AUTOMATIC SOLUTIONS
Australia Pty Ltd

# ASA4000 – 6000
# BOOM GATE
# INSTALLATION MANUAL

## IMPORTANT

Your new electro mechanical boom gate is manufactured in compliance with high levels of quality and reliability; this will guarantee performance and safety over time.
Enclosed in this booklet, you will find all the information necessary for assembling your gear motor and ensuring your safety.

**This instruction booklet is designed for professional installers** who are familiar with the manufacturing criteria and the safety and protection devices available to prevent accidents for gates, doors and power operated gates (respect standards and laws in force).

The installer must provide suitable instruction and issue the final user with an instruction booklet in accordance with EN 12635.

Before proceeding with installation, the installer must analyse the risks of final automated closing and ensure that the whole system is in safe condition (in compliance with the EN 12453 and EN 12445 standards).

The various electrical components which make up the automated closing system (e.g. photocells, flashing lights etc.) must be wired in compliance with EN 60204-1 and the modifications to this in point 5.2.2 of EN 12453.

Any operation to repair or adjust the equipment is forbidden unless all due precautions in order to prevent possible accidents have been taken (e.g. electrical power disconnected, motor blocked). All moving components must be equipped with suitable protection devices.

The power line must be protected for the maximum current when the rotor is blocked.

All repair operations must be performed by qualified personnel.

Keep the automation controls out of the reach of children. All switches must be installed at a minimum height of 1.5 m from the ground and out of the radius of action of moving parts.

Only activate the remote control when the boom gate is visible. All command operations must only be carried out at points where the boom gate is completely visible.

Any arbitrary modification to this product releases Automatic Solutions Australia Pty Ltd from all responsibility resulting from damage or injury to objects, persons or animals.

Disregarding the safety standards listed herein and the regulations in force releases Automatic Solutions Australia Pty Ltd from all responsibility resulting from damage or injury to objects, persons or animals.

Keep this manual safely in a suitable place known to all persons involved.

The automation must be coupled with a control unit equipped with torque adjustment which provides an intrinsic crush-prevention safety device as referred to in the EN 12453 – EN 12445 standards.

## DECLARATION OF CONFORMITY

The ASA4000 and ASA6000 - 230V moveable barrier -
Complies with the conditions of the Machinery Directive 2006/42/EC – Directive of the European Parliament and Council of 17 May 2006, on the approximation of the laws of the Member States relating to machinery

Complies with the conditions of the following other EC directives:
Electromagnetic Compatibility Directive 2004 /108/EC;

And also declares that the following harmonised standards have been applied
- EN 292 1 / 2 - Safety of machinery - General principles for design
- EN 294 - Safety of machinery - Distances to prevent danger zones being reached.
- EN 60335-1 - Safety of household and similar electrical appliances - general requirements.
- UNI EN 12 453 - Safety in use of power operated doors - requirements

Where applicable, the technical provisions of product standards have also been observed
- EN 12445-2000 Safety in use of power operated doors.

This declaration of conformity is therefore issued in accordance with Directive 2006/42/CE as per Annex II paragraph A.

## USING THE BOOM GATE - GENERAL DESCRIPTION

The ASA4000 and ASA6000 boom gates are suitable for managing passageways with average levels of transit and comply with the UNI 12 453 standard.

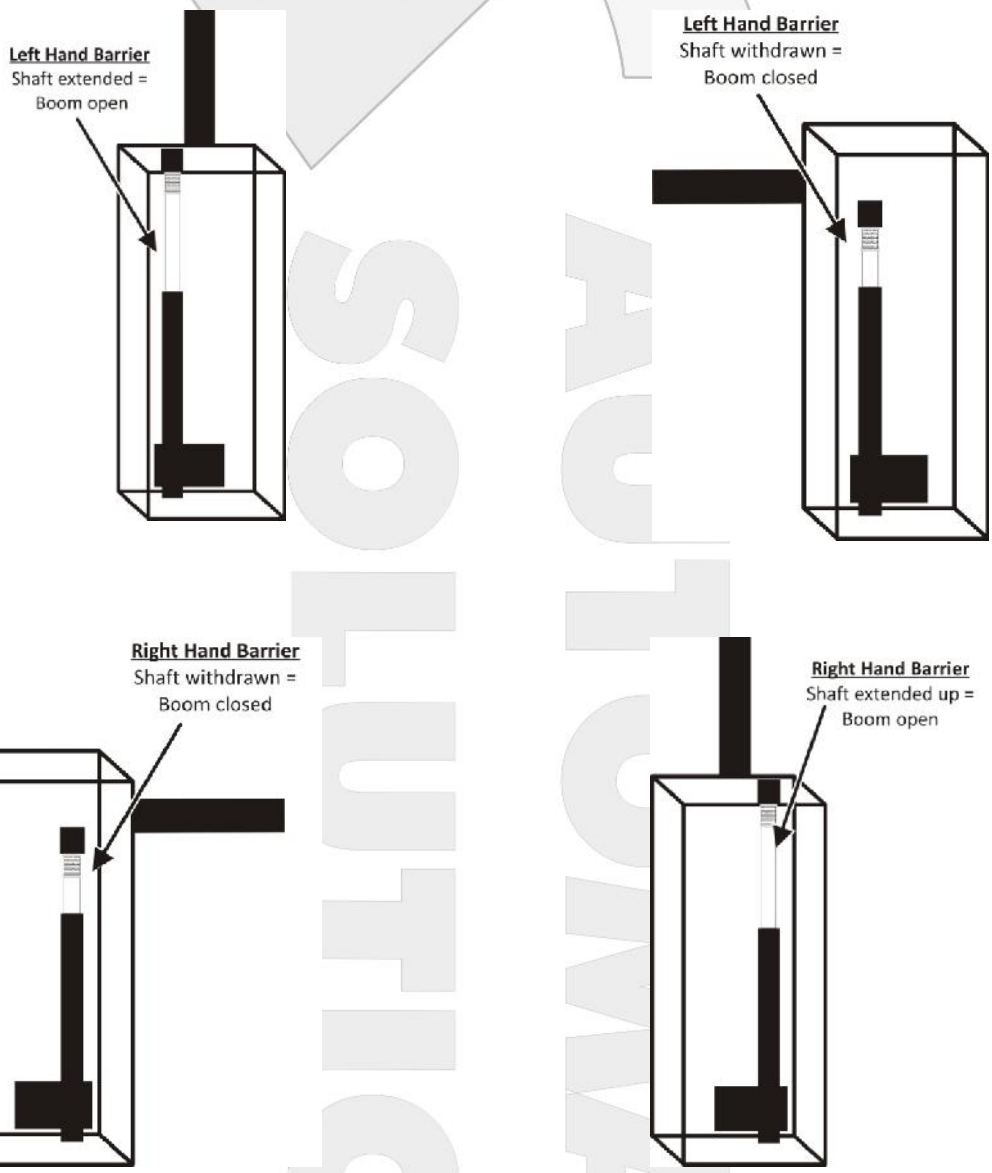
- The movement of the boom is regular with gradual decelerations at the opening and closing positions. The barrier is identified by the CE marking plate.
- A patented intrinsic safety system prevents the barrier from falling in the event of the breakage of any component of the control chain, moving the barrier back to the passage open position.
- Adjusting the run between the two mechanical end runs and balancing the barrier by preloading the movement return spring is easy by moving the nut / counter-nut sets.
- In the event of a power cut, a simple key unlocking system allows the boom gate to be unlocked with the consequent intervention of the return spring which moves the barrier to the vertical position without any external help.
- The crush-prevention safety device is ensured by the preloading of the spring which opposes the action of the boom gate which, where suitably calibrated, ensures that a force is available for movement which guarantees that the barrier stops upon minimal contact with an obstacle.
- The load-bearing casing is made of galvanised steel and is powder-coated.
- Movement is ensured by an asynchronous motor in order to guarantee high levels of reliability over time.
- Possibility to control the motor directly from an automatic external control system.
- Adjustable mechanical end runs with bar open and bar closed contacts available as signals for the automation system.
- Adjustable slowdown limit switch managed by the electronic control unit.

| TECHNICAL DATA | ASA4000 230V | ASA6000 230V |
|---|---|---|
| | | |
| **POWER SUPPLY** (V 240AC 50/60Hz) | 240 | 240 |
| **INPUT POWER (W)** | 180 | 350 |
| **INPUT CURRENT(A)** | 0.8 | 1.0 |
| **CAPACITATOR (µF)** | 8.0 | 12.5 |
| **OPENING TIME (sec)** | 4.5 | 16 |
| **CLOSING TIME (sec)** | 4.5 | 13 |
| **MAX. BAR LENGTH (m)** | 4.0 / 5.0kg | 6.0mtr / 7.5kg |
| **MOTOR SPEED** | 2800 | 2800 |
| **OPERATING TEMPERATURE (°C)** | -25 +60 | -25 +60 |
| **THERMAL PROTECTION (°C)** | 150 | 150 |
| **PROTECTION RATING (IP)** | 40 | 40 |
| **WORKING CYCLE (%) / DAILY MANOEUVRES** | 80 / > 4000 | 80 / > 4000 |
| **MOVEMENT** | ELECTROMECHANICAL PISTON | ELECTROMECHANICAL PISTON |
| **UN LOCKING** | MANUAL - WITH KEY | MANUAL - WITH KEY |
| **DIMENSIONS AND WEIGHT** | 324x282x1130mm / 44.0 kg | 324x282x1130mm / 44.5 kg |

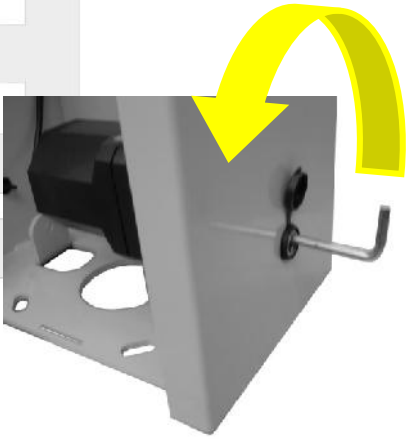
## SUGGESTED ORDER OF INSTALLATION

1. Unpack all package contents and ensure all parts are correct and available.
2. Examine site conditions to determine left or right installation and suitability for base installation.
3. Install base plate if required.
4. Modify left – right configuration of the boom gate if necessary.
5. Securely fasten the boom gate to the prepared base.
6. Attach the boom.
7. Install boom support if used.
8. Adjust boom tension as required.
9. Adjust open and close stops.
10. Prepare control board with temporary loops to enable programming.
11. Apply power to the control board.
12. Program the board and test the operation.
13. Make adjustments as necessary.
14. Attach safety and ingress and egress devices one at a time testing after each addition.

## DETERMINING LEFT AND RIGHT INSTALLATIONS




## EMERGENCY (MANUAL) OPENING

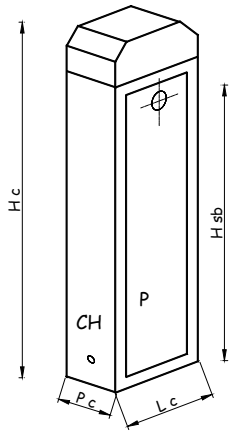


In the event of a power cut or in any other situation which makes it necessary to open the moveable barrier without electrical power, proceed as follows:

- Insert the key supplied in the base of the column in the designated circular hole;
- Turn the key anti-clockwise to unlock the automation-barrier connection (clockwise direction to lock the automation-barrier connection) and use one hand to help the barrier up. The action of the preload spring will help the operation.

## OVERALL DIMENSIONS AND POSITIONING

- The barrier movement mechanism is easily adaptable to provide right-hand or left-hand closing (as seen from the barrier side). See instructions for changing the opening side.
- For safe use, it is necessary to provide suitable space for the automation access panel opening (P) and to be able to activate the unblocking key (CH) for the emergency manoeuvre.
- Securing to the ground takes place by anchoring a base plate equipped with suitable anchor bolts or embedded in a purpose prepared concrete pad.




**BASE PLATE**

| Model | Max length L | Hsb | H c | Wid. c | Depth c |
|---|---|---|---|---|---|
| ASA4000<br>ASA6000 | 4000<br>6000 | 900 | 1225 | 325 | 225 |

## SUGGESTED SAFE OPERATING CONDITIONS:

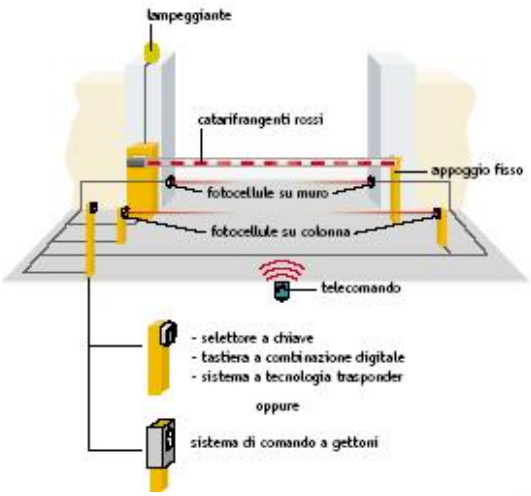
- Affix an adhesive band with reflective strips onto the barrier arm, to highlight it;

- Install a fixed support at the end of the barrier;

- Install a system of photocells, as shown in the figure, to prevent the automatic re-closing system from intervening during the transit of persons or vehicles;

- Check that, in the open and closed positions, the barrier is easily visible both during the day and at night. Add suitable additional lighting where necessary;

- Install a flashing light to activate during barrier movement (optional)



## MODIFYING THE BARRIER CLOSING DIRECTION (RIGHT/LEFT)

The barrier is supplied with the closing as requested (right/left) (as seen from the barrier side).
If the direction of access is to be inverted, the barrier is fully reversible and with simple operations, it is possible to reverse it, following the instructions below.

- Disconnect power to the barrier; lock the switch with the key and open the hatch (P) and the head cover (C).

- Lighten the load on the spring as explained in the chapter “Adjusting the lifting force generated by the spring”, turn the stainless steel stem until the threaded bar disappears.

- Remove the fasteners from the ends of the electrical piston (threaded lock pin and pin).

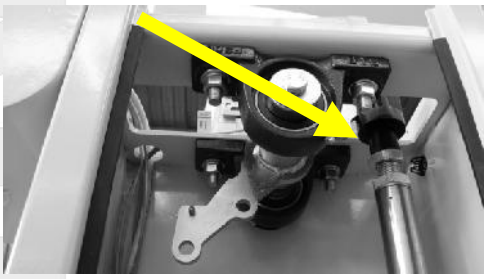
- Reposition the arm of the automatism on the other side, first securing it at the base and then at the top, inserting the pin in the eyelet, and reloading the spring preload.

- Adjust the spring as already described.

***The spring still remains slightly preloaded. In the extraction phase, pay attention to the danger of crushing due to the unexpected extension of the spring as highlighted by the affixed adhesive.***

## ADJUSTING THE LIFTING FORCE GENERATED BY THE SPRING

- After switching off the power supply, access the barrier automatism through the opening in the panel (P).
- With the use of a CH32 fixed spanner, loosen the locking nut and, by turning the stainless steel stem by hand, the following occurs:
in a clockwise direction, the length of the threaded bar increases (the preload increases and counterbalances a longer or heavier arm).
in an anti-clockwise direction, the length of the threaded bar decreases (the preload decreases and counterbalances a shorter or lighter arm).
- Once adjustment is complete, tighten the locking-nut using the fixed spanner.

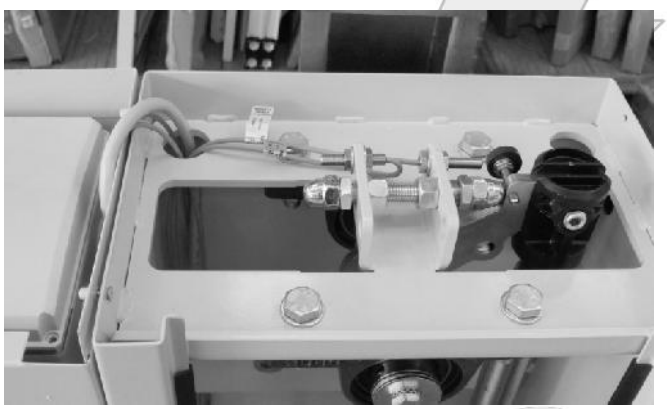


***It is strictly forbidden to adjust the spring so that the force required to stop the boom is greater than 15 kg (150N)***

***IMPORTANT: If you change the boom gate from left to right or right to left you also need to swap your limit switch inputs “FCA” and “FCC” (terminals 5 and 6 on connector J4).***

## ADJUSTING THE BARRIER MECHANICAL END RUNS

- After switching off the power supply, access the barrier automation through the opening in the head cover (C).



- Using two CH 19 fixed spanners, adjust the nut and locking-nut, first loosening then moving the nut in order to correct the stopping position (horizontal barrier) in order to check that the barrier comes to rest gently on the fixed support at the end.
- Once the operation is complete, tighten the nut/locking-nut in the required position.
- Deactivate the connection with the automation through the emergency manoeuvre and lift up the barrier arm manually, moving it to the vertical position.
- Adjust the vertical end run and re secure.

BOARD INTERFACE

## TERMINALS – LEFT TO RIGHT

| | | |
|---|---|---|
| J1 1 | Earth | |
| J1 2 | 240Vac | Mains supply phase |
| J1 3 | 240Vac | Mains supply neutral |
| | | |
| J3 1 | Flashing Light | 240Vac 40W Max |
| J3 2 | Common | Common for Flashing Light & Courtesy Light |
| J3 3 | Courtesy Light | 240Vac 40W Max |
| J3 4 | Motor Open | 240Vac 1HP Max |
| J3 5 | Motor Close | |
| J3 6 | Motor Neutral | |
| | | |
| J4 1 | Not Used | |
| J4 2 | 12Vac Electric Lock | 12Vac 15W Max |
| J4 3 | 12/24Vac | Common |
| J4 4 | 24Vac | .5A Max |
| J4 5 | Limit Switch Open NC | |
| J4 6 | Limit Switch Close NC | |
| J4 7 | Photo stop Input NC | |
| J4 8 | Common | |
| J4 9 | Photocell Input NC | |
| J4 10 | Stop Input NC | |
| J4 11 | Start Input NO | |
| J4 12 | Common | |
| J4 13 | Closing Start NO | |
| | | |
| J2 1 | Antenna Core | |
| J2 2 | Antenna Shield | |
| | | |
| J7 | Plug in Radio Receiver | Not in use |
| | | |
| P1 | Radio Receiver Programming | |
| P2 | Work Time Programming | |
| P3 | Pause Time Programming | |
| | | |
| RV1 | Slow Speed Trimmer | |
| | | |
| F1 | 240Vac Fuse 5A | |
| F2 | 24Vac Fuse 2A | |
| | | |
| DL1 | Power Supply LED | |
| DL3 | Limit Switch LED | |
| DL4 | Limit Switch LED | |
| DL5 | Photo stop LED | |
| DL6 | Photocell LED | |
| DL2 | Stop LED | |
| DL7 | Start LED | |
| DL8 | Close LED | |

## INSTALL YOUR INPUT LOOPS

The only wiring needed before testing your installation is to install a few loops into the "NC" or normally closed inputs. Cut a few short lengths (50mm) of single core cable and strip the two ends. Connect one end to the "photocell" terminal and one end to the "common" terminal, another to the "photo stop" terminal and the "common". Do the same with the "stop" terminal and the "common". These will need to be removed later if you add safety beams (photocells) or a stop button to your installation but for now will close the inputs and make the board operational.

## SET YOUR DIP SWITCHES AND JUMPERS

Set your dip switches as per the settings below.

| | OFF | ON |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |

## CONNECT POWER

You can now plug your logic control board into the 240 volt power outlet or have your electrician connect your power via a suitably installed isolation switch and turn your power on.

## ATTACH ACTIVATION DEVICE

To proceed to the next step you need to have connected a suitable activation device to the "Opening Start" and "Common" (terminals 11 and 12 on J4). Any activation device should provide a momentary pulse only. If you do not have an activation device handy a couple of pieces of cable to "short" the two terminals will suffice.

## SELF LEARNING OF THE BARRIER WORKING CYCLE.

**The operation logic setting (dip switches), the work time programming and the pause time programming must be carried out only if the cycle is concluded or before it starts (with a closed boom).**

**The open and closed limit switches must be in their positions and working. This may be tested by putting the boom gate into manual mode and raising and lowering the boom. DL3 should go out in the open position and DL4 should go out in the closed position.**

- Manually set the barrier to closed (bar in horizontal position), then lock.
- Set the RV1 to around half. Press on P2 until the barrier starts to rise then let go. This first movement will be at the maximum speed and without slow end motion. When the barrier stops rising and is at the fully open position, the programming is finished and the control board has learned the working times. The barrier should stop rising by the open limit switch. The open limit switch ends the programming.
- Use the wired input to test the barrier. Adjust RV1 to give the correct force level. The slow down should apply automatically.

## SETTING A PAUSE TIME AND ENABLING AUTOCLOSE

To set a pause time press push-button P3 until the led DL1 lights. Let the desired pause time pass, and then press push-button P3 again. To turn on automatic close – turn off the power, turn DIP2 to ON and turn the power back on.

## END OF SIMPLE SETUP

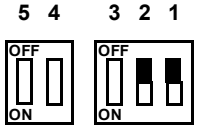
If all went well you have finished simple setup. On the following pages you will find some more detailed information and wiring diagrams to enhance and add to your installation.

## OPERATION MODES

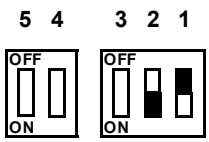
**Introduction:**
The electronic unit contains a micro-processor to control the gate's operation modes. These are the four main operation phases :
- Phase preceding the barrier's motion
- Barrier's fast motion phase
- Barrier's slow motion phase
- Barrier's pause phase (open gate)

The unit can function in four modes:

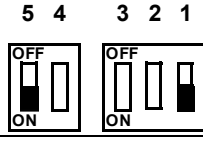
**"STEP-BY-STEP" MODE**
When the gate is closed, the opening start command determines an opening cycle. At the end of the work time, the gate stops. The operating cycle is completed (blinker off) and the system waits for a closing start command to determine the closing cycle. If a opening start or closing start command is supplied when the end of travel has not been reached yet the gate stops.

| | |
|---|---|
|  | Set the dip switches 1 and 2 to OFF<br>The state of the other dip switches has no effect |

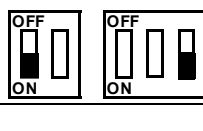
**"AUTOMATIC" MODE**
When the gate is closed, the opening start command determines an opening cycle. At the end of the work time, the gate stops. The pause period starts (blinker off). At the end of the pause period the gate closes automatically. The operating cycle is complete only when the closing motion has ended. If a opening start or closing start command is supplied before the end of travel is reached the gate stops. If an opening start or closing start command is supplied during the pause period the operating cycle is interrupted and the gate does not close automatically.

| | |
|---|---|
|  | Set the dip switch 1 to OFF<br>Set the dip switch 2 to ON<br>The state of the other dip switches has no effect |

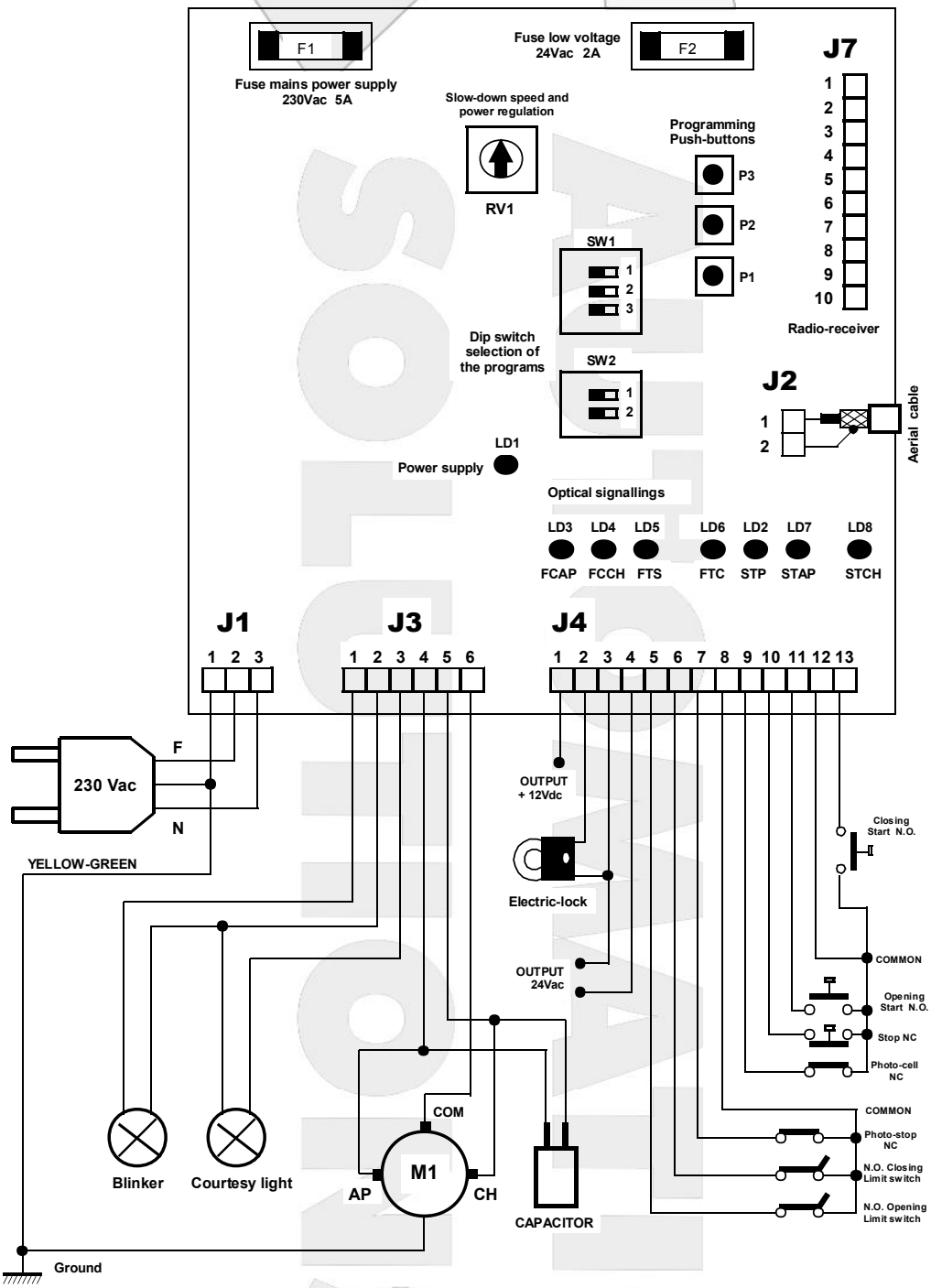
**"BARRIER PARKING" MODE**
This operating mode allows the use of the barrier in parking with opening by coin or similar systems and the immediate closing at the passing of the vehicle. When the gate is closed, the opening start command determines an opening cycle. At the end of the work time, the gate stops. The pause period starts (blinker off). At the vehicle passing, when the photocell is released, starts the closing cycle. The operating cycle is complete only when the closing motion has ended.

| | |
|---|---|
|  | Set the dip switch 1 to ON switch 5 ON<br>The state of the other dip switches has no effect |

**"BARRIER" MODE**
***The Barrier logic mode is the priority operation mode. If more than one modes are selected the priority mode will be enabled.***
When the gate is closed, the opening start command determines an opening cycle. At the end of the work time, the gate stops. The pause period starts (blinker off). At the end of the pause period the gate closes automatically. The operating cycle is complete only when the closing motion has ended. If an opening start or closing start command is supplied while the gate opens, the command will have no effect. During the closing phase the opening start command operates whereas the closing start command not operates. If a opening start command is supplied while the gate closes, the gate will stop and reverse its motion after approx. 1,5sec. If an opening start or closing start command is supplied during the pause period, the period will be reset and the automatic closure will start later.
**Important :** If the gate opening is controlled by a clock the "Barrier" mode must be enabled.

| | |
|---|---|
|  | Set the dip switch 1 to ON<br>The state of the other dip switches has no effect |

# General diagram



## MAINTENANCE

The barrier must be maintained in order to conserve conditions which guarantee safety and correct operation.

***Before proceeding with maintenance, ensure that the barrier is safe, switching off the ON/OFF switch on the electrical panel and locking the electrical panel itself. Also remember that a preload spring is installed inside the automatism and great care must be taken when adjusting it.***

***Always use original spare parts. Do not perform adjustments which modify the barrier or alter the calibrations.***

## RESIDUAL RISKS

- If there is no coordination between the residual current device and the earthing system, for places at greater electrical risk, the user is exposed to the risk of an electric shock in the event of a fault.
- If the assembly area is poorly lit, the user is exposed to the risks or accidental knocks and injuries;
- If the return spring or the ascent/descent speed is not correctly calibrated, the user is exposed to the risk of traumas caused by knocks from the barrier.

## REGULAR MAINTENANCE INTERVENTIONS

| **Operation** | **Frequency** | **Person responsible** | **Method** |
|---|---|---|---|
| Check that the protection devices are in working order | Daily | Operator | Check that the stops are efficient, the guards are in position and the signs are intact. |
| Check the positions of the end runs | As required | User | Disconnect power and proceed as described in the manual. |
| Check the descent/ascent force of the barrier | Every six months | User/maintenance technician | Disconnect power; check that the maximum force generated to stop the barrier during movement is less than 150N. If the value measured is greater, adjust the preload spring. |
| Check the protection against indirect contacts | Every six months | Electrical maintenance technician | Check the intervention times of the residual current switch and check that the protection circuit (PE) is earthed correctly. |

**TROUBLESHOOTING**

There follows a list of some causes and possible solutions for a series of faults which could occur and lead to incorrect or non-operation of the moveable barrier.

| Faults | Possible cause | Solution |
|---|---|---|
| The barrier does not perform the open/close commands | No electrical power | Check for the presence of electrical energy. |
| | The ON/OFF switch is OFF or has been triggered due to a fault | Check the conditions of the switch and turn ON again if necessary |
| | The photocells are not in the light or a foreign element is present | Check the photocells |
| | Opening of the automation-barrier connection through the emergency manoeuvre | Close the connection using the designated key |
| | The end run is not closed | Check the action and the continuity of the end run contacts |
| The barrier goes up and then remains blocked in that position | The spring is too taut and the automatism cannot overcome the weight of the barrier and the return action of the spring | Adjust spring calibration |
| | The arm used is too long or too heavy | Adjust spring calibration |
| When the barrier comes down, it hits the fixed support at the end | Mechanical end run not positioned correctly, spring not preloaded enough | Adjust the calibration of the end run and the spring preload |



**AUTOMATIC SOLUTIONS AUSTRALIA PTY LTD**
**PO BOX 1034 CANNING VALE WESTERN AUSTRALIA 6970**
**TECHNICAL HELP – service@automaticsolutions.com.au**

# SELF INSTALL - NEED TECHNICAL ASSISTANCE?

## OPTION 1: DIRECT WITH THE SERVICE DESK – QUICKEST AND MOST EFFECTIVE METHOD

**Submit your enquiry direct with the service desk at – service@automaticsolutions.com.au**
**The service desk has the most experienced staff in Australia to help with your problem but they need your help.**

- **Describe your problem in detail and as clearly as possible. Don't forget to include a telephone number.**
- **Be certain to detail which model or models of you are working with.**
- **Send photos of the installation – they love photos. The people at the service desk are good but they are even better when they can see the installation. Send photos of the overall scene so they can see the entire installation. Also send photos of the wiring to the control board and any other part of the installation you think is relevant.**
- **Send video if appropriate. Smartphone's these days take remarkably good video in small file sizes which can be emailed in a moment. If your problem needs a video to show the issue please feel free to send it.**

**NOTE: THIS IS BY FAR THE FASTEST AND MOST SUCCESFUL WAY TO SOLVE YOUR PROBLEM**
**PHOTOS AND VIDEOS ARE THE NEXT BEST THING TO BEING THERE**

## OPTION 2: LODGE YOUR ENQUIRY LOCALLY - SLOWER BUT CAN STILL BE EFFECTIVE

**Make contact with the store of purchase. Branch staffs are typically not technicians and dependent on their length of service will have varying degrees of technical knowledge. If they cannot help however they will certainly either source help locally from their technicians or make contact with the service technicians on your behalf.**

## OPTION 3: SERVICE CALL WITH AUTOMATIC SOLUTIONS TECHNICIAN – SLOWEST METHOD

**If you fall within the local branch service area it may be possible to book a local technician to look at your installation. Wait times will vary dependent on local workloads. The cost is a service fee which includes the first half hour and the hourly rate thereafter. If any Automatic Solutions provided parts are found to be defective and within warranty these will be provided free of charge.**
**(NOTE: If you suspect that any parts are defective and within warranty you may wish to consider option 4)**

***A note on this option: If you decide on this option you will be asked to sign an "authorisation to proceed" which will provide legal authority and payment security. This form has three options available of which only the first two are available to you. The third option is for warranty repairs only for full install customers. Self install customers requiring warranty only service need to refer to option four below.***

***IMPORTANT: IN SHORT THIS OPTION WILL INCUR CHARGES***

## OPTION 4: RETURN THE PRODUCT IF BELIEVED TO BE FAULTY

**As a self install customer who has purchased product if you believe the product to be faulty rather than an installation or site problem you have the option of returning the product for evaluation and to exercise your right to a replacement, repair or refund as applicable. All returned product is forwarded immediately to the service technicians for evaluation and response. There are two main methods available to return product –**

- **Direct to the service centre – this is the quickest method as it cuts out the branch delay**
- **Via the branch of purchase – slower because of the delay at the branch**

**When choosing this option you need to complete a product return form. This form gives you all the information on procedure involved and where to send to. These are available at the branch of purchase, can be emailed to you (contact your branch), or available here - http://automaticsolutions.com.au/page/warranty.php**