

# Installation and Maintenance Manual

## *Industrial Swing Gate Operator*

Model: GDS 4LVE

(With Elsema Eclipse Operating System)

*Made in Australia from Australian & quality imported components*



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\*This installation manual is to be used in conjunction with the Elsema Eclipse Control manual for full control details

## I. SAFETY PRECAUTIONS



**WARNING! FAILURE TO FOLLOW THESE SAFETY PRECAUTIONS AND INSTALLATION INSTRUCTIONS COULD RESULT IN INJURY OR DEATH AND/OR DAMAGE TO PROPERTY AND EQUIPMENT.**

- Appropriately licensed and competent personnel only should install the automation equipment.
- The operators are designed specifically to open and close sliding gates or doors and should not be used for any other purpose.
- Before commencing installation, read through this installation manual and Eclipse operating manual.
- Check that the operator and controls are in new condition and have not been damaged in transit.
- Check the gate or door and it's associated support posts and walls to protect against shearing, compression and other various traps which could cause serious injury or death. Take into consideration the general installation and surrounding environment.
- Check the gateposts or mounting structure has the necessary strength and rigidity to support the operator and the load of the opening and closing gate motion.
- **Gate leafs over 2.4m in length, should have some form of electro mechanical, or magnetic locking fitted to avoid possible damage to gearbox from forcing due to vandalism, negligence, ramming,**



### **CAUTION!**

**Always incorporate the appropriate Photo Electric Cells, Induction Loops and any other safety devices to protect both equipment and personnel. Extra caution should be employed when using operator in auto close mode.**

- Display any necessary signs to indicate any danger areas and automatic operation of the gate or door.
- The operators are not designed to be used in any hazardous areas or areas subject to flooding etc.
- All electrical connections and wiring must be performed with AS/NZS 3000-2007 as the guidelines. (Or its counterpart for other countries outside of Australia and New Zealand)

### **WARNING! ELECTRICITY CAN KILL**

- The manufacturer of the automation equipment is not responsible for the damage which may be caused to either the operator, gate or door and any other person or equipment when: -
  - Wrong or poor installation practices were performed.
  - No or inadequate safety devices were used.
  - Either the surrounding structure or the gate or door strength and rigidity was not sufficient for the task in hand.
  - Inefficient locking devices were employed.
  - Poor maintenance on the equipment.
  - Any other circumstances beyond the manufacturers control.
- Isolate power before attempting any maintenance, qualified personnel only to carry out maintenance
- Only original spare parts are to be used should there be a requirement for them.
- Keep loose clothing and hands clear of the gate whilst in operation or potentially able to be operated.

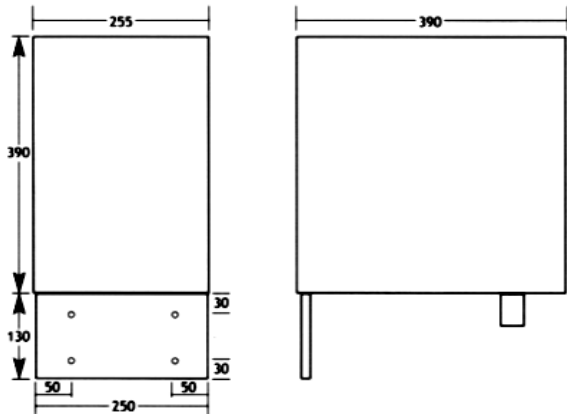
The installer should provide all information concerning the use of the automation equipment as well as instructions regarding the manual override and maintenance procedures to the users of the system.

## 2. SPECIFICATIONS (subject to change without notice)

**WEIGHT:** 41kgs (including arms)  
**MOTOR:** 24v 120w  
**DUTY CYCLE:** 100%  
**SPEED:** 8-12 sec/90°  
(speed adjustable)

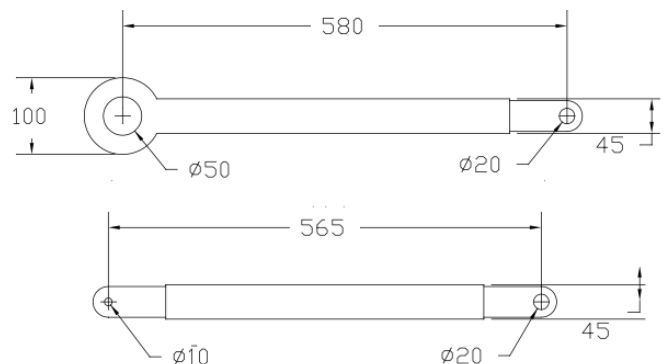
**WIRING REQUIREMENTS:**  
240v on Control Box side  
2 – 2.5mm<sup>2</sup> (min) wires to operator for motor  
3 – 0.5mm<sup>2</sup> (min) wires to operator for limits  
Control input cables, Output signal cables  
**NOTE:** If the cable run is over 10m long, shielded cable is recommended.

### SIZE:



### GATE SIZE:

**WEIGHT** Up to 400kg approx.  
**OPEN BAR GATE** Up to 4.5m approx.  
**CLAD GATE** Up to 4.0m approx.  
**ARM DIMENSIONS :**



### NOTE:

1. Specifications based on gate height of approximately 1.8m.
2. Specifications and in particular the suggested gate sizes can vary depending upon other variables such as friction of hinges, environmental factors, type of cladding and external influences which may assist or degrade the recommended gate sizes.

## 3. INSTALLATION DETAILS

After reading the previous sections in this manual, and having checked for suitable installation, proceed as follows:-

### Electrical Cabling

- A suitably rated Isolator and 240v power supply should be available near to where the gate operator control box is to be mounted.
- If electrical cabling needs to be run across the driveway (where the single gate operator is on the opposite side to the control box) then ensure the appropriate number of cables (see wiring requirements) are run in conduit and are installed at the correct depths and manner for both the mains voltage cables and low voltage cables.
- Wiring for photo electric cell cabling and safety induction loops etc.

### Mechanical Installation

- **Note: This set up is for standard articulated arms, not limited side room channel arms, please refer to detail supplied with channel arms when ordered.**
- Firstly determine which gate rail the operator arm is to be mounted to.
- Run a level from the top of the gate rail across to where the operator is to be installed onto either wall or post.
- Draw a horizontal line on the post or wall which becomes the mounting position of the operator where the top 2 mounting studs are in line with your level line.



- Ideally weld the mounting plate provided to the steel post and use extra strengthening brackets if necessary to ensure a solidly fixed mounting plate (i.e. strengthening brackets may be required if post is less than approximately 150mm wide).
- If mounting to masonry or similar, either drill holes or weld tags onto the mounting plate or as a last resort fix the operator straight to the wall preferably using suitable chemical type anchors to ensure a firm mounting is obtained.
- If fixing without mounting plate ensure spacers (i.e. washers or nuts) are used between the wall and the operator to allow for the cover to fit.

Lift operator into position and bolt to the mounting plate.

- Turn the knurled clutch release knob anticlockwise and position the arms at about 10 to 15 degrees off being straight when the gate is fully



- Mark where the gate bracket is to be fixed onto the gate rail ensuring both arms are in a horizontal and level plane.
- Fully open the gate and re-align the gate bracket with the marked position to ensure there is adequate side room for the arms to fully swing back. If not, the last 2 steps may have to be repeated using a cut down secondary arm.

- Now attach the gate bracket to the gate rail with bolts suitable to handle the load of the gate and the forces the gate operator and wind will provide.
- Normally 10mm.



## ELECTRICAL CONNECTIONS

### OPERATORS

- Connect 2 x 2.5mm<sup>2</sup> (min) cables for the motor to the terminal strip provided.
- Connect 3 x 0.5mm<sup>2</sup> (min) wires for the limits to the terminal strip provided.
- Connect shield to chassis (if over 10m runs).

### CONNECTION TO CONTROL BOARD:-

#### Supply

- Connect a 10A 240v supply to din rail terminals labelled A & N. Connect earth to din rail terminal.

#### Motor Wires

- Connect cable to terminals on board marked “motor 1” and “motor 2”
- Connect shield to earth terminal if used.

#### Control

- Connect low voltage limit switch wires to limit switch terminals on circuit board. Note the common terminal and open/close terminals for motor one and motor two.
- Connect shield to earth terminal if used.

#### Control Inputs

All the switch inputs of this control board including the limit switch inputs require a switch contact only. **Do not connect any switches, which provide a voltage to the control board as this will damage the control board.**

#### Powering Accessories

A 24v d.c 0.5 A regulated supply is provided for running accessories such as photocells, warning lights etc. Care must be taken to not exceed the rating of the protection fuse. If the fuse blows, it must only be replaced with the correct fuse matching the original.

A 12v dc 250ma regulated supply is also provided straight from the control board, which can be used for low current 12v devices, again do not exceed current rating.

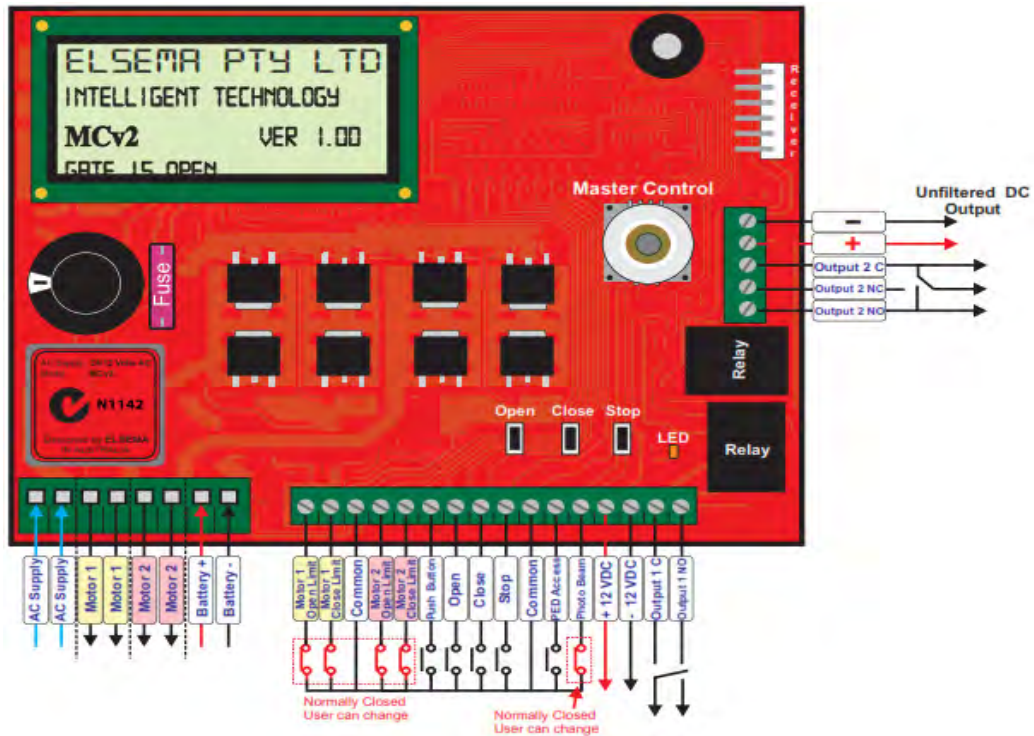
#### Locks & Lights

Relay outputs 1 and 2 are provided and are **voltage free**. These relays are programmable through the Eclipse menu system. **Do not exceed 5A switching current through the relays.**

#### Battery Back-up

An onboard lead acid battery charger is provided, just connect either 1 SLA battery for a 12v system, or 2 for a 24v system, with a capacity of up to 12AHR.

## CONTROL BOARD LAYOUT



## 4. FACTORY PARAMETER SETTINGS

If the control board has been reset, these parameters will have to be checked and adjusted as required.

Menu No	parameter	Setting Value
1.5	Normal auto-close on sequential obstructions	off
7.9	Wind load *use if gate subject to wind loading	off
9.1	open obstruction margin	8A
9.2	close obstruction margin	8A
9.3	open and close slow speed obstruction margin	4A
9.4	obstruction detection response time	SLOW
10.1	open obstruction margin *motor 2	8A
10.2	close obstruction margin *motor 2	8A
10.3	open and close slow speed obstruction margin *motor 2	4A
11.1	open speed	125%
11.2	close speed	100%
11.3	open and close slow speed	65%
11.4	open slow speed area	2
11.5	close slow speed area	2
12.7	Closing direction : gate movement after obstruction	REVERSE FULLY
16.7	fuse rating	20A
16.9	Slow speed ramp down time	1.2 secs



## 5. COMMISSIONING

**\*REFER TO ELSEMA ECLIPSE MANUAL FOR FULL DETAILS ON ALL PARAMETER SETTINGS.**

- Once all wiring connections have been made and checked, and only if safe to proceed, turn on power.
  - On power up, the board will go through its boot up procedure.
- Next, on the screen it will tell you that the limits are not set and to press master control and hold for 2 seconds to enter i-learn procedure. Once the menu is entered, the screen will display the following.
- Next "I-learn mode press master to learn", so press master button.
  - "Are limit switches used?" select yes.
  - "Limit switch input" select NC.
  - "Limit switch operation" select "gate stops on limits" (gate slows on limits can be used if desired depending on how you want the gate to stop, and if you have gate stops on both the close and open pos.).
  - "Is gate open half way" select yes or no depending on where the gate is, if no, use the open and close buttons to adjust the gate position. When in position, press the master button.
  - "Setting direction" then "Did motor I open" so select yes or no.
  - After setting the direction, the controller will perform its automatic profiling.
- \*NOTE** if motor open/close speed settings are changed, the controller will again ask you to perform an I-learn procedure.

## 6. Manual Release Instructions

- Turn power off to the control box and isolate. Using key to open side door on gate operator cover,



- Turn knurled disc anticlockwise for arm to be released from gearbox.

- If a magnetic lock is fitted, turn off the power to the Control box.
- If an electric lock is fitted, release it with the electric Lock key.



**WARNING!**

- You can now push the gate open manually, extra care must be taken if releasing the gate in windy conditions or if the gate is mounted on a rising hinge, or the hinge post is not level as the gate could swing open uncontrollably causing injury to person or damage to property.
- Once open secure the gate in position.
- To re-engage the operator, turn the knurled knob clockwise until tight. Close the lock door and lock with key.





## 7. Maintenance Details



**Failure to maintain equipment may result in injury or death and/or damage to property and equipment**

Recommended maintenance to be performed on the operator and gate are as follows:-

Operator performs over 150 cycles a day	each month
Operator performs between 100-150 cycles a day	every 2 months
Operator performs between 50-99 cycles a day	every 4 months
Operator performs between 20-49 cycles a day	every 6 months
Operator performs under 20 cycles a day	every 12 months

Date: .....

Site Name: .....

Site Address: .....

**Before** commencing maintenance on the operator, isolate the electrical supply to ensure operator will not run inadvertently.

- Gate hinges in good condition and oiled/greased .....
- Gate swings freely.....
- Gate stops in good condition and not loose .....
- Gate operator mounting bolts tight .....
- All arm joints lubricated and moving freely, with nylock nuts tight.....
- No oil leaks from gearboxes .....
- Gearbox drive cogs tight on shafts.....
- Gearbox mounting bolts/nuts tight.....
- Inside operator and control box clean .....
- 'Baygon' Surface Spray around operator and control box (not on electronics) .....
- Torque limiter chain not loose and slightly oiled .....
- All electrical connections tight .....
- Limit Switches operate in appropriate positions.....
- External safety devices work effectively .....
- External locks operate correctly.....
- Arm taper lock grub screws tight.....
- General operation, i.e. speed, auto close etc normal.....
- Wash down of control box and cover (particularly near corrosive/sea environments).....

Comments .....

Service performed by.....

## **8. Warranty**

- a. Gate Drive Systems Australia warrants that the goods manufactured by it shall be free from defect in manufacture for a period of 12 months from the date of invoice. Should any fault occur within that period as a result of faulty workmanship or materials, Gate Drive Systems Australia will at its discretion, replace the product at no charge to the Customer except for removal, installation and freight. The appropriate Serial Number must be quoted for all warranty claims.
- b. For the goods not manufactured by Gate Drive Systems Australia, we shall pass on the manufacturer's warranty to the Customer from the date of invoice. It is at the manufacturer's discretion to repair or replace goods deemed to be defective as a result of faulty workmanship or materials.
- c. All goods must be returned to Gate Drive Systems Australia or its representative for inspection or testing to assess if a claim is justified. It is the responsibility and at the cost of the Customer, to remove and return the goods for inspection and freight costs are the responsibility of the Customer.
- d. The warranty is negated and will not apply in the following circumstances:-
  - i. If no proof of date of purchase can be produced.
  - ii. If the product has been used in a manner beyond its design parameters.
  - iii. If the product is tampered with or repaired by personnel not authorised to do so.
  - iv. In respect of loss or damage caused by rough treatment.
  - v. If the product is not used and maintained in accordance with instructions or recommendations listed in this Installation and Maintenance Manual.
  - vi. In respect of loss or damage caused by an Act of God or any other cause not within the manufacturer's control.
- e. Goods returned under warranty for repair or testing will incur a charge to be fixed by the manufacturer if no fault is found.
- f. The Customer shall bear freight charges for removing and returning the goods for inspection and for the delivery and installation of any replacement or repaired product from a justified warranty claim.
- g. Save for the express conditions and warranties herein contained all other conditions or warranties (whether as the quality, fitness for purpose or any other matter) expressed or implied by statute, common law, equity, trade custom, usage or otherwise are hereby expressly excluded provided that nothing in these terms and conditions shall exclude or limit any breach or condition implied by law, the exclusion or limitation of which is not permitted by law.