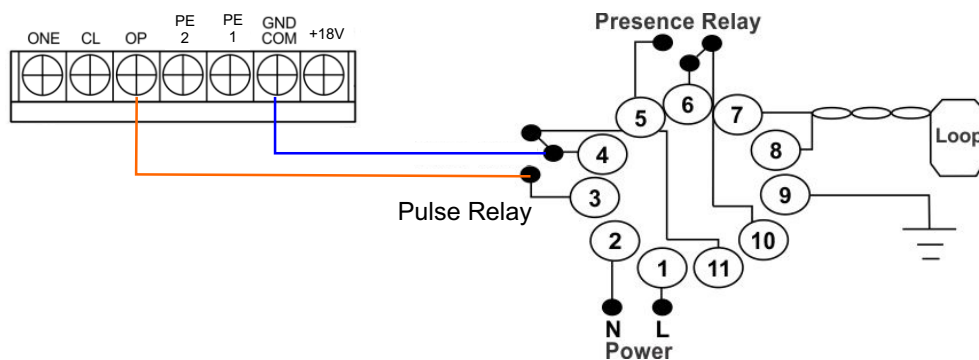


Eyevision® 4 Wire HYBRID Intercom and WIFI intercom System Connection



APC Loop Detector for Auto Gate Opening

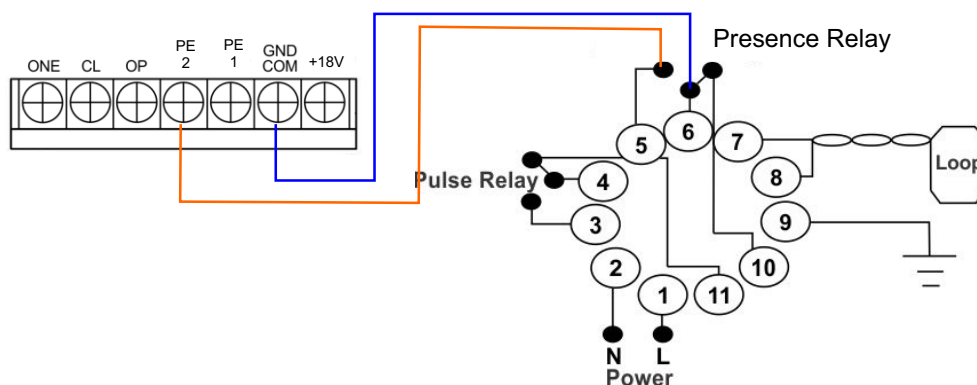
The APC-LD1 can be used for automatic opening when it senses a vehicle. It must be used in conjunction with the specific loop detector wire.



A PE sensor setup set MUST be used in this application.

APC Loop Detector as a safety device

The APC-LD1 can be used for for closing prevention whilst a vehicle is in the general gate are. It must be used in conjunction with the specific loop detector wire.



Compatible Equipment

The equipment listed below does not affect the warranty of the control panel and have been tested and approved for use. Limited warranty is applied to the control panel when used with third party equipment.

Sensors

- APC-PE2000
- APC-RR-11

Keypads

- APC-KP1-C
- APC-KP1-D
- APC-KP2W

Push Buttons

- APC-PBS (K/KW)
- APC-PBD (K/KW)
- APC-PBD211
- APC-PBD164

Remotes

- APC-RC4S
- APC-RC450S
- APC-RC4SV

Loop Detector

APC-LD1

Receivers

APC-Connect 4
APC-WF-CH1

MAINTENANCE

1. The rack and drive gear should be kept clean. Do not attach any objects to the gate that may interfere with the rack or drive gear.
2. The limiting levers should be kept free of debris.
3. Lubricate all moving parts every 3 months.
4. Check power cables and conduit have not been damaged.
5. During heavy rainfall or light flooding ensure the motor housing has had no ingress of water.

TROUBLE SHOOTING

Problem	Possible cause	Repair method
Gate fails to open	1- Clutch door may be open and the clutch is disengaged	Close the clutch door and turn the key
	2- No power to the control board or motor	Check the fuse and the mains switch to restore power
	3- Fuse may be blown	
	4- Remote control may be faulty or damaged or has a dead battery	Replace the remote battery
	5- Damaged power cable	Replace
	6- Control board may be faulty or damaged	Test, repair or replace
The remote working distance reduced	1- Low battery	Replace battery
	2- Interference for other equipment using the same frequency	Delete remote and re- programme
Gate fails to stop at the start or the end	The terminal stop toggle switch is damaged or obstructed	Replace toggle switch or remove obstacle
When pressing the remote the motor is running but the gate is not moving	1- The motor drive gear is disengaged from the rack (the gate may have opened or closed to far)	Check toggle switch operation and replace if nessasry
	2- Gate has lifted of the track and disengaged the rack	Remove debris from the track and/or refit the gate on the track
The motor fails to run after the remote control button is pressed	1- The resistance sensitivity is set too high	Rest resistance sensitivity
	2- The gate is jammed with some obstacle	Open clutch door, remove obstacle, close the clutch door



APC WARRANTY

APC warrants the original purchasers or the APC gate(s) opening system for a period of twelve months from the date of purchase (not installation), the product shall be free of defects in materials and workmanship under normal use. During the warranty period, APC shall, as its option, repair or replace any defective product upon return of the product to its factory, at no charge for labour and materials.

Any replacement and/or repaired parts are warranted for the remainder of the original warranty,

The original owner must promptly notify APC in writing that there is defect in material or workmanship, such written notice must be received in all events prior to expiration of the warranty.

International Warranty

APC shall not be responsible for any freight fees, taxes or customs fees.

Warranty Procedure

To obtain service under this warranty, AND AFTER CONTACTING APC, please return the item(s) in question to the point of purchase.

All authorized distributors and dealers have a warranty program, anyone returning goods to APC must first obtain an authorization number. APC will not accept any shipment for which prior authorization has not been used.

Conditions to Void Warranty

This warranty applies only to defects in pairs and workmanship relating to normal use. It does not cover:

- Damage incurred in shipping or handling
- Damage caused by disaster such as fire, flood, wind, earthquake or lightning
- Damage due to causes beyond the control of APC such as excessive voltage, mechanical shock or water damage
- Damage caused by unauthorized attachment, alterations, modifications, or foreign objects.
- Damage caused by peripherals (unless such peripherals were supplied by APC)
- Defects caused by failure to provide a suitable installation environment for the products
- Damage caused by usage of the products for purpose other than those for which it was designed.
- Damage from improper maintenance
- Damage arising out of any other abuse, mishandling, and improper application of the products.

Under no circumstances shall APC be liable for any special, incidental, or consequential damages based upon breach of warranty, breach of contract, negligence, strict liability, or any other legal theory. Such damages include, loss of profits, loss of the product or any associated equipment, cost of capital, cost of substitute or replacement equipment, facilities or services, down time, purchaser's time, the claims of third parties, including customers, and injury to property.

Disclaimer of Warranties

This warranty contains the entire warranty and shall be in lieu of any and all other warranties, whether expressed or implied (including all implied warranties of merchantability or fitness for a particular purpose). And of all other obligations or purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning this product.

Out of Warranty Repairs

APC will at its option repair or replace out-of-warranty products which are returned to its factory according to the following conditions. Anyone returning goods to APC must first obtain an authorization number.

APC will not accept any shipment whatsoever for which prior authorization has not been obtained. Products which APC determines to be repairable will be repaired and returned. A set fee which APC has been predetermined and which may be revised from time to time will be charged for each unit repaired. Products which APC determines not repairable will be replaced by the nearest equivalent product available at that time. The current market price for the replacement product will be charged for each replacement unit.