

**9th Edition**

# **Double & Single Gate Controller**

*with Eclipse® Operating System (EOS)*

**Eclipse®  
MC**



**MC : Controller for Double and Single Gates**

**Setup and Technical Information**

**Includes latest Intelligent Technology**

**ELSEMA**   
GATE & DOOR CONTROLS

 [www.elsema.com](http://www.elsema.com)

## Important warning and safety instructions

All installations and testing must be done only after reading and understanding all instructions carefully. All wiring should be done only by trained technical personnel. Failing to follow instructions and the safety warnings may result in serious injury and/or damage to property.

Elsema Pty Ltd shall not be liable for any injury, damage, cost, expense or any claim whatsoever to any person or property which may result from improper use or installation of this product.

Risk in the goods purchased shall unless otherwise agreed in written pass to the buyer upon delivery of the goods.

Any figures or estimates given for performance of goods are based upon the company's experience and is what the company obtains on tests. The company will not accept liability for failure to comply with the figures or estimates due to the nature of variable conditions affecting for example Radio Remote Controls.

Elsema Pty Ltd recommends that safety devices such as Photo Electric beam and safety edge sensor are installed on automatic openers.

Please keep this setup instruction for future reference.



Installed by: \_\_\_\_\_

Service date: \_\_\_\_\_

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## Features

- › Suitable for swing and sliding gates
- › Double or single motor operation
- › Eclipse Operating System (EOS)
- › Day and night sensor (DNS)
- › 24 or 12 Volt DC motor operation
- › Motor soft start and soft stop
- › Speed and force adjustment
- › Large 4-line LCD to indicate controllers status and setup instructions
- › 1-Touch control for easy setup
- › Auto profiling using latest intelligent technology
- › Various inputs, push button, open only, close only, stop, pedestrian and Photoelectric Beam
- › Supports limit switch inputs or mechanical stops
- › Adjustable Auto Close, obstruction load and pedestrian access
- › Adjustable lock and courtesy light outputs
- › Variable photoelectric safety beam functions
- › Built-in Penta Receiver
- › Energy saving mode to reduce running costs
- › 12 and 24 Volt DC Output to power accessories
- › Service counters, password protection, holiday mode and many more features
- › Built in 12 and 24 Volt battery charger for backup batteries
- › Very low standby current making it ideal for solar gates

## Description

Are you ready for the Eclipse? The MC's Eclipse operating system is a user friendly menu driven system that uses the 1-touch button to control, setup and run automatic gates, doors and barriers. It uses a large 4-line LCD screen showing live reading of the motor performance and status of all inputs and outputs.

The MC controller is not just the next generation but the industry game changer. We wanted to create a controller that is simple to use and does just about any feature required in the gate and door industry. The MC is not just the next generation but the "Next Transformation" in the gate and door industry creating an Eclipse over previously developed motor controllers.

This new intelligent motor controller is the best match for your automatic gate or door motors.

The intelligent controller was built from the ground up, based on customer feedback and using today's technology. With its rich functions, consumer friendly price and with the focus during development being ease of use and setup makes this controller the ultimate board to control your motors.

Elsema's easy options to add remote controls or any type of Photoelectric Beams makes for a very user friendly approach, while avoiding the lockdown approach to accessories.

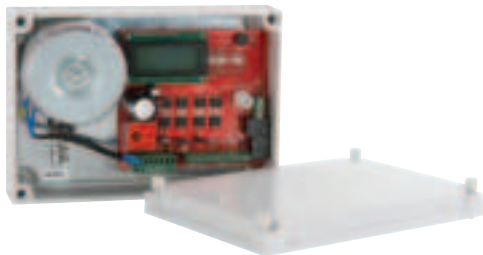
The control cards are available with an IP66 rated plastic enclosure for outdoor installations, backup batteries with charger or the card only. The MC is also suitable for solar gates with its very low standby current.



MC



MC24E2



MC24E or MC12E



Solar24SP or Solar12

## Part Number:

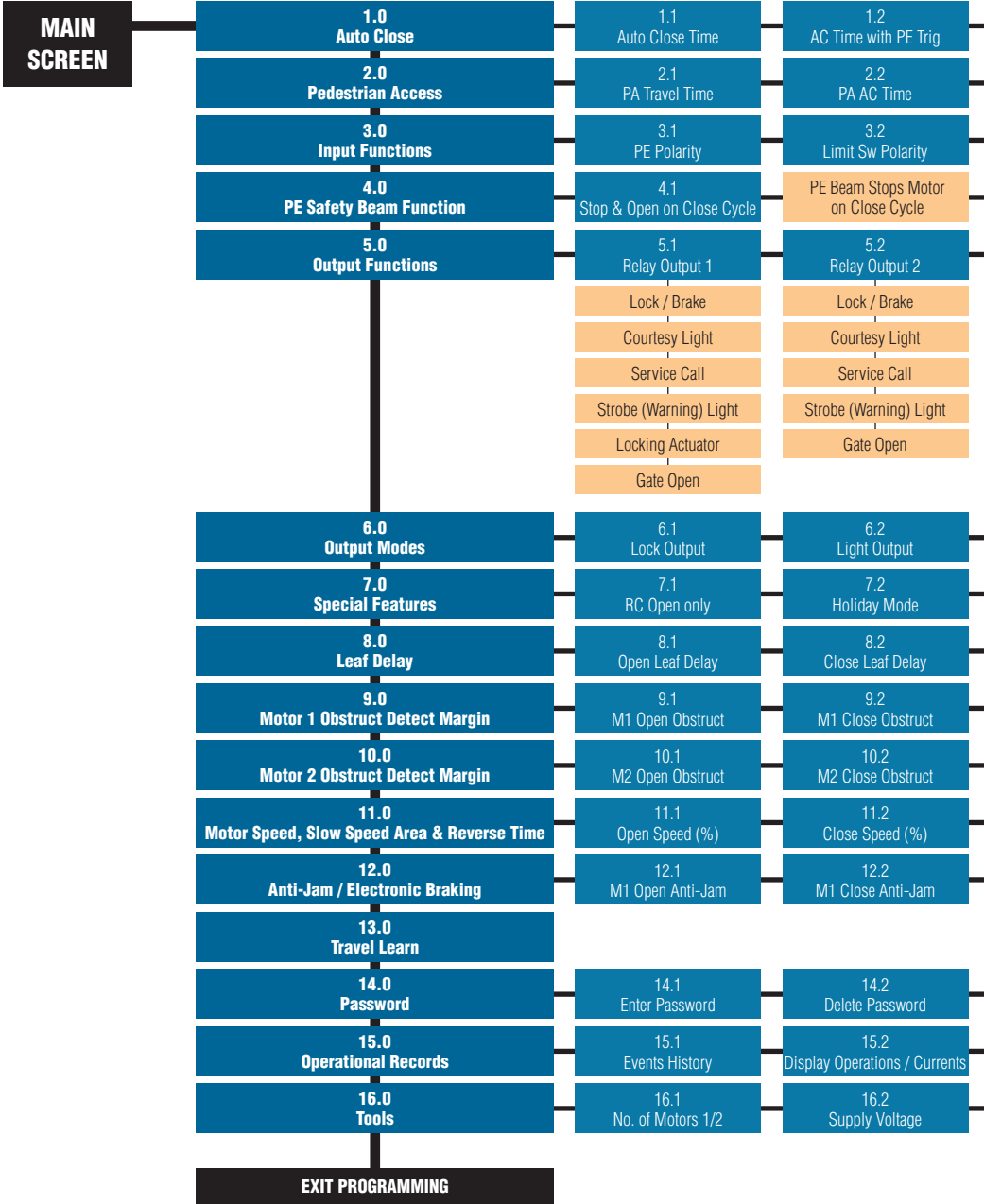
| Part No.    | Contents                                                                                                                 | Part No. | Contents                                                                                             |
|-------------|--------------------------------------------------------------------------------------------------------------------------|----------|------------------------------------------------------------------------------------------------------|
| MC          | Double or single gate and door controller for 24 / 12 Volt motor up to 120 Watts                                         | MCv2*    | Double or single gate and door controller for 24 / 12 Volt motor bigger than 120 Watts*              |
| MC24E       | Double or single controller for 24 Volt motors includes IP66 rated plastic enclosure and transformer                     | MC12E    | Double or single controller for 12 Volt motors includes IP66 rated plastic enclosure and transformer |
| MC24E2      | Same as MC24E plus 24 Volt 2.3Ah backup battery                                                                          |          |                                                                                                      |
| MC24E7      | Same as MC24E plus 24 Volt 7.0Ah backup battery                                                                          | MC12E7   | Same as MC12E plus 12 Volt 7.0Ah backup battery                                                      |
| Solar Gates |                                                                                                                          |          |                                                                                                      |
| Solar24SP   | Solar kit for double or single gates, includes solar MPPT charger & 24 Volt 15.0Ah backup battery and a 40W solar panel. | Solar12  | Solar kit for double or single gates, includes solar MPPT charger & 12 Volt 15.0Ah backup battery    |

\*Above 120 Watts use MCv2. Contact Elsema for recommended settings.

MC & MCv2 control card can be used to control automatic gates, doors, boom gates, automated windows & louvres.

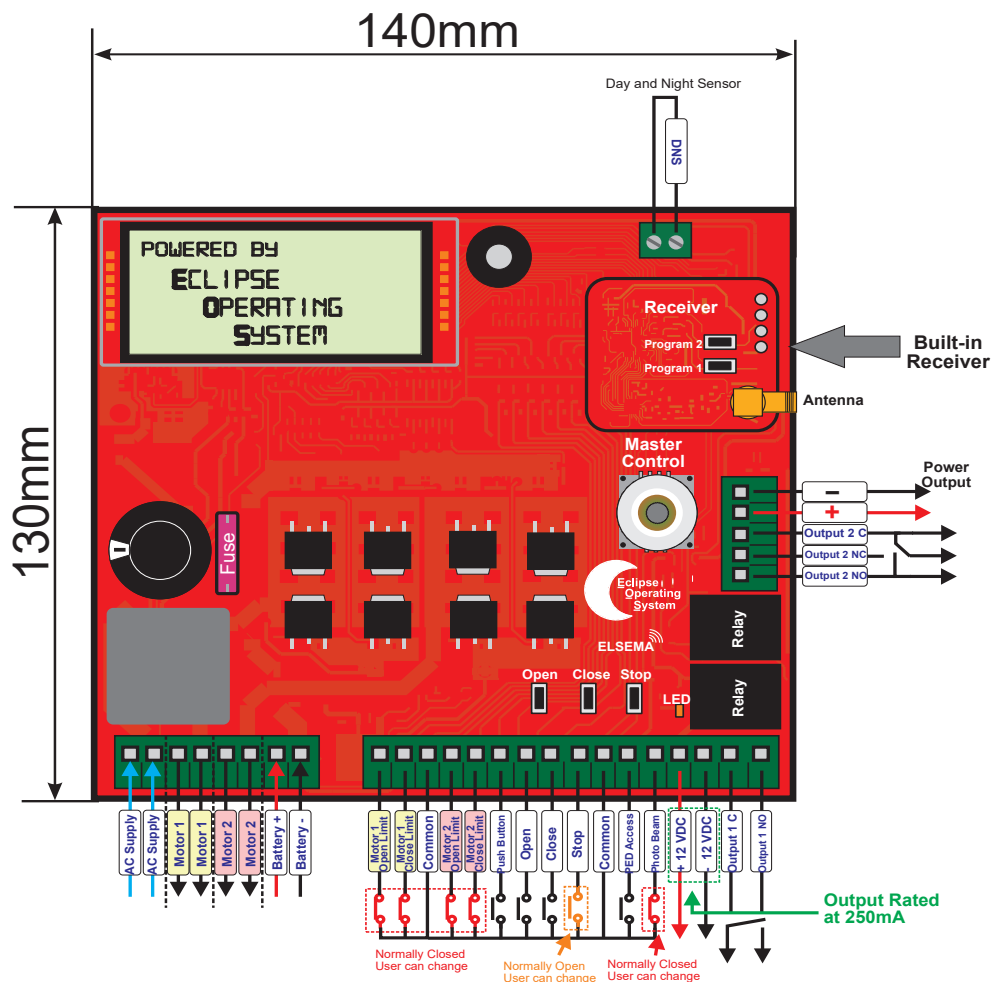
# Menu Structure

Press Master Control for 2 seconds to enter the menu





# MC Connection Diagram



DNS Connection : On the top right corner of the control card is a connection for Day and Night Sensor (DNS). This sensor is available from Elsema and is used to detect daylight. This feature can be used to Auto Close the gate at night, turn on the courtesy light or lights on your gates during the night and many more features which require a day and night detection.

# Electrical Wiring - Supply, Motors, Battery and Inputs

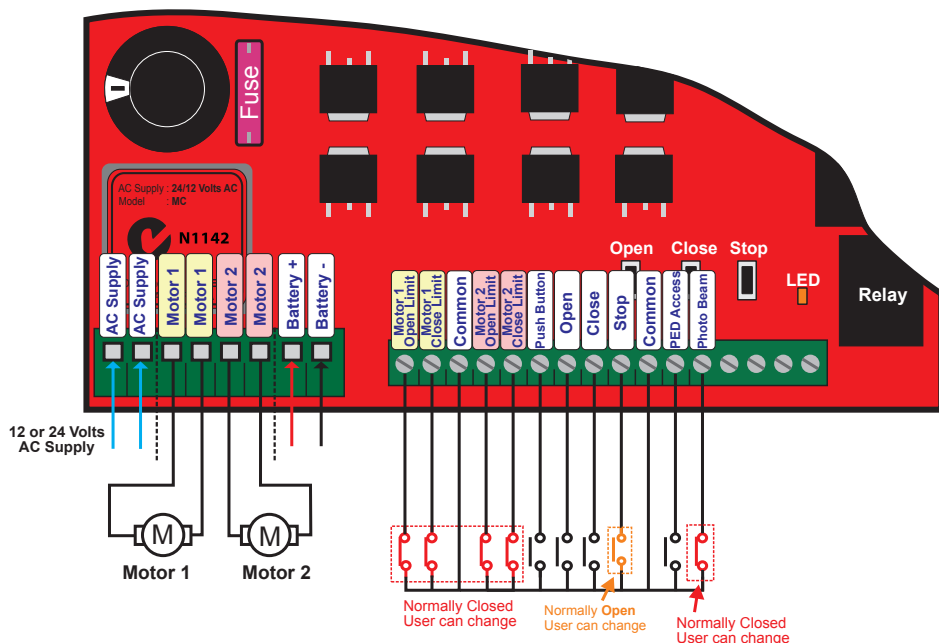


Always switch off power before doing any wiring.

Make sure that all the wiring is completed and that the motor is connected to the control card.

**Recommended wire strip length should be 12mm for all connections to the plug in terminal blocks.**

The diagram below shows the supply, motors, battery backup and inputs available and the factory default setting for each input.



If you are using mechanical stops move to the Setup i-Learning Steps. Skip Limit Switch section. If you are using limit switches make sure they are connected properly. The control card can operate with either the limit switches connected directly to the cards terminal blocks or in series with the motor.

## Before Setup:

The MC control card can be installed in a variety of installation setup. Below are 3 common setup. It is very important to select the correct setup type during i-Learn.

### 1. No limit switches.

In this setup, the card relies on the current draw of the motor to determine the fully open and fully closed positions. You need to adjust your margins accordingly to get the gate to fully open and closed. Setting margins too high can cause the motor to stall in the open or closed position. (*See troubleshooting guide*).

### 2. Limit switches connected to the Control card.

The limit switches can be Normally Closed (NC) or Normally Open (NO). You need to select the correct type during i-Learn. In this setup the limit switches are wired directly to the control card.

### 2. Limit switches in series with the motor.

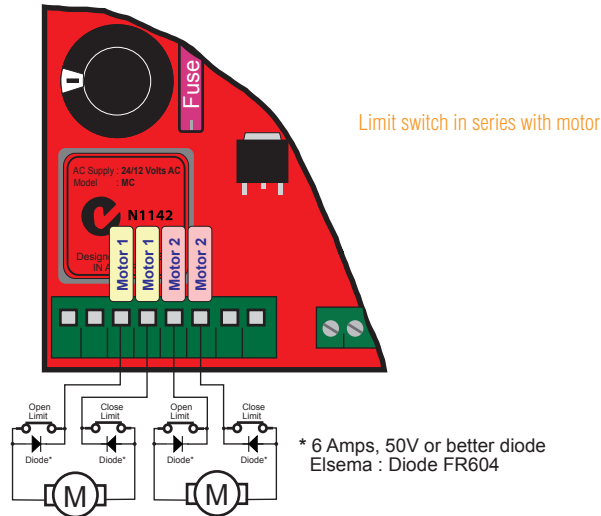
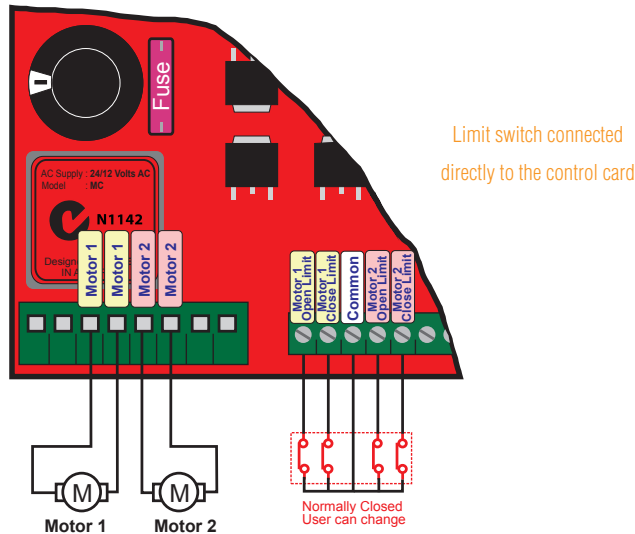
The limit switches are connected in series with the motor. The limit switches will disconnect power to the motor when activated.

## Setup i-Learning Steps:

1. Look at the LCD and follow the instructions displayed.
2. The i-Learning setup can always be interrupted with the stop button or by pressing the Master Control knob.
3. Enter Menu 13 to start i-Learning or new control cards will automatically prompt you to do the i-Learning.
4. The control card will open and close the gates or doors several times to learn the load and travel distances. This is the auto profiling using latest intelligent technology.
5. Buzzer will indicate learning was successful. If there was no buzzer check all electrical wiring including the power supply then go back to step 1.
6. If you hear the buzzer after the i-Learn, the gate or door is ready for use.

# Limit Switches

If you are using limit switches make sure they are connected properly. The control card can operate with either the limit switches connected directly to the cards terminal blocks or in series with the motor. Check diagrams below:



By default the limit switch inputs on the control card are normally closed (NC). This can be changed to normally open (NO) during the setup steps.

# Menu 1 – Auto Close

Auto Close feature automatically closes the gate after a preset time has counted down to zero. The control card has a normal Auto Close and several special Auto Close features each one having its own countdown timers.

Elsema Pty Ltd recommends a Photoelectric Beam to be connected to the control card when any of the Auto Close options are used.

If the Stop input is activated Auto Close is disabled for that cycle only.

Auto Close timer will not count down if the Push Button, Open or Photoelectric Beam input is held active.

| Menu No. | Auto Close Features                          | Factory Default | Adjustable            |
|----------|----------------------------------------------|-----------------|-----------------------|
| 1.1      | Normal Auto Close                            | Off             | 1 - 600 seconds       |
| 1.2      | Auto Close with Photoelectric Trigger        | Off             | 1 - 60 seconds        |
| 1.3      | Auto Close after an Open Obstruction         | Off             | 1 - 60 seconds        |
| 1.4      | Auto Close after Power Restored              | Off             | 1 - 60 seconds        |
| 1.5      | Normal Auto Close on Sequential Obstructions | 2               | Min = Off,<br>Max = 5 |
| 1.6      | Auto Close Only when Fully Opened            | Off             | Off / On              |
| 1.7      | Auto Close Only at Night with DNS connected  | Off             | Off / On              |
| 1.8      | Exit                                         |                 |                       |

## 1.1 Normal Auto Close

The gate will close after this timer has counted down to zero.

## 1.2 Auto Close with Photoelectric Trigger

This Auto Close starts counting down as soon as the Photoelectric Beam has been cleared after a trigger even if the gate is not fully open. If there is no Photoelectric Beam trigger the gate will not Auto Close.

## 1.3 Auto Close after an Open Obstruction

If the gate opens and hits an obstruction normally the gate will stop and remain in this position. If this feature is enabled an obstruction will start the timer count down and at zero will close the gate.

### 1.4 Auto Close after Power Restored

If the gate is open in any position and there is a power failure, when power is reconnected the gate will close with this timer.

### 1.5 Normal Auto Close on Sequential Obstructions

If the normal Auto Close is set and during closing there is an obstruction, the gate will stop and reopen. This setting sets the amount of times the gate will try to Auto Close. After trying for the set limit the gate will remain open.

### 1.6 Auto Close Only when Fully Opened

The Auto Close timer will not time out unless the gate is fully opened.

### 1.7 Auto Close Only at Night

When the DNS is connected and the sensitivity (Menu 16.8) is set correctly, the Auto Close will only work at night.

## Menu 2 – Pedestrian Access

There are several types of Pedestrian Access modes. Pedestrian Access opens the gate for a short time to allow someone to walk through the gate but does not allow access to a vehicle.

Elsema Pty Ltd recommends a Photoelectric Beam should be connected to the control card when any of the Auto Close options are used.

| Menu No. | Pedestrian Access Features                              | Factory Default | Adjustable            |
|----------|---------------------------------------------------------|-----------------|-----------------------|
| 2.1      | Pedestrian Access Travel Time                           | 3 seconds       | 3 - 20 seconds        |
| 2.2      | Pedestrian Access Auto Close Time                       | Off             | 1 - 60 seconds        |
| 2.3      | Pedestrian Access Auto Close Time with PE trigger       | Off             | 1 - 60 seconds        |
| 2.4      | Pedestrian Access Auto Close on Sequential Obstructions | 2               | Min = Off,<br>Max = 5 |
| 2.5      | Pedestrian Access with Hold Gate                        | Off             | Off / On              |
| 2.6      | Exit                                                    |                 |                       |

### 2.1 Pedestrian Access Travel Time

This sets the time the gate opens when a Pedestrian Access input is activated.

### 2.2 Pedestrian Access Auto Close Time

This sets the countdown timer for automatically closing the gate when a Pedestrian Access input is activated.

### 2.3 Pedestrian Access Auto Close Time with PE Trigger

This Auto Close starts counting down as soon as the Photoelectric Beam has been cleared after a trigger, when the gate is in the Pedestrian Access position. If there is no Photoelectric Beam trigger the gate will remain in Pedestrian Access position.

### 2.4 Pedestrian Access Auto Close on Sequential Obstructions

If the Pedestrian Access Auto Close is set and the gate closes onto an object the gate will stop and reopen. This setting sets the amount of times the gate will try to Auto Close. After trying for the set limit the gate will remain open.

### 2.5 Pedestrian Access with Hold Gate

If the Pedestrian Access hold gate is ON and the Pedestrian Access input is permanently activated the gate will remain open in the Pedestrian Access position. Open input, Close input, Push Button input and remote controls are disable. Used in Fire Exit applications.

## Menu 3 – Input Functions

This allows you to change the Polarity of Photoelectric Beam, stop and limit switch inputs.

| Menu No. | Input Functions                          | Factory Default | Adjustable                         |
|----------|------------------------------------------|-----------------|------------------------------------|
| 3.1      | Photoelectric Beam Polarity              | Normally Closed | Normally Closed /<br>Normally Open |
| 3.2      | Limit Switch Polarity                    | Normally Closed | Normally Closed /<br>Normally Open |
| 3.3      | Stop Input Polarity                      | Normally Open   | Normally Open /<br>Normally Closed |
| 3.4*     | Auxiliary Input (M2 Open Limit Terminal) | Disabled        | Disable /<br>Safety Bump Strip     |
| 3.5      | Exit                                     |                 |                                    |

**\* 3.4: This option is only available when used for single gate mode**

Motor 2 Open Limit terminal can be used to wire Elsema's safety bump strip on a single gate application. Its functions are the same as it's set in menu 12.7.

# Menu 4 – Photoelectric Beam

The Photoelectric Beam or sensor is a safety device which is placed across the gate and when the beam is obstructed it stops a moving gate. The operation after the gate stops can be selected in this menu.

| Menu No. | Photoelectric Beam Feature | Factory Default                             | Adjustable                                                                                                                                                                                                         |
|----------|----------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4.1      | Photoelectric Beam         | PE Beam stops and opens gate on close cycle | <div>PE Beam stops and opens gate on close cycle</div> <div>PE Beam stops gate on close cycle</div> <div>PE Beam stops gate on open &amp; close cycle</div> <div>PE Beam stops and closes gate on open cycle</div> |
| 4.2      | Exit                       |                                             |                                                                                                                                                                                                                    |

The factory default for the PE beam input is “normally closed” but this can be changed to normally open in menu 3.

Elsema Pty Ltd recommends a Photoelectric Beam to be connected to the control card when any of the Auto Close options are used.

Elsema sells different types of Photoelectric Beams. We stock Retro-Reflective and Through Beam Photoelectric Beams.



**PE1500**  
(Retro-Reflective Type)



**PE24**  
(Through-Beam type)

# Menu 5 – Relay Output Functions

The control card has two relay outputs, Output 1 and Output 2. The user can change the function of these outputs to lock / brake, courtesy light, service call, strobe (Warning) light, locking actuator or gate open (gate not fully closed) indicator.

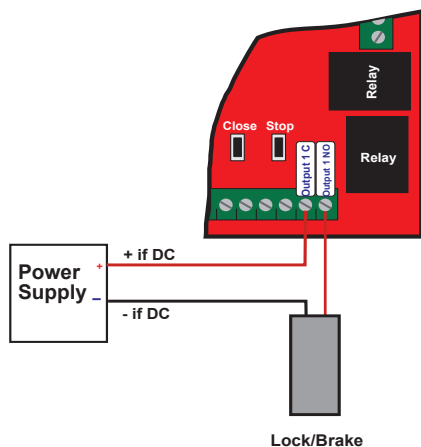
Output 1 is a voltage free relay output with common and normally open contacts. Factory default is lock / brake release function.

Output 2 is a voltage free relay output with common, normally open and normally closed contacts. Factory default is courtesy light function.

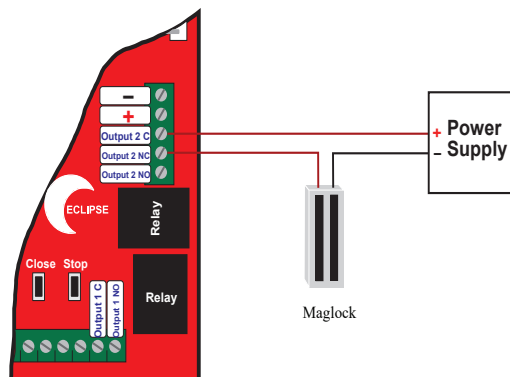
| Menu No. | Relay Output Function | Factory Default | Adjustable                                                                                                                                             |
|----------|-----------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5.1      | Relay Output 1        | Lock / Brake    | Lock / Brake<br>-----<br>Courtesy Light<br>-----<br>Service Call<br>-----<br>Strobe (Warning) Light<br>-----<br>Locking Actuator<br>-----<br>Gate open |
| 5.2      | Relay Output 2        | Courtesy Light  | Lock / Brake<br>-----<br>Courtesy Light<br>-----<br>Service Call<br>-----<br>Strobe (Warning) Light<br>-----<br>Gate Open                              |
| 5.3      | Exit                  |                 |                                                                                                                                                        |

## Lock / Brake Output

The factory default for output 1 is lock/ brake release. Output 1 is a voltage-free relay contact with common and normally open contacts. Having it voltage-free allows you to connect either 12VDC/AC, 24VDC/AC or 240VAC to the common. The normally open contact drives the device. See diagram below:



**Lock or Brake connection**



**Magnetic lock connection**

Use output 2

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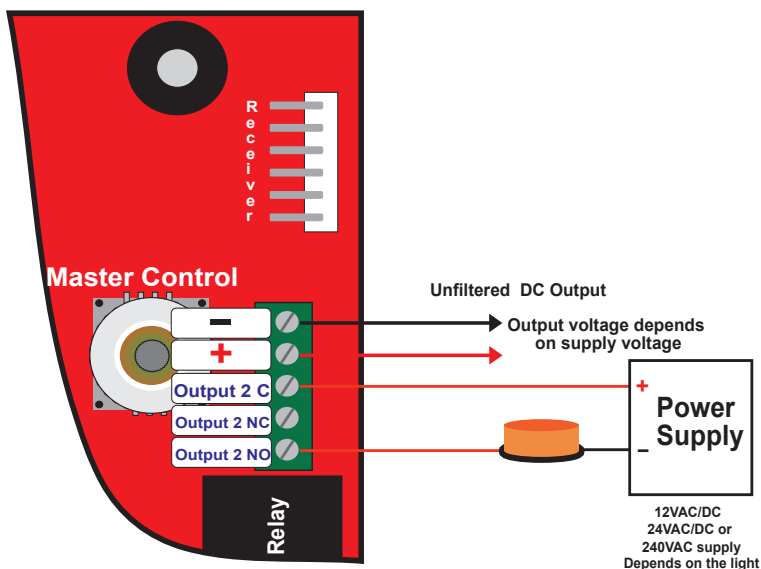
## Courtesy Light

The factory default for the courtesy light is on output 2. Output 2 is a voltage-free relay contact with common, normally open and normally closed contacts. Having it voltage-free allows you to connect either 12VDC/AC, 24VDC/AC or 240VAC supply to the common. The normally open contact drives the light. See diagram on the next page.

---

## Service Call Output

Either output 1 or output 2 can be changed to service call indicator. This will trigger the output when the software service counter is reached. Used to alert installers or owners when service is due for the gate. Using Elsema's GSM receiver allows installers or owners to get a SMS message & a phone call when the service is due.



## Strobe (Warning) Light when Opening or Closing

The relay output is activated whenever the gate are operating. The factory default is Off. Either output 1 or output 2 can be changed to strobe (Warning) light. Both relay outputs are voltage-free contacts. Having it voltage-free allows you to connect either 12VDC/AC, 24VDC/AC or 240VAC supply to the common to power the strobe light. Then the normally open contact drives the light. See diagram above.

## Locking Actuator

Locking actuator mode uses both relay output 1 and relay output 2. The 2 outputs are used to change the polarity of the locking actuator to lock and unlock during opening and closing cycle. During pre-open relay output 1 is "ON" and during post-close relay output 2 is "ON". Pre-open and post-close times are adjustable.

## Gate Open

The relay output is activated whenever the gate is not fully closed. The factory default is Off. Either output 1 or output 2 can be changed to gate open.

# Menu 6 – Relay Output Modes

## Menu 6.1 – Lock / Brake

The relay output in the lock / brake mode can be configured in different ways.

| Menu No. | Lock / Brake Modes                | Factory Default | Adjustable             |
|----------|-----------------------------------|-----------------|------------------------|
| 6.1.1    | Open Lock / Brake Activation      | 2 seconds       | 1 – 30 seconds or hold |
| 6.1.2    | Close Lock / Brake Activation     | Off             | 1 – 30 seconds or hold |
| 6.1.3    | Open Pre-Lock / Brake Activation  | Off             | 1 – 30 seconds         |
| 6.1.4    | Close Pre-Lock / Brake Activation | Off             | 1 – 30 seconds         |
| 6.1.5    | Drop Lock                         | Off             | Off / On               |
| 6.1.6    | Exit                              |                 |                        |

### 6.1.1 Open Lock / Brake Activation

This sets the time the output is activated. Factory default is 2 seconds. Setting it to Hold means the output is activated for the total travel time in the open direction.

### 6.1.2 Close Lock / Brake Activation

This sets the time the output is activated. Factory default is off. Setting it to Hold means the output is activated for the total travel time in the close direction.

### 6.1.3 Open Pre-Lock / Brake Activation

This sets the time the output is activated before the motor starts in the open direction. Factory default is Off.

### 6.1.4 Close Pre-Lock / Brake Activation

This sets the time the output is activated before the motor starts in the close direction. Factory default is Off.

### 6.1.5 Drop Lock

This mode should be enabled when a drop lock is used. It will hold the lock if the gates are stopped in the middle of it's travel.

# Menu 6.2 – Courtesy Light

The relay output in the courtesy mode can be adjusted from 2 seconds to 18 hours. This sets the time the courtesy light is activated after the gate has stopped. Factory default is 1 minute.

| Menu No. | Courtesy Light Mode                                                    | Factory Default | Adjustable            |
|----------|------------------------------------------------------------------------|-----------------|-----------------------|
| 6.2.1    | Courtesy Light Activation                                              | 1 minute        | 2 seconds to 18 hours |
| 6.2.2    | Courtesy Light at Night Only with DNS (Day and Night Sensor) Connected | Off             | Off / On              |
| 6.2.3    | Exit                                                                   |                 |                       |

# Menu 6.3 – Strobe (Warning) Light

The relay output in the strobe (Warning) light stays “on” while the gate is moving. This output can also be configured to come “on” before the gate starts to move.

| Menu No. | Strobe (Warning) Light Mode                 | Factory Default | Adjustable     |
|----------|---------------------------------------------|-----------------|----------------|
| 6.3.1    | Pre-Open Strobe (Warning) Light Activation  | Off             | 1 – 30 seconds |
| 6.3.2    | Pre-Close Strobe (Warning) Light Activation | Off             | 1 – 30 seconds |
| 6.3.3    | Exit                                        |                 |                |

## 6.3.1 Pre-Open Strobe Light Activation

This sets the time the strobe light is activated before the gate operates in the open direction. Factory default is Off.

## 6.3.2 Pre-Close Strobe Light Activation

This sets the time the strobe light is activated before the gate operates in the close direction. Factory default is Off.

## Menu 6.4 – Service Call

This sets the number of complete cycles (open and close) required before the built-in buzzer is activated. Also the control card outputs can be configured to be activated if the number of cycles is completed. Connecting Elsema's GSM receiver to the output allows owners to get a phone call & SMS message when the service is due.

When "Service Call Due" message shows up on the LCD a service call is required. After service has been done, follow the messages on the LCD.

| Menu No. | Service Call Mode | Factory Default | Adjustable               |
|----------|-------------------|-----------------|--------------------------|
| 6.4.1    | Service Counter   | Off             | Min: 2000 to Max: 50,000 |
| 6.4.2    | Exit              |                 |                          |

---

## Menu 6.5 – Locking Actuator

The time for which relay output 1 turns "on" before the gate starts to open and the time for which relay 2 turns "on" after the gate is fully closed can be adjusted as below:

| Menu No. | Locking Actuator           | Factory Default | Adjustable     |
|----------|----------------------------|-----------------|----------------|
| 6.5.1    | Pre-Open Lock Activation   | Off             | 1 – 30 seconds |
| 6.5.2    | Post-Close Lock Activation | Off             | 1 – 30 seconds |
| 6.5.3    | Exit                       |                 |                |

### 6.5.1 Pre-Open Locking Actuator Activation

This sets the time relay 1 is activated before the gate operates in the open direction. Factory default is Off.

### 6.5.2 Post-Close Locking Actuator Activation

This sets the time relay 2 is activated after the gate is fully closed. Factory default is Off.

# Menu 7 – Special Features

The control card has many special features that can all be customised to your specific application.

| Menu No. | Special Features                      | Factory Default | Adjustable                                   |
|----------|---------------------------------------|-----------------|----------------------------------------------|
| 7.1      | Remote Control Open Only              | Off             | Off / On                                     |
| 7.2      | Holiday Mode                          | Off             | Off / On                                     |
| 7.3      | Energy Saving Mode                    | Off             | Off / On                                     |
| 7.4      | Automatic Stop & Open on Closing      | On              | Off / On                                     |
| 7.5      | Receiver Channel 2 Options            | Off             | Off / Light / Pedestrian Access / Close Only |
| 7.6      | Press and Hold for Open Input         | Off             | Off / On                                     |
| 7.7      | Press and Hold for Close Input        | Off             | Off / On                                     |
| 7.8      | Window / Louvre                       | Off             | Off / On                                     |
| 7.9      | Wind Loading                          | Off             | Off / Low / medium / High                    |
| 7.10     | Press & Hold Remote Channel 1 (Open)  | Off             | Off / On                                     |
| 7.11     | Press & Hold Remote Channel 2 (Close) | Off             | Off / On                                     |
| 7.12     | Momentary Reverse on Stop Input       | Off             | Off/On                                       |
| 7.13     | Exit                                  |                 |                                              |

## 7.1 Remote Control Open Only

By default the remote control allows the user to open and close the gate. In public access areas user should only be able to open the gate and not worry about closing it. Usually the Auto Close is used to close the gate. This mode disables closing for the remote controls.

## 7.2 Holiday Mode

This feature disables all the remote controls.

## 7.3 Energy Saving Mode

This puts the control card to very low standby current that reduces your electricity bill while still maintaining normal functions and operations.

## 7.4 Automatic Stop & Open on Closing

By default when the gate is closing and a push button or remote control is activated it will automatically stop and open the gate. When this feature is disabled, the gate will only stop on an activation of the push button or remote control. Automatic opening will be disabled.

## 7.5 Receiver Channel 2 Options

The receivers 2nd channel can be programmed to control a courtesy light, pedestrian access or can be used for Close only.

### 7.6 & 7.7 Press and Hold for Open and Close Inputs

If this feature is ON the user must continuously press the open or close input for the gate to operate.

### 7.8 Window or Louvre Mode

This mode optimises the control card for operating automated windows or louvres.

### 7.9 Wind Loading

Enable this mode for gates installed in High Wind area.

### 7.10 & 7.11 Press and Hold for Remote Channel 1 (Open) and Channel 2 (Close)

The remote channel 1 & 2 buttons will need to be programmed to receiver channel 1 & 2. The user must press and hold the remote button for the gate to open or close.

### 7.12 Momentary Reverse on Stop Input

When this feature is ON and if stop input is activated, both gates will stop and reverse for 1 sec.

## Menu 8 – Leaf Delay

Leaf delay is used when one gate leaf will close in an overlapping position to the first closed leaf. This leaf delay may also be necessary for special add-on locking pins. The control card has separate leaf delay for the open and close directions.

When the control card is used with a single motor the leaf delay mode is disabled.

| Menu No. | Leaf Delay                   | Factory Default | Adjustable       |
|----------|------------------------------|-----------------|------------------|
| 8.1      | Open Leaf Delay              | 3 seconds       | Off - 25 seconds |
| 8.2      | Close Leaf Delay             | 3 seconds       | Off - 25 seconds |
| 8.3      | Close Leaf Delay on Mid Stop | Off             | Off / On         |
| 8.4      | Exit                         |                 |                  |

### 8.1 Open Leaf Delay

Motor 1 will start opening first. After leaf delay time has expired motor 2 will start opening.

### 8.2 Close Leaf Delay

Motor 2 will start closing first. After leaf delay time has expired motor 1 will start closing.

### 8.3 Close Leaf Delay on Mid Stop

By default motor 1 will always have delay when closing even if the gate is not fully open. When disabled both motor 1 and motor 2 will start closing at the same time only when not fully open.

# Menu 9 – Motor 1 Obstruction Detect Margins

This sets the current sensitivity margin above the normal run current to trip the gate if an obstruction is detected. Different obstruction margins can be set for the open and close direction. Also the response time is adjustable.

The minimum margin will allow least pressure applied to trip the gate if it hits an object. The maximum margin will allow for a large amount of pressure applied to trip the gate if it hits an object.

| Menu No. | Motor 1 Obstruction Detect Margins and Response Time | Factory Default | Adjustable                       |
|----------|------------------------------------------------------|-----------------|----------------------------------|
| 9.1      | Open Obstruction Margin                              | 1 Amp           | 0.2 - 6.0 Amps                   |
| 9.2      | Close Obstruction Margin                             | 1 Amp           | 0.2 - 6.0 Amps                   |
| 9.3      | Open and Close Slow Speed Obstruction Margin         | 1 Amp           | 0.2 - 6.0 Amps                   |
| 9.4      | Obstruction Detect Response Time                     | Medium          | Fast, Medium, Slow and Very Slow |
| 9.5      | Exit                                                 |                 |                                  |

## Margin Example

Motor is running at 2 Amps and the margin is set to 1.5 Amps, an obstruction detect will occur at 3.5 Amps (Normal Running Current + Margin).

For high margin settings the supply transformer should be large enough to supply the high margin current.

If the gate hits an object on closing it will automatically stop and then re-open. If the gate hits an object on opening it will automatically stop.

# Menu 10 – Motor 2 Obstruction Detect Margins

This sets the current sensitivity margin above the normal run current to trip the gate if an obstruction is detected. Different obstruction margins can be set for the open and close direction. Also the response time is adjustable.

The minimum margin will allow least pressure applied to trip the gate if it hits an object. The maximum margin will allow for a large amount of pressure applied to trip the gate if it hits an object.

| Menu No. | Motor 2 Obstruction Detect Margins and Response Time | Factory Default | Adjustable                       |
|----------|------------------------------------------------------|-----------------|----------------------------------|
| 10.1     | Open Obstruction Margin                              | 1 Amp           | 0.2 - 6.0 Amps                   |
| 10.2     | Close Obstruction Margin                             | 1 Amp           | 0.2 - 6.0 Amps                   |
| 10.3     | Open and Close Slow Speed Obstruction Margin         | 1 Amp           | 0.2 - 6.0 Amps                   |
| 10.4     | Obstruction Detect Response Time                     | Medium          | Fast, Medium, Slow and Very Slow |
| 10.5     | Exit                                                 |                 |                                  |

## Margin Example

Motor is running at 2 Amps and the margin is set to 1.5 Amps, an obstruction detect will occur at 3.5 Amps (Normal Running Current + Margin).

For high margin settings the supply transformer should be large enough to supply the high margin current.

If the gate hits an object on closing it will automatically stop and then re-open. If the gate hits an object on opening it will automatically stop.

# Menu 11 – Motor Speed, Slow Speed Area and Reverse Time

| Menu No. | Motor Speed, Slow Speed Area and Reverse Time | Factory Default | Adjustable         |
|----------|-----------------------------------------------|-----------------|--------------------|
| 11.1     | Open Speed                                    | 80%             | 50% to 125%        |
| 11.2     | Close Speed                                   | 70%             | 50% to 125%        |
| 11.3     | Open and Close Slow Speed                     | 50%             | 25% to 65%         |
| 11.4     | Open Slow Speed Area                          | 4               | 1 to 12            |
| 11.5     | Close Slow Speed Area                         | 5               | 1 to 12            |
| 11.6     | Stop Reverse Delay                            | 0.4 seconds     | 0.2 to 2.5 seconds |
| 11.7     | Exit                                          |                 |                    |

## 11.1 & 11.2 Open and Close Speed

This sets the speed at which the gate will travel. If the gate is travelling too fast reduce this value.

## 11.3 Slow Speed

This sets the speed at which the gate will travel in the slow speed region. If the gate is travelling too slow increase this value.

## 11.4 & 11.5 Slow Speed Area

This sets the slow speed travel area. If you want more travel time for the slow speed area increase this value.

## 11.6 Obstruction Stop Reverse Delay Time

This sets the stop and reverse delay time when the gate hits an obstruction.

# Menu 12 – Anti-Jam, Electronic Braking and Gate Movement after Obstruction

| Menu No. | Anti-Jam or Electronic Braking                      | Factory Default       | Adjustable                               |
|----------|-----------------------------------------------------|-----------------------|------------------------------------------|
| 12.1     | Motor 1 Open Anti-Jam                               | OFF                   | 0.1 to 2.0 seconds                       |
| 12.2     | Motor 1 Close Anti-Jam                              | OFF                   | 0.1 to 2.0 seconds                       |
| 12.3     | Motor 2 Open Anti-Jam                               | OFF                   | 0.1 to 2.0 seconds                       |
| 12.4     | Motor 2 Close Anti-Jam                              | OFF                   | 0.1 to 2.0 seconds                       |
| 12.5     | Electronic Braking                                  | OFF                   | Off / On                                 |
| 12.6     | Opening Direction : Gate Movement after Obstruction | Gate Stops            | Stop / Reverse for 2 sec / Reverse Fully |
| 12.7     | Closing Direction : Gate Movement after Obstruction | Reverse for 2 seconds | Stop / Reverse for 2 sec / Reverse Fully |
| 12.8     | Exit                                                |                       |                                          |

## 12.1 and 12.2 Motor 1 Open and Close Anti-Jam

When the gate are in the fully open or fully closed position this feature applies a reverse voltage for a very short time. It will prevent the motor from jamming up the gate so it is easy to disengage the motors for manual operation.

## 12.3 and 12.4 Motor 2 Open and Close Anti-Jam

When the gate are in the fully open or fully closed position this feature applies a reverse voltage for a very short time. It will prevent the motor from jamming up the gate so it is easy to disengage the motors for manual operation.

## 12.5 Electronic Braking

This will stop the motors with an electronic brake. Brake applies to obstruction and Stop inputs.

## 12.6 Opening Direction : Gate Movement after Obstruction

After an obstruction has occurred while opening, the gate will either stop, reverse for 2 seconds or reverse fully.

## 12.7 Closing Direction : Gate Movement after Obstruction

After an obstruction has occurred while closing, the gate will either stop, reverse for 2 seconds or reverse fully.

# Menu 13 – i-Learning

This feature allows you to do the intelligent travel learning of the gate. Follow the messages on the LCD to complete the learning

# Menu 14 – Password

This will allow the user to enter a password to prevent unauthorised users from entering the control card settings. User must remember the password. The only way to reset a lost password is to send the control card back to Elsema.

To delete a password select Menu 14.2 and press Master Control.

# Menu 15 – Operational Records

This is for information only.

| Menu No. | Operational Records                                        |
|----------|------------------------------------------------------------|
| 15.1     | Event History, up to 100 events are recorded in the memory |
| 15.2     | Displays Gate Operations and Currents Levels               |
| 15.3     | Reset Maximum Current Records                              |
| 15.4     | Exit                                                       |

## 15.1 Event History

The event history will store 100 events. The following events are recorded into the memory: Power On, Low Battery, All input activations, Successful Opening, Successful Closing, Obstruction Detected, Unsuccessful i-Learning Attempt, Factory Reset, DC Output Overloaded, AC Supply Failed, AC Supply Restored, Autoclose, Security Close and Fuse Protect Obstruction.

## 15.2 Displays Operations and Current Levels

This displays the number of open cycles, close cycles, pedestrian cycles, open obstructions, close obstructions and both motor current levels. All maximum current values can be reset by the user in Menu 15.3

# Menu 16 – Tools

| Menu No. | Tools                                                                                   |
|----------|-----------------------------------------------------------------------------------------|
| 16.1     | Number of Motors, Single or Double Gate System                                          |
| 16.2     | Set the Supply Voltage : 12 or 24 Volts                                                 |
| 16.3     | Resets Controller to Factory Settings                                                   |
| 16.4     | Test Inputs                                                                             |
| 16.5     | Travel Timer for Slip Clutch Motors                                                     |
| 16.6     | Solar Gate Mode : Optimises the Control Card for Solar Applications                     |
| 16.7     | Fuse Type : 10 or 15 Amps<br>Optimises the Control Card for the correct Blade Fuse used |
| 16.8     | Day and Night Sensitivity Adjustment for the DNS                                        |
| 16.9     | Slow Speed Ramp Down Time                                                               |
| 16.10    | Exit                                                                                    |

## 16.1 Number of Motors

This allows you to manually set the control card to a single or a double motor. The control card will automatically test for motors connected during setup.

## 16.2 Set the Supply Voltage

This allows you to manually set the control card to 12 or 24 Volt supply. The control card will automatically set the correct supply voltage during setup. To use the control card in a solar application you must set the correct voltage in the Tools. This will disable the automatic voltage sensing which could causes problems in solar applications.

## 16.3 Resets Controller

Reset all settings to factory default. Also removes password.

## 16.4 Test Inputs

This allows you to test all the external devices connected to the controllers inputs. UPPERCASE means input is activated and lowercase means input is deactivated.

## 16.5 Travel Timer for Slip Clutch Motors

This allows you to use the controller with travel timers. Motor 1 and 2 can have separate travel timers up to 120 seconds. Used for Hydraulic Motors.

## 16.9 Slow Speed Ramp Down Time

This allows you to change the time it takes the gate to change its speed from fast to slow.

# LCD Display Explained



| Gate Status          | Description                                                         |
|----------------------|---------------------------------------------------------------------|
| Gate Opened          | Gate is in the fully open position                                  |
| Gate Closed          | Gate is in the fully close position                                 |
| Gate Stopped         | Gate has been stopped by either one of the inputs or remote control |
| Obstruction Detected | Control card has sensed an obstruction                              |
|                      |                                                                     |
| Limit Switch Status  | Description                                                         |
| M1OpnLm <b>ON</b>    | Motor 1 Open limit switch is ON                                     |
| M2OpnLm <b>ON</b>    | Motor 2 Open limit switch is ON                                     |
| M1ClsLm <b>ON</b>    | Motor 1 Close limit switch is ON                                    |
| M2ClsLm <b>ON</b>    | Motor 2 Close limit switch is ON                                    |
|                      |                                                                     |
| Input Status         | Description                                                         |
| Opn <b>ON</b>        | Open input is activated                                             |
| Cls <b>ON</b>        | Close input is activated                                            |
| Stp <b>ON</b>        | Stop input is activated                                             |
| PE <b>ON</b>         | Photo Beam input is activated                                       |
| PB <b>ON</b>         | Push Button input is activated                                      |
| PED <b>ON</b>        | Pedestrian Access input is activated                                |

# Troubleshooting Guide

During i-Learn, the gate will open and close 3 times. First cycle is in slow speed. The second cycle is in fast speed. The third cycle will be in fast speed but the gate will slow down before reaching the end.

| Error during i-Learn                                                                             | Remedy                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| i-Learn is stuck at 14%                                                                          | Decrease M1 and M2 Slow Speed Obstruction Margin (Menu 9.3 & 10.3)                                                                                                                       |
| i-Learn is stuck at 28%                                                                          | Decrease M1 and M2 Open Obstruction Margin (Menu 9.1 & 10.1)                                                                                                                             |
| Gates do not fully open or fully close in the 1st i-Learn cycle                                  | Increase M1 and M2 Slow Speed Obstruction Margin (Menu 9.3 & 10.3)                                                                                                                       |
| Gates do not fully open or fully close in the 2nd i-Learn cycle                                  | Increase M1 and M2 Open or Close Obstruction Margin (Menu 9.1, 9.2 & 10.1, 10.2)                                                                                                         |
| <b>Limit switch failed to register</b> and the gate is not in the fully open or closed position. | For 1st cycle. Increase M1 and M2 Slow Speed Obstruction Margin (Menu 9.3 & 10.3). For 2nd & 3rd cycle. Increase M1 and M2 Open or Close Obstruction Margin (Menu 9.1, 9.2 & 10.1, 10.2) |
| <b>Limit switch failed to register</b> and the gate is in the fully open or closed position.     | Limit switch position is not correct. The gate has reached the physical stopper or it's maximum travel before the limit switch is activated.                                             |
|                                                                                                  |                                                                                                                                                                                          |
| Error during Operation                                                                           | Remedy                                                                                                                                                                                   |
| Gate does not fully open or fully close but the LCD says "Gate Opened" or "Gate Closed".         | Increase M1 and M2 Slow Speed Obstruction Margin (Menu 9.3 & 10.3) depending on which motor did not fully open or close.                                                                 |
| LCD says "Obstruction detected" when there is no obstruction.                                    | Increase M1 and M2 Open or Close Obstruction Margin (Menu 9.1, 9.2 & 10.1, 10.2)                                                                                                         |
| Gate does not respond to remotes or any local trigger.                                           | Check the LCD for Input status (see previous page). If any input is activated and held active, the card will not respond to any other command.                                           |

## Accessories

### Backup Batteries & Battery Charger

The control card has a built in charger for backup batteries. Simply connect the batteries to the battery terminal and the charger will automatically charge the batteries. Elsema has a range of battery sizes.



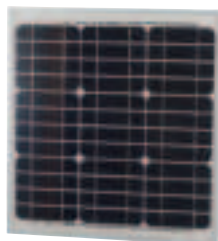
**Backup Batteries**

### Solar Applications

Elsema stocks solar gate controller kits, solar panels, solar chargers and full solar gate operators as well.

#### **WARNING**

To use the control card in a solar application you must set the correct voltage input in the Tools Menu (16.2). This will disable the automatic voltage sensing which could cause problems in solar applications.



**Solar Panels**

### Pre-made Inductive Loops & Loop Detectors

Elsema has a range of Saw-Cut and Direct Burial loops. They are pre-formed with recommended loop sizes for commercial or domestic applications and makes installation quick and easy.



**Inductive Loop**



**Loop Detectors**

### Wireless Bump Strip

Safety edge bump strip is installed on the moving gate or barrier along with the transmitter. When the gate hits an obstacle, the transmitter transmits a wireless signal to the receiver to stop the gate from causing further damage.



**Safety Bump Strip**

## Keyring Remotes

The latest PentaFOB® keyring remotes ensure your gates or doors are secure. Visit [www.elsema.com](http://www.elsema.com) for more details.

### PentaFOB® Remotes



### Booster for PentaFOB® remotes

Penta Repeater can increase the operating range of the keyring remotes to up to 500 metres.



### Repeater/ booster for PentaFOB® remotes

### PentaFOB® Programmer

Add, edit and delete PentaFOB® remotes from the receiver's memory. The receiver can also be password protected from unauthorised access.



### PentaFOB® Programmer

### Flashing Lights

Elsema has several flashing lights to act as a warning when the gate or doors is in operation.



### Flashing Lights

# PentaFOB® Programming Instructions

1. Press and hold the program button on the built-in receiver (Refer to the MC connection diagram)
2. Press the remote button for 2 seconds while holding the program button on the receiver
3. Receiver LED will flash and then turn Green
4. Release the button on the receiver
5. Press remote control button to test the receiver output

## Deleting Receivers Memory

Short the Code Reset pins on the receiver for 10 seconds. **This will delete all the remotes from the receiver's memory.**

## PentaFOB® Programmer

This programmer allows you to add and delete certain remotes from the receiver memory. This is used when a remote control is lost or a tenant moves from the premises and the owner wants to prevent un-authorised access.

## PentaFOB® Backup Chips

This chip is used to backup or restore the contents of a receiver. When there are 100's of remotes programmed to a receiver the installer normally backups the receiver memory in case the receiver is damaged.

## NOTES

