User Manual

Product:
PORTABOOM®
Patent number 2015901729

Model Number:
PB2000 and PB2000L

Document:
User Manual

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Product Owner:
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Contents

1. Document overview

1.1. Overview

This user manual has been developed to provide users with the required information to safely assemble, utilise, maintain and care for the product. The product refers to PORTABOOM® PB2000 and PB2000L.

The document includes the following information:

- Introduction of the product.
- Information on the product, components and safety recommendations.
- Instruction on the product assembly, operation and warning information.
- Accessories.
- Repair and maintenance processes.
- Technical specifications.

1.2. Document control

Version	Date	Author	Details
1	9/10/2019	Traffic & Access Solutions	User manual developed for PB2000 and PB2000L.

2. Introduction

2.1. Product overview

PORTABOOM® (the product) is a ground-breaking traffic management system that has set a new standard in traffic management. The product itself is a portable boom gate that can be easily moved and operated by specially trained operators to provide the safest work environment currently available.

The product is a multifunctional device:

- Traffic control device - Portaboom is nationally approved to control traffic in leu of traffic controlled when the stop sign is attached. This removes traffic controllers from 'live lanes' and into 'safe zones'.
- Access control – Portaboom is the most compact portable boom gate and barrier device. Fitted with wheels and an independent battery source provides the product with unmatched mobility and operability.
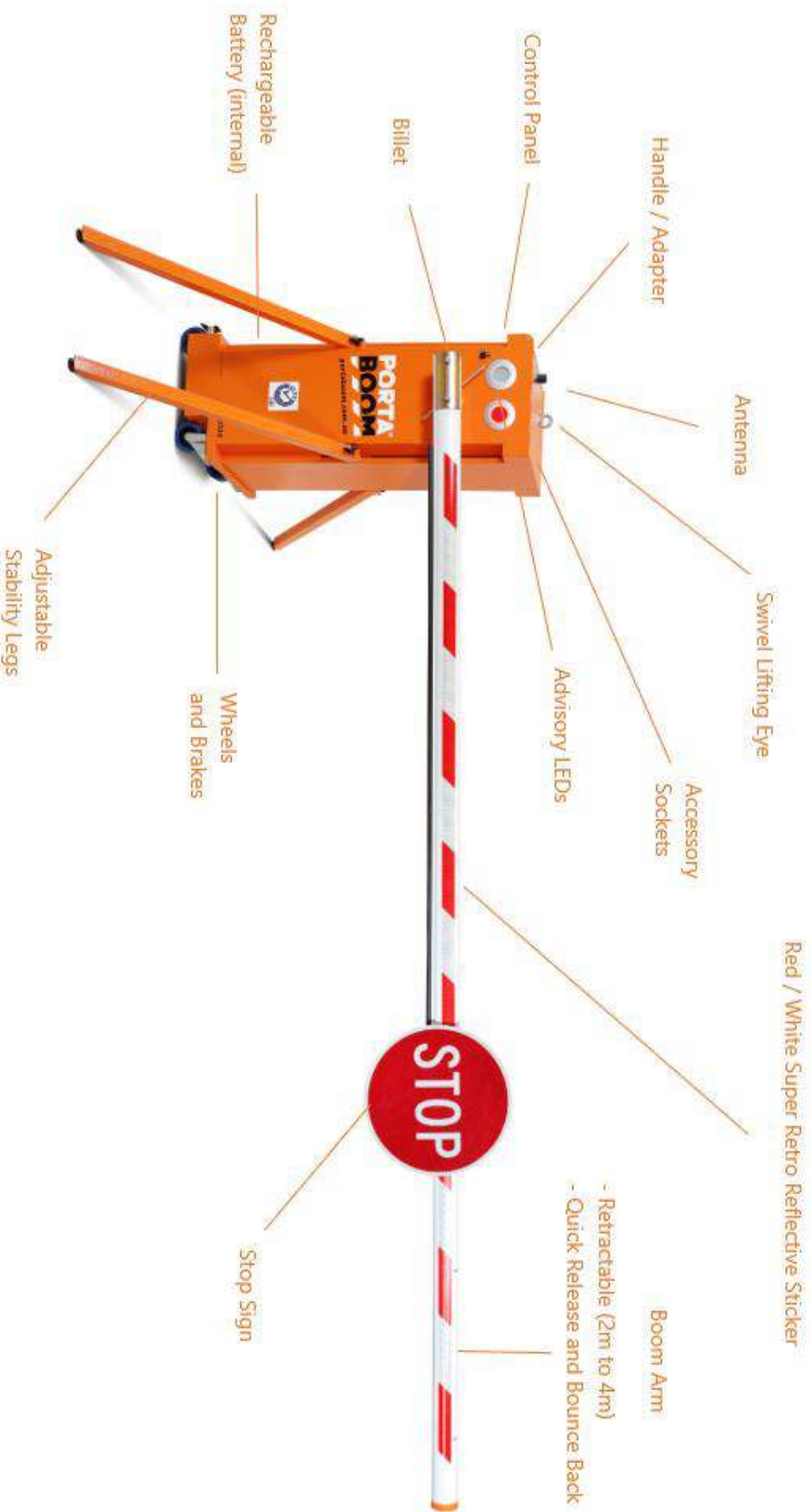
Designed for applications such as:

- Temporary traffic control.
- Work site gate access.
- Event management.
- Temporary car park access.
- School zone pedestrian access.

Product benefits include:

- It easily moved and operated.
- Operators are less likely to be abused (physically or verbally) because of their separation from the tower at which drivers may become aggressive.
- Operators are positioned outside the path of vehicles, heavy vehicles and plant, significantly improving safety.
- The product is assembled on-site without the need for any tools.
- The boom arm may be quickly and safely released or attached, facilitating ease of transport.
- The one button remote control has billions of combinations to make tampering unlikely.
- Longevity of operation with 7552 up/down movements from a fully charged battery (13.2V).
- Ability to connect an auxiliary battery into the 12V electrical connector to extend operations.
- Drivers are prevented from disobeying traffic controllers or running red lights in view of the physical barrier.
- The battery enables operation at places without power with the ability to use solar power.
- The stabilisers provide stability in all weather conditions and on uneven ground.

2.2. Product illustration

Rechargeable
Battery (internal)

Billet

Control Panel

Handle / Adapter

Antenna

Swivel Lifting Eye

Accessory
Sockets

Advisory LEDs

Adjustable
Stability Legs

Wheels
and Brakes

Stop Sign

Red / White Super Retro Reflective Sticker

- Retractable (2m to 4m)
- Quick Release and Bounce Back

Boom Arm

2.3. Product warning and warranty

Warning:

It is strongly recommended that users of this product familiarise themselves with this manual, operating instructions, guidelines, warnings, safety information and operate the product and relevant accessories in accordance with these parameters.

It is further recommended that users of this product conduct their own respective risk assessments and seek the advice of relevant subject matters experts and regulatory agencies.

Failure to adhere to the user manual and subsequent recommendations may result in harm to people and or property. Misuse of the product may void any warranties.

Traffic & Access Solutions Pty Ltd accepts no liability for any accidents, errors or omission or any losses incurred by anyone who fails to operate the product safely and in accordance with this manual.

Warranty:

Please ensure that you complete the online warranty registration form, you will need to register and then complete the form: http://www.trafficaccess.com.au/members/warranty-registration-form

The product is subject to a 12 month, return to base warranty. The warranty covers the product in its entirety excluding batteries and general wear and tear.

Please be aware that tampering with any internal componentry including circuits, cables, boards or use of the product contrary to the recommendations and training resources provided in this user manual may void any existing warranty.

2.4. Product safety

Product safety features:

- ARRB Tipes approved;
- AS/NZS 2144:2002, NSW RTA QA specification R3452, VicRoads TCS 038-3-2004 compliant;
- Self-testing diagnostics for inclinometer, software, lights, ports and additional sensors;
- Inclinometer to level boom arm to the terrain and stability legs to enhance stabilisation;
- Fitted with a rotational lifting lug rated to 0.75T, handle and wheels for moveability;
- Fitted with bounce back safety feature;
- Durable and waterproof casing;
- Secure casing with lockable control panel;
- Hand installation and tightening of accessories, no tools required;
- Wind rated up to 80kph; and
- Rechargeable sealed gel battery.

Additional safety attachments are available as accessories, refer to section 7 of this manual.

It is strongly recommended that all users of this product conduct their own risk assessment and refer to the training videos for additional guidance. The following information is provided as a guide to consider in the risk assessment process.

Safety recommendations:

- Complete a risk assessment and train users in assembly and operational procedures;
- Ensure the product is used in accordance with the parameters identified in this manual;
- Wear appropriate personal protective equipment when assembling the product;
- Complete daily inspections of the product, do not use if damaged or not fit for purpose;
- Maintain the security of the product by keeping panels closed, locked and keys removed;
- Do not exceed the lifting capacity of the lifting lug; and
- Apply manual handling controls or manual aid when moving the product.

Safety and training resources:

Guidance material has been developed to support the utilisation of the product including its setup, positioning and use on worksites and roads. Please refer to the SOP's supporting this manual.

A number of training videos have been developed to provide users with practical support and guidance for the product setup and utilisation.

Please see the following links to access the product training and instructional videos.

Instruction	Link
Best practice guide	https://www.youtube.com/watch?v=uvg1r1omjtE&feature=youtu.be
Safe operating procedure training	https://www.youtube.com/watch?v=PrUu32ddp7I&feature=youtu.be
Assemble, operate and disassemble	https://www.youtube.com/watch?v=onMmkHssMyc&feature=youtu.be
How to assemble	https://www.youtube.com/watch?v=vEhYTmjXBw8&feature=youtu.be
How to operate	https://www.youtube.com/watch?v=8-sW1GClxKQ&feature=youtu.be
How to disassemble	https://www.youtube.com/watch?v=6NdIAAyAigw&feature=youtu.be
Maintenance	https://www.youtube.com/watch?v=WLn5eFyqbvU&feature=youtu.be
Remote pairing	https://www.youtube.com/watch?v=oaPN7W04UGI&feature=youtu.be
Pedestrian light accessory	https://www.youtube.com/watch?v=oaPN7W04UGI&feature=youtu.be
GSM mobile phone access controller operation	https://www.elsema.com/wp-content/uploads/2019/05/g-2000.pdf
GSM mobile phone access controller program	Click here to download software application

3. Standard assembly

3.1. Product components

The product is supplied with key componentry including circuit board, internal cabling, motor, battery, lifting lug and connection billet pre-installed.

Additional standalone components are supplied as part of the standard issue. Please check the package to ensure the following are available:

- Extendable boom arm and carry bag (2-4meters)
- Stop sign (applicable to relevant country, state or region)
- 2x remote controls
- 2x keys for the access panel
- 4x S-hooks for sand bags
- 1x charging lead
- 1x magnet

If any of the supporting components are missing, please contact the distributor or us directly.

*IMPORTANT NOTE: Ensure battery is fully charged prior to use (this is particularly important for the effective operation of solar accessories.

3.2. Assembly guide

It is important to note that specific hand tools or tightening devices are not required for standard assembly of components. To avoid damage, apply a general hand tightening force to secure components.

STEP 1 – Unpack product and check components:

- Unpack in a safe location, complete a risk assessment of the work area as required.
- Check the package to ensure all components have been supplied.
- Ensure product is vertical and on a level and stable surface prior to fitting components.

STEP 2 – Move product into position and secure:

- Ensure wheels are unlocked, use handle and foothold to tilt product back.
- Move into designated position ensuring personal and public safety at all times.

- Secure wheels using locking mechanism.
- Ensure product is switched off prior to fitting any components.

STEP 3 – Attach boom arm to product:

- Check for overhead and surrounding obstructions prior to fitting the boom arm.
- Position the boom arm at a 45 degree angle and slide the billet into connection shaft.
- Push the boom arm upward into the vertical position, this will create the connection.
- Pull the arm away from the product (towards body) to lock the connection.
- Tighten connection shaft locking nut by turning counter clockwise, hand tighten only.

STEP 4 – Extending the boom arm:

- Loosen the extension wing nuts and extend the boom arm to the desired length.
- Tighten the wing nuts to secure the extension position.
- Note that the arrow markers on the extension are an indication of road widths.

STEP 5 – Attach stop sign to boom arm:

- Position the stop sign at the end of the fixed boom arm.
- If using the LED boom light, ensure the stop sign doesn't obstruct the LED light.
- If the arm is being extended, ensure the straps are fitted to the fixed and extension arm.
- Ensure straps are secure and the stop sign is displaying correctly.

STEP 6 – Stabilise the product and secure:

- Ensure the product is positioned on a level and stable surface.
- Loosen wingnut all the way back, slide stabilising leg into position.
- Ensure all stabilising legs are used and that the rubber stopper is firmly on the ground.
- Secure position by tightening the wing nuts.

STEP 7 – Use of S hooks and sandbags:

- If additional stability is required, insert S hooks into holes under each stabilising leg.
- Affix sandbags to the S hooks.

WARNING

- Never use excessive force or tools to fit the boom arm onto the shaft.
- Keep shaft clean and ensure that <u>no</u> grease or similar products is applied onto the shaft.
- Ensure product is switched off prior to fitting any component or making adjustments.
- Ensure control panels are locked and keys removed to prevent tampering or theft.
- Ensure billet is locked into place prior to use, if the product is going to in position for long term periods, period checks should be conducted.
- Avoid affixing the stop sign straps over the wing nuts to prevent damage to the straps.
- Product is wind rated, ensure sandbags are used to provide additional stability.
- Product is 100kg and is considered to be a crush hazard, ensure use on level surface.
- It is recommended that manual aid be used if lifting the product.
- Keep fingers clear of any moving parts and wear gloves when assembling.

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4. Operation

4.1. Control panel and switch modes

The control panel contains the primary switches that control the product and accessories. The switches identify the different modes of operation available to the product.

The switch modes are captured in the below table:

Switch	Term	Details
AC	Auto Close	Automatic cycle starts with boom down.
AO	Auto Open	Automatic cycle starts with boom up.
SS	Safety Sensor	Sensor prevents boom from coming down if broken.
DL	Disable LEDs	Disables the LED warning lights on the front panel.
DB	Disable Boom	Disables the boom arm.

To turn ON a mode, switch upwards. To turn OFF a mode, switch downwards. Multiple modes may be activated simultaneously when using accessories, ensure they are switched on.

STEP 1 – Accessing the control panel.

- Unlock the control panel using the key provided.
- Align the key etching with the red dot on the lock and turn the key.

STEP 2 – Select the mode.

- Standard manual boom operation is enabled when all mode switches are off (down).
- Ensure the product is turned off prior to selecting the relevant mode(s).
- Identify the mode(s) relevant to the operation and press the switch up to turn on.
- Ensure the relevant accessories are plugged in and connected.
- If multiple modes are going to be in operation, ensure they are all switched on.

STEP 3 – Securing the control panel.

- Once the mode(s) have been selected and product tested, lock the control panel and remove the key.

4.2. Connection sockets

The product has two connection sockets, one for charging and the other for the solar panel accessory. These sockets connect to the battery fitted internally.

STEP 1 – Connecting charging devices.

- Ensure the product is turned off prior to connecting a charging device.
- Slide the relevant socket cover open and connect the cable and plug.
- A blue light will illuminate on the control panel indicating that the battery is charging.

4.3. Connection ports

The product has four connection ports which have been designed to fit multiple accessories. These ports are wired to the respective switches.

The port functions are captured in the table below:

Port	Term	Details
SS	Safety Sensor	Sensor prevents boom from coming down if broken.
AS	Activation Sensor	Sensor activates boom (raises) if broken.
L2	Secondary Operation	Secondary accessory operation.
L1	Primary Operation	Primary accessory operation.

STEP 1 – Connecting to the port.

- Ensure the product is turned off prior to connecting to a port.
- Remove the port cover, align the connection pins and connect to the socket.
- Ensure plug is pushed in and fully connected (do not force plugs).
- Fit dust caps when port is not in use.

4.4. Testing prior to operation

The product will run a self-testing cycle each time it is turned on. The self-test will run diagnostics for the inclinometer, software, lights, ports and additional sensors. This process will also recognise any attachments connected to the product.

STEP 1 – Turn on the product.

- Turn product on and wait for the self-testing cycle to complete.
- Once complete, the power light will illuminate green indicating the product is ready.
- This will also indicate that any connected accessories have been recognised.
- If charging the product, a blue light will illuminate.

STEP 2 – Testing the product.

- Test the product operation and relevant accessories in manual mode and with remotes.
- Test the product operation and relevant accessories in automatic mode.

If the light does not turn green, an issue has been identified. Refer to the trouble shooting section of this manual or contact your distributor.

4.5. Manual operation, pairing and using remote controls

The product can be operated manually from the control panel and by using the remote controls. It is recommended that a manual test be conducted on a daily basis, prior to commissioning the product in the field.

STEP 1 – Manual operation.

- Push the red button in the top left hand corner of the control panel.
- Push the button to run through each respective operation (up/down).

STEP 2 – Remote pairing instructions.

- Remote controls provided with the product will be paired with the product.
- Additional remote controls may be paired to the product, refer to the video resource.
- https://www.youtube.com/watch?v=oaPN7W04UGI&feature=youtu.be

STEP 3 – Remote operation.

- Push the button on the remote controller.
- Push the button to run through each respective operation (up/down).
- Ensure both remotes are tested on a daily basis.

4.6. Automatic operation

The product can be operated using an automatic cycle which is pre-programmed, this is generally used as the default for field operations.

STEP 1 – Automatic operation.

- Ensure the product is turned off prior to selecting the relevant mode(s).
- Switch AO (auto open) to commence the automatic operation with the boom up/open.
- Switch AC (auto close) to commence the automatic operation with the boom down/closed.
- For simultaneous operations, ensure the relevant switches are pushed up.

4.7. Activating switch functions and accessories

In order for any of switch functions and subsequent attachments to work, the product must be turned off, the relevant switch activated and the product turned on. The self-testing cycle will register the switch and connected accessory during this process.

4.8. Overriding cycles

Cycles can be overridden using the manual switch or remote. Press the red button on the control panel or the button on the remote control to override the current cycle.

4.9. Product security

To ensure that the product is not tampered with while in operation, ensure:

- All access panels are secured/locked and keys removed.
- Keep keys and remote controls on your person.
- Regularly monitor the product, check for tampering and report any damage.

WARNING

- Check for overhead hazards and ensure the area under the boom is clear prior to testing.
- Ensure the product is turn off prior to engaging different modes and switches.
- If any of the checks or cycles fail, do not use the product.
- Refer to the trouble shooting section, if that fails contact your distributor for assistance.
- It is recommended that safety sensors are used for all automatic boom operations.

5. Charging

The product is supplied with a build in rechargeable sealed gel battery and connection socket for charging. It is recommended that the battery is charged on a regular basis to ensure optimal performance.

STEP 1 – Connecting to the charging socket.

- Ensure the product is turned off prior to connecting a charging device.
- Slide the socket cover open and connect the cable and plug.
- Ensure plug is pushed in and fully connected.
- Plug into power source and turn on, a full charge will take approximately (8-12 hours).
- A blue LED light will illuminate indicating the product is charging.
- A red LED light will come on when the battery requires charging.
- A red LED light will commence flashing prior to the product to shutting down.

WARNING

- It is recommended that the battery is fully charged prior to use.
- Ensure charging area is away from flammable hazards or other sources of ignition.
- Ensure external electrical cables are regularly inspected for damage.
- Ensure power is off prior to connecting any charging devices.

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6. Retrofit of PB2000 for accessories

6.1. Retrofit requirements

In order for the PB2000 product to be able to operate the accessories, a retrofit of the product is required. The retrofit must be carried out by an approved service technician, the distributor or returned to base.

6.2. Universal attachment

The PB2000 requires an adapter unit to be retrofitted to the product in order to secure and operate the accessories. The universal attachment is used for traffic / pedestrian lights and the solar panel.

STEP 1 – Unpack the accessory and check components:

- Check the condition of the accessory to ensure all components have been supplied.

STEP 2 – Retrofit the adapter:

- Remove screws at either end of the handle and detach.
- Position the universal attachment in the handle cavity and line up the screw holes.
- Install screws at either end of the attachments (as shown).
- Attach original handle to the adapter, install screws at either end of the handle.

6.3. Hardware and software

Additional hardware and software upgrades are also required to enable and enhance the PB2000 to the same capacity as the PB2000L, including:

- Control panel upgrade;
- Port and connection installation;
- Motherboard upgrade;
- Software upgrade; and
- Battery upgrade.

Refer to section 7 for details on the accessories. Please contact the distributor or us directly to discuss upgrade options.

7. Accessories

7.1. Traffic light

The traffic light accessory provides an additional visual feature to enhance safety by providing further advanced warning for a motorist to prepare to stop.

STEP 1 – Unpack the accessory and check components:

- Check the condition of the accessory to ensure all components have been supplied.
- Position the accessory in close proximity to the product.

STEP 2 – Attach accessory to product:

- Use the fitted handles to lift the accessory.
- Insert accessory into adapter, position light to face the direction of traffic.
- Align connection points and secure with wing bolts (minimum of two bolts to be fitted).

STEP 3 – Connect accessory cable to port:

- Ensure the product is turned off prior to connecting cable.
- Line up pins and connect cable plug to the L1 port (primary).
- The L2 port is secondary and operated opposite to the boom function.
- Ensure plug is pushed in and fully connected.

STEP 4 – Test operational sequence:

- Access the control panel using the key and turn the product on.
- The product will run a self-test, once complete the green power light will illuminate.
- Test attachment in manual mode by pressing the red button and using the remote control.
- Ensure the product is turned off prior to changing the mode.

STEP 5 – Operating the traffic light:

- Ensure the product is turned off prior to switching between modes.
- Refer to section 4.1 for information on the modes and select.
- If the boom is not required, switch deactivate boom (DB) off and detach it from the product.
- If intending to use the automatic cycle, switch auto open (AO) on.
- If other accessories are being used simultaneously, connect them and switch on.
- Turn the product on, self-testing will identify modes and attachments.
- A flashing light will activate on the back of the traffic light when the light is red.
- Automatic cycles can be overridden by the manual button or remote controls.

7.2. Pedestrian light

The pedestrian light accessory improves the instruction given to pedestrians, this may include around construction sites. Both the traffic and pedestrian light may be used together or independently.

STEP 1 – Unpack the accessory and check components:

- Check the condition of the accessory to ensure all components have been supplied.
- Position the accessory in close proximity to the product.

STEP 2 – Attach accessory to product:

- Insert accessory into adapter, position light to face the direction of pedestrians.
- Align connection points and secure with wing bolts (minimum of two bolts to be fitted).

STEP 3 – Connect accessory cable to port:

- Ensure the product is turned off prior to connecting cable.
- If using this as the primary accessory, line up pins and connect cable plug to the L1 port.
- If using this as a secondary accessory, connect cable and plug to the L2 port.
- Ensure plug is pushed in and fully connected.

STEP 4 – Test operational sequence:

- Access the control panel using the key and turn the product on.
- The product will run a self-test, once complete the green power light will illuminate.
- Test attachment in manual mode by pressing the red button and using the remote control.
- Ensure the product is turned off prior to changing the mode.

STEP 5 – Operating the pedestrian light:

- Ensure the product is turned off prior to switching between modes.
- Refer to section 4.1 for information on the modes and select.
- If the boom is not required, switch deactivate boom (DB) off and detach it from the product.
- If intending to use the automatic cycle, switch auto open (AO) on.
- If other accessories are being used simultaneously, connect them and switch on.
- Turn the product on, self-testing will identify modes and attachments.
- Automatic cycles can be overridden by the manual button or remote controls.

7.3.   Solar panel

The 120W solar panel provides power to the product and eliminates the need for interval recharging of the product. The panel may be fitted to the product or the traffic light accessory.

STEP 1 – Unpack the accessory and check components:

- Check the condition of the accessory to ensure all components have been supplied.
- Position the accessory in close proximity to the product.

STEP 2 – Attach accessory to product:

- Insert accessory into adapter, position panel to face the direction of the sun.
- Align connection points and secure with wing bolts (minimum of two bolts to be fitted).
- Apply the same process if fitting to the traffic light accessory.

STEP 3 – Connect accessory cable to port:

- Ensure the product is turned off prior to connecting a charging device.
- Slide the socket cover open and connect the cable and plug.
- Ensure plug is pushed in and fully connected.
- A blue LED light will illuminate indicating the product is charging.
- A red LED light will come on when the battery requires charging.
- A red LED light will commence flashing prior to the product to shutting down.

STEP 4 – Test operation:

- Access the control panel using the key and turn the product on.
- The product will run a self-test, once complete the green power light will illuminate.
- A blue LED light will illuminate indicating the product is charging.

7.4. LED boom light

The LED boom lights provide enhanced visibility of the product and boom arm to attract motorists attention, this is appropriate in both day and night settings.

STEP 1 – Unpack the accessory and check components:

- Check the condition of the accessory to ensure all components have been supplied.

STEP 2 – Attach accessory to boom:

- Secure boom arm in vice in upside down position.
- Ensure the nail located at the base of the boom channel is flush.
- Use pliers to remove black rubber, if difficult consider using local softening agent to assist.
- Attach the accessory to the base of the boom arm.
- Slide LED into the channel at the base of the boom, push all the way along.

STEP 3 – Connect accessory cable to connection socket:

- Ensure the product is turned off prior to connecting cable.
- The connection socket is positioned on the face of the product next to the advisory lights.
- Connect cable and plug into the connection socket.
- Ensure plug is pushed in and fully connected.

STEP 4 – Test operational sequence:

- Access the control panel using the key and turn the product on.
- The product will run a self-test, once complete the green power light will illuminate.
- The accessory will illuminate red if the boom is down and green if the boom is up.

7.5.   All terrain wheels

The all-terrain wheels enhance the mobility of the product and are ideal for rugged terrain, unsealed roads and rocky surfaces.

STEP 1 – Unpack the accessory and check components:

- Check the condition of the accessory to ensure all components have been supplied.

STEP 2 – Retrofit the all-terrain wheels:

- Ensure the product is positioned on a stable surface and the wheels are accessible.
- The all terrain wheels are supplied pre-fitted to a bracket and ready for installation.
- Remove existing wheels and place bracket over base.
- Use existing screw holes to secure the bracket to the product.
- Test wheels and brakes.

7.6.   Pedestrian button

The pedestrian button is a compatible, wireless pedestrian push button that can operate multiple product units (and light accessories).

STEP 1 – Unpack the accessory and check components:

- Check the condition of the accessory to ensure all components have been supplied.

STEP 2 – Pairing instructions.

- Pedestrian button accessories provided will not be paired with the product (unless requested).
- Pairing is required prior to operation, the same process applies as per the remote controls.
- Refer to the remote control pairing video resource remembering this is the same process.
- https://www.youtube.com/watch?v=oaPN7W04UGI&feature=youtu.be

STEP 3 – Positioning the accessory:

- Position the accessory in close proximity to the product (radius no greater than 4m).
- Ensure the accessory is on a flat surface and secured to the ground to prevent it from falling.
- Ensure the accessory is visible and accessible to pedestrians.

STEP 4 – Test and operate accessory:

- Once paired, the pedestrian button will work with the pedestrian lights.
- Test the pedestrian light as a part of the operational testing sequence.
- Press the button and wait for the pedestrian light to go green.

STEP 5 – Changing the battery:

- It is recommended that batteries are replaced every 3-6 months (depending on use).
- Detach casing by removing the screw at the base of the casing.
- Replace the battery with AAA batteries.
- Place casing over the product and secure using the screw.

7.7.   Key pad access controller

The key pad is a suitable solution for longer term access control points at locations such as worksites. Vehicles approaching the access control point enter a pin number that raises the boom.

STEP 1 – Unpack the accessory and check components:

- Check the condition of the accessory to ensure all components have been supplied.

STEP 2 – Positioning the accessory:

- Position the accessory in close proximity to the product.
- Ensure the accessory is on a flat surface and secured to the ground to prevent it from falling.
- Ensure the accessory is visible and accessible.

STEP 3 – Test and operate the accessory:

- The key pad is pre-programmed to work with the boom
- The factory code is a 4 digit code which will be supplied with the accessory.
- Test the key pad as a part of the operational testing sequence.
- Enter the 4 digit code and wait for the boom to open.

STEP 4 – Programming instructions.

- Enter programming mode (one beep, green light flashes once, red light "On" to confirm you are in programming mode):
  - * → Master code → #
  - After 1min with no button pressed keypad will exit programming mode
- Add a user in programming mode:
  - 1 → user ID number → # → PIN → #
  - ID number can be between 1- 2000. The PIN is any 4 -8 digits with the exception of 1234 which is reserved.
  - Users can be added continuously without existing from programming mode as follows:
    - 1 → User ID No → # → PIN → # → User ID No 2
    - → # → PIN → # Press # * to Exit.
- Delete a user (orange light confirms you are in adding mode. Green light flash indicates a user has been added):
  - 2 → User ID number → #
  - Users can be deleted continuously without existing programming mode.
  - Press # * to Exit.

7.8. GSM mobile phone access control

The GSM mobile phone access control is another suitable solution for longer term access control points at locations such as worksites. Vehicles call or text the number that raises the boom.

It is recommended that the GSM controller be installed by an approved service technician, contact your distributor or us directly.

STEP 1 – Install access control program:

- A USB stick will be provided with the software.
- Install the software onto a computer and follow the instructions.

STEP 2 – Install sim card.

- Ensure the product is turned off prior to installing the sim card.
- Open the main compartment on the product.
- Disconnect both terminal blocks from the GSM Mobile Phone Access Controller.
- Detach the GSM Controller by removing the two cable ties.
- Open the back of the controller, insert the pre-paid 3G SIM card and turn the switch to ON.
- Secure back of the unit, refit GSM controller with cable ties and connect terminals blocks.
- Turn the product on – Power "ON" LED will illuminate and the 3G LED will also illuminate.
- Close the main compartment on the product.

STEP 3 – Establishing a connection using the software:

- Refer to the GSM mobile phone access controller guide for programming and operation instructions.
- https://www.elsema.com/wp-content/uploads/2019/05/g-2000.pdf

STEP 4 – Establishing a connection using a text message:

- The accessory factory settings password is 1234.
- Establish a connection to the sim card via test message.
- Message 1234TEL and the sim card number followed by # (e.g. 1234TEL0406000000#).
- Ensure uppercase is used and press send.

STEP 5 – Setup authorised mobile numbers using a text message:

- To add an authorised number, a sequential text message must be sent for each number.
- This will require the addition of an A and 001 to the message in step 4.
- Message 1234TELA001# and the sim card number followed by #.
- For example, 1234TELA001#0406000000#.
- Repeat this process for additional numbers ensuing a sequential numbering sequence is adopted e.g. A002, A003, A004. Ensure uppercase is used and press send.

Note: It is recommended that you document the date, serial number, name and mobile number of the person you are given access to

STEP 6 – Operating the GSM mobile phone access controller:

- Phone or txt SIM card mobile number to "OPEN" Boom gate
- Once the vehicle has proceeded past the PORTABOOM, stop.
- Phone or txt SIM card mobile number to "CLOSE" Boom gate.

Note: The GSM Mobile Phone Access Controller comes with a USB that allows you to control your device when plugged into a computer.

7.9. Safety sensor

The safety sensor is required when using product accessories such as the key pad, GSM phone access or activation sensor ensuring the boom does not lower when the beam is broken. The safety sensor is mounted to the product with the reflector mounted to a bollard which will be placed opposite the sensor.

STEP 1 – Unpack the accessory and check components:

- Check the condition of the accessory to ensure all components have been supplied.

STEP 2 – Attach accessory to the product:

- Attach the safety sensor to the side of the unit as indicated in the picture.
- The sensor it attached using a double sided adhesive tape.
- Ensure that the sensor is level with the reflector bollard.

STEP 3 – Connect accessory cable to connection port:

- Ensure the product is turned off prior to connecting cable.
- Connect cable and plug into the safety sensor (SS) connection socket.
- Ensure plug is pushed in and fully connected.

STEP 4 – Positioning the accessory:

- Position the reflector bollard in close proximity to the product (radius no greater than 4m).
- Ensure the reflector bollard is aligned opposite the sensor fitted to the product.
- Ensure the safety sensor light turns green, if it turns red, realignment is required.
- Ensure the bollard is on a flat surface and secured to the ground to prevent it from falling.

STEP 5 – Test and operate accessory:

- Access the control panel using the key.
- Turn the safety sensor (SS) switch on by pressing the switch up.
- Activate the product on by switching the power button on.
- The product will run a self-test, once complete the green power light will illuminate.
- Test attachment in manual mode by pressing the red button and using the remote control.
- Obstruct/break the beam as the boom is lowering to test the safety bounce-back feature.

7.10. Activation sensor

The activation sensor is an alternative to the GSM phone and key pad entry systems. It may be applied at sites where authorisation at the access point is not required or controlled.

STEP 1 – Unpack the accessory and check components:

- Check the condition of the accessory to ensure all components have been supplied.

STEP 2 – Connect accessory cable to connection port:

- Ensure the product is turned off prior to connecting cable.
- Connect cable and plug into the activation sensor (AS) connection socket.
- Ensure plug is pushed in and fully connected.

STEP 3 – Positioning the accessory:

- Position the both bollards in close proximity to the product (radius no greater than 4m).
- Ensure the reflector bollard is aligned opposite the sensor fitted to the product.
- Ensure the activation sensor light turns green, if it turns red, realignment is required.
- Ensure the bollard is on a flat surface and secured to the ground to prevent it from falling.
- Position cable so that is cannot be damaged or create a tripping hazard.

STEP 4 – Test and operate accessory:

- Access the control panel using the key.
- Turn the safety sensor (SS) switch on by pressing the switch up.
- Activate the product on by switching the power button on.
- The product will run a self-test, once complete the green power light will illuminate.
- Test attachment in manual mode by pressing the red button and using the remote control.
- Obstruct/break the beam to activate the boom.

7.11. Accessories warning

> **WARNING**
>
> - Ensure product is turned off prior to fitting or adjusting any accessories.
> - If using mobile phone for access, ensure road laws and site rules are complied with.
> - Some of the accessories are considered heavy or awkward, it is recommended that manual aid or a two person lift be adopted.
> - Wear gloves when handling and fitting any of the accessories.
> - Ensure accessories are appropriately secured to prevent them from falling.
> - If any of the accessories are not working or damaged, do not use them, refer to the trouble shooting section or contact your distributor.

8. Repair and maintenance

Regular maintenance of the product is strongly recommended to ensure that it remains in an optimal state and that maintenance or repair issues are addressed.

Always ensure that the product is turned off and charging cables unplugged prior to completing any inspection or maintenance activities.

8.1. Daily inspection

Step 1 – Product external condition:

- Check the external casing, lifting lug, panels and locks for damage.
- Check that stabilising legs are free from damage and working.
- Ensure all locking pins, nuts and securing devices are in place and working.

Step 2 – Wheels and stopping mechanism:

- Check the wheel condition and tread for wear and tear and damage.
- Ensure stopping pins / mechanisms are free from damage and working.

Step 3 – Shaft and locking nut:

- Check the condition of the shaft and locking nut for damage.
- Check that the locking nut is in working order and free from build-up.

Step 4 – Control switches and connection ports:

- Check the control panel for damage.
- Check port sockets for damage.
- Ensure controls and ports have functional covers and are labelled.

Step 5 – Attachments:

- Check the condition of attachments for damage.
- Check any cabling or connections for damage.
- Ensure all locking pins, nuts and securing devices are in place and working.

Step 6 – Periodic checks when in operation:

- Periodically check that the product and accessories are working.
- This should be conducted at regular intervals throughout the day.

If the product or accessories are damaged, identified as unsafe or not working, it is recommended that you do not use the product, refer to the trouble shooting section and or contact your distributor or us directly.

Please be aware that tampering with any internal componentry including circuits, cables, boards or use of the product contrary to the recommendations and training resources provided in this user manual may void any existing warranty and increase the risk of harm or property damage.

8.2. Servicing

Servicing should only be carried out by an approved service technician, directly by the distributor or factory. It is recommended that servicing be arranged on an annual basis. Annual servicing will include:

- Comprehensive product check including seals and internal structure;
- System diagnostic and cabling; and
- General parts replacement and internal clean.

8.3. Records

A standard inspection checklist has been developed as a guide to assist you with your daily inspection process. It is recommended that you review the inspection checklist and tailor this appropriately whilst not impeding on warranty conditions.

WARNING

- Ensure product is off and charging cable disconnected prior to inspection/maintenance.
- Keep fingers clear of any moving parts and when conducting repairs and maintenance.
- Avoid using water or other liquids to clean the product externally.
- Do not use water or liquids to clean the product internally, this will cause damage.
- Warning to not tamper with any of the circuitry both internally or externally or any of the mechanical components, this may void the warranty and may increase risk of harm.
- Boom shaft and billet is hydraulic and considered a crush and entanglement zone, keep of moving parts and ensure hands, loose items of clothing, jewellery and hair is clear when in operation.

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9. Technical specifications

Component	Details
Product dimensions	Height 1200mm, width 295mm, Depth 390mm.
Colour	Standard orange.
Material	Sheet metal 1.5mm thickness, anti-corrosion, anti-rust, UV exposure.
Water proofing	Tower has water proofing to protect internal electrical components.
Motor	DC, 7.5 AMP maximum, power supply 12V-90W maximum.
Weight	100kg.
Wind rating	Up to 80kph.
Boom arm length	2.2m long.
Boom arm extension	Additional 1.8m, totalling 4m.
Speed	4.5 seconds (up/down).
Safety kick back	Boom arm will kick back (raise) if it contacts an object when coming down.
Battery	12V 90AH rechargeable gel battery, 8-10hours charging time.
Battery charging	240V internal charging unit, audible and visual low battery capacity alert (40% and less than 10%), 8-10hours charging time.
Up/down cycles	Up to 13,000 up and down movements on a fully charged battery without accessories.
Wheel type	Solid
Lifting lug	0.75T.
Inclinometer	Levels the boom arm to the terrain, this is calibrated at 2 degrees higher than true horizontal to accommodate road based line of sight.
Remote	The remote is waterproof and has a range is 100m (max) with clear line of site.
Traffic light	Supplied in line with AS4191:2015.
Accessory radius from product	Position accessories no greater than 4m away from the product.

10. Trouble shooting

Product / arm not operating:	
Possible issue	Guidelines
ON/OFF switch	• When ON a green light is illuminated on the front of the control panel. • If not illuminated Open Control Panel and check that all switch wiring is securely fastened to the PCB • If the switch is considered faulty or damaged contact your distributor for a replacement switch
Main control board fuse is blown	• The fuse is located at the back of the main PCB – If blown contact distributor for a replacement fuse.
Inline fuse is blown	• The inline fuse is located at the bottom of the unit near the battery encased in black plastic – If blown contact distributor for a replacement fuse.
Battery charge	• Check low battery indicators on the control panel – If flashing red charge battery by connecting a charging lead to the 240V outlet (located bottom left of unit) to a 240V power point – When battery starts to charge the red advisory light will go out.

Boom arm low or high:	
Possible issue	Guidelines
Inclinometer calibration	• Check inclinometer PCB positioning on mechanics located on Arm near motor – Ensure bracket and PCB is securely fastened to mechanics with the use of hex screws. • Check inclinometer PCB wiring to main PCB is securely fastened – Main PCB located behind the Control Panel. • Re-calibrate Arm to required level following instructions provided.

Stability legs wont slide:	
Possible issue	Guidelines
Wing nut	• Ensure wing nut is wound back to nut – The wing nut is located to the top of the stability leg

Advisory LED's unresponsive:	
Possible issue	Guidelines
LED/s not working	• Check wiring connection to terminal block on PCB located at the back of the Control Panel. • Replace LED/s – refer distributor for assistance.

Manual push button unresponsive:	
Possible issue	Guidelines
Push button unresponsive	• Open Control panel and check that the wiring is securely fastened to the PCB.

Remote control distance is too short:	
Possible issue	Guidelines
Antenna coaxial connection to main PCB	• Check Antenna is securely tightened to unit. • Open Control panel and check that the Antenna SMA connection is firmly tightened on the main PCB.
Remote control battery power is low	• Open the remote control casing and replace with a new same type battery.

Battery charge lights not illuminating on control panel:	
Possible issue	Guidelines
Lead not working or plugged in correctly	• Ensure the battery charger lead is securely connected to the rear of the 240V outlet located below the charger to the right. • Check to ensure the charging lead is securely connected to the 240V external outlet located to the left of the unit above the rear wheels. • Check that the charging lead is firmly connected to the power point and the power point is turned on. • Check lead to ensure no exposed wiring on the lead and that the leads test and tag label is in date – If not replace the lead.

Boom arm motion not smooth:	
Possible issue	Guidelines
Spring tension not optimal	• Tighten spring located inside the casing – Spring is attached to the mechanical arm and the base of the unit with threaded rods and fixed into place with double nuts top and bottom. To tension the spring ensure Arm is vertical then loosen the nuts on either end of the threaded rods – pull top threaded rod up and bottom threaded rod down then hand tighten nuts – test arm movement – Arm movement should now be smooth - Lock threaded rods in place by tightening the double nuts at the top and bottom with a spanner.
Arm movement loose	• Ensure billet locking nut is tightened – Locking nut is located on the external shaft and is used to ensure the Arm stays firmly in place during up and down movement.

Remote pairing:	
Possible issue	Guidelines
Remote not paired	• Unscrew the Control Panel. At the back of the control panel, fitted to the main PCB is a smaller PCB fitted at a right angle– This is the receiver PCB for the remote controls – on the PCB there are two channels – Channel A closer to the perimeter of the PCB and Channel B positioned further into the middle of the PCB – both have black buttons – Remotes are paired to CHANNEL B only – To program a remote press and hold the Channel B black button and at the same time press the button on the remote control – An LED near the Channel B button will initially turn RED then once paired will turn green – Once the LED turns green cease pressing the channel B button and the push button on the remote control – Once the LED turns green the remote has been paired successfully.

Bounce back function not working:	
Possible issue	Guidelines
Amperage switch set to low	• Open Control Panel and adjust "BLUE" amperage switch clockwise located on the on main PCB.

Appendix A – Example inspection checklist

MODEL No:_____ UNIT No:_____ DATE INSPECTED:_____

Checklist Items	(Y/N)
Check that the chassis is free from damage.	
Check stability legs are in good condition and working including wing nuts and bolts.	
Check the stability legs ensuring a secure fit and storage.	
Check brakes are in good working order and free of sand and dust that may impact functionality.	
Check all wheels in in good working order and free of sand and dust that may impact functionality.	
Check control panel (small) is free of damage and locks securely.	
Check main access panel (large) free from damage and locks securely.	
Check and tighten billet nuts and bolts on boom arm.	
Check boom arm and extension including wing nuts x2.	
Check and ensure all ports and connectors are secure and free from damage.	
Check and ensure antenna free from damage.	
Check and ensure lifting lug (eye bolt) and swivel is secure and free from damage.	
Check all external fittings, nuts and bolts are secure and free from damage.	
Check the on/off switch for operation ensuring green LED is illuminated when the product is turned on.	
Check the manual push button operation up/down/stop.	
Check both remotes operation up/down/stop ensuring green and red LEDs illuminate as required.	
Check that the blue LED illuminates when charging using the 240V connection.	
Check bounce back operation ensuring the boom arm returns to OPEN position when striking an object.	
Ensure that both remotes are working and free from damage.	
Check that both remotes are clearly labelled with unit number.	
Comments:	