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EQSS Model6253 – OverWatch™ LGMG RT Series



**** Failure to follow this installation manual will void warranty ****



REV 1.3

03/01/2024

Model6253 OverWatch™ Installation Manual

Document # DO001561

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DOCUMENT ABSTRACT:
This Installation Manual details the manufacturer's installation instructions for installing the Model6253 OverWatch on a LGMG RT scissor lift.

PRODUCT NAME:
Model6253 OverWatch Operator Detection System

REFERENCE DOCUMENTS:
DO0001195 Model6253 OverWatch User Manual

CURRENT DOCUMENT REVISION:
1.3

REVISION INFORMATION:

- 1.0 Initial document creation
- 1.1 Edit and updated of images
- 1.2 Update of plug and paly loom and inclusion of AS002289 harness drawing
- 1.3 Inclusion of mounting guard V2 and update of configuration procedures

Important Information

Information contained in this publication regarding this device's applications and the like, is provided only for your convenience and may be superseded by updates. It is your responsibility to ensure that the application or our equipment meets with your specifications.

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This is a class A product certified to AS/NZS CISPR 22:2006. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

N23041

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Preparation

Required Tools

The OverWatch has been designed to be fitted using basic workshop tools. Shown below is a list of tools required to complete the installation.

Item	Tool / Description
1	Electric Drill
2	Centre Punch
3	Hammer
4	Side Cutters
5	Drill 4.5mm
6	Drill 7.0mm
7	Hole Saw 20mm
8	Metric Sockets or Spanners
9	Needle Nose Pliers
10	Screw Drivers
11	Threadlocker
12	Soldering Iron


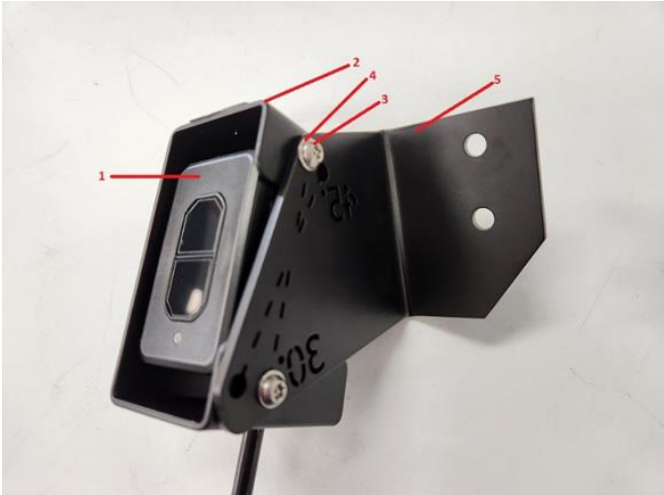
Installation Time

The suggested time required to install the OverWatch is as detailed below.

Task	Estimated Time (Minutes)
Open the operator control box	5
Drilling of all mounting holes for the various components	15
Mechanical assembly	10
Electrical assembly	10
Close the operator control box	5
Post installation system tests	5
Total	50

Installation Instructions

Operator Sensor

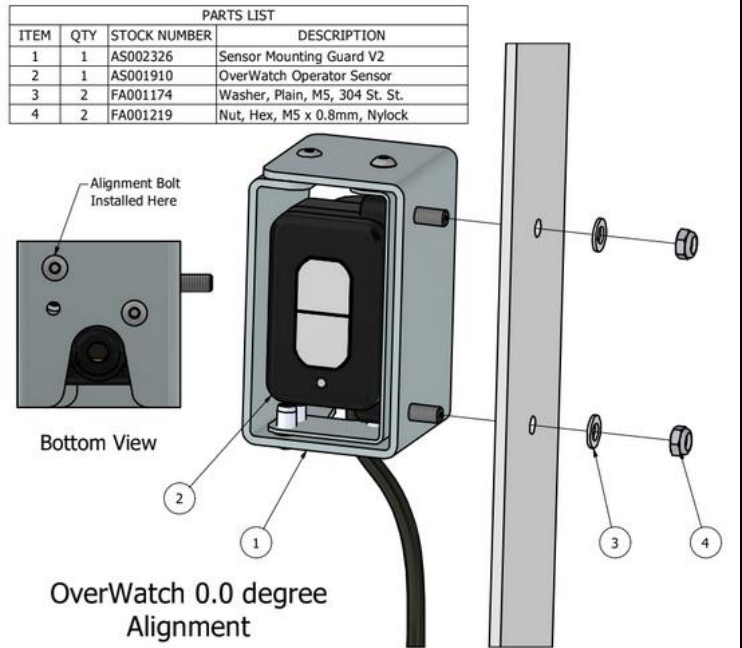
Step	Description	Diagram																												
1.	Separate the control box from the mounting enclosure.																													
2.	<p>Sensor Mounting Guard V1 (ME001794)</p> <p>Mount the operator sensor in the 30-degree position by using the sensor guard, bolts and washers.</p>	 <table border="1"> <thead> <tr> <th colspan="4">PARTS LIST</th> </tr> <tr> <th>ITEM</th> <th>QTY</th> <th>PART NUMBER</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> <td>AS001910</td> <td>Overwatch™ Operator Sensor</td> </tr> <tr> <td>2</td> <td>1</td> <td>ME001794</td> <td>Overwatch™ Sensor Guard</td> </tr> <tr> <td>3</td> <td>2</td> <td>FA001417</td> <td>M4 x 12mm Butt screw</td> </tr> <tr> <td>4</td> <td>2</td> <td>FA001235</td> <td>Washer, Plain, M4, 304 St. St.</td> </tr> <tr> <td>5</td> <td>1</td> <td>ME001818</td> <td>Operator Sensor Mounting Bracket</td> </tr> </tbody> </table>	PARTS LIST				ITEM	QTY	PART NUMBER	DESCRIPTION	1	1	AS001910	Overwatch™ Operator Sensor	2	1	ME001794	Overwatch™ Sensor Guard	3	2	FA001417	M4 x 12mm Butt screw	4	2	FA001235	Washer, Plain, M4, 304 St. St.	5	1	ME001818	Operator Sensor Mounting Bracket
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4	2	FA001235	Washer, Plain, M4, 304 St. St.																											
5	1	ME001818	Operator Sensor Mounting Bracket																											

3. **Sensor Mounting Guard V2 (AS002326)**

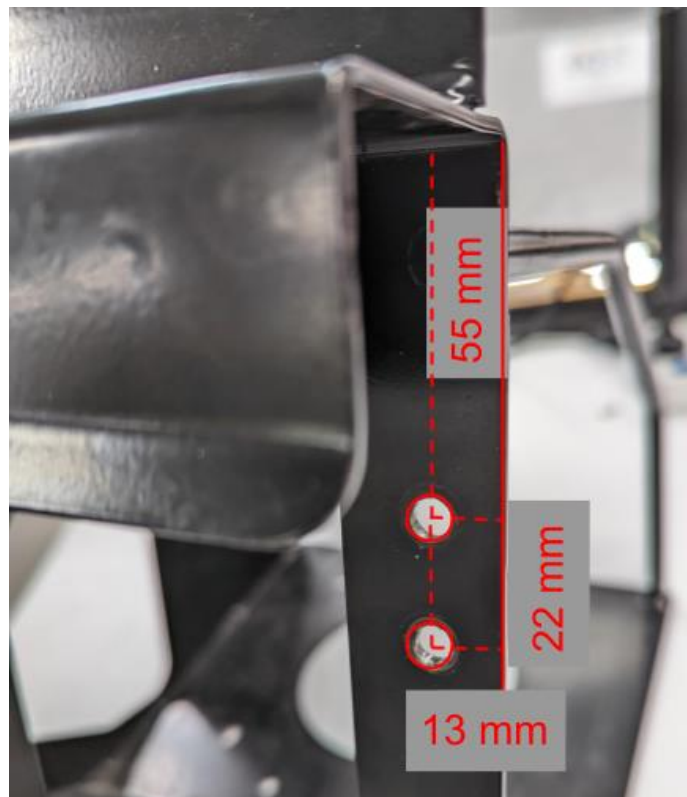
This guard (AS002326) supersedes the original V1 design.

Mount the operator sensor in the **30-degree position** on the mounting bracket using the supplied M5 washers and nuts. Make sure that the sensor is on the 0.0-degree angle, such that it is **not** twisted away from the joystick.

The 0.0-degree angle is achieved by using the bolt hole as shown in the image.



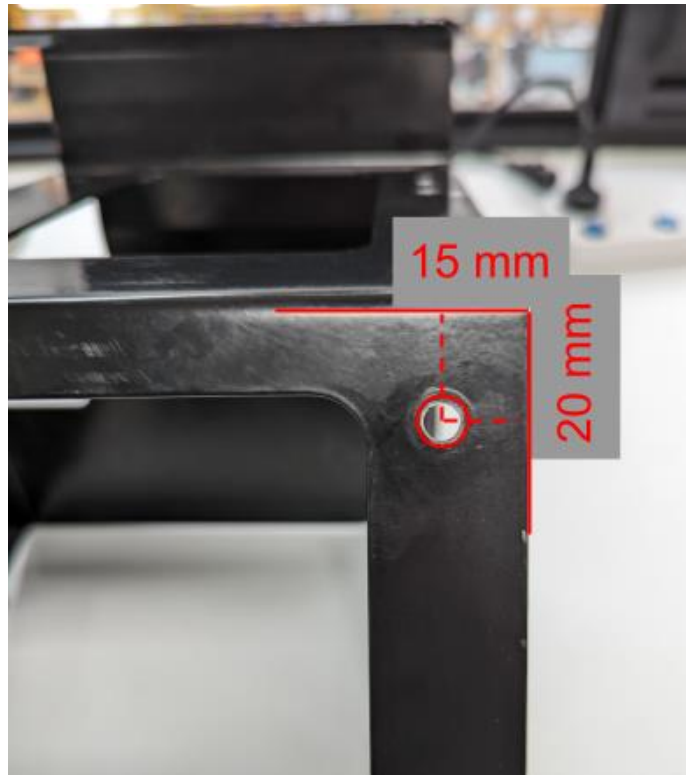
4. Drill two M5 holes at the location shown on the control box frame for the operator sensor mounting bracket.



5. Mount the operator sensor mounting bracket to the control box frame using the M5 bolts, washers, and nuts.


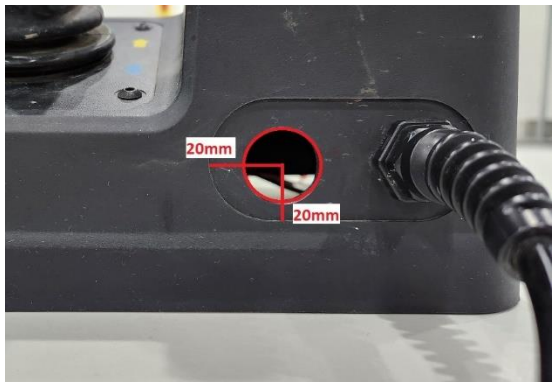
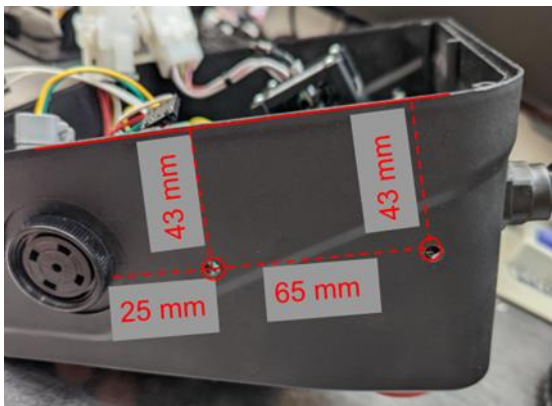


6. Drill a M6 hole at the location shown for the p-clip to secure the operator sensor cable to the control box frame.



<p>7.</p>	<p>Secure the cable by using the p-clip as shown</p>	
<p>8.</p>	<p>Operator sensor installation complete</p>	

Control Module

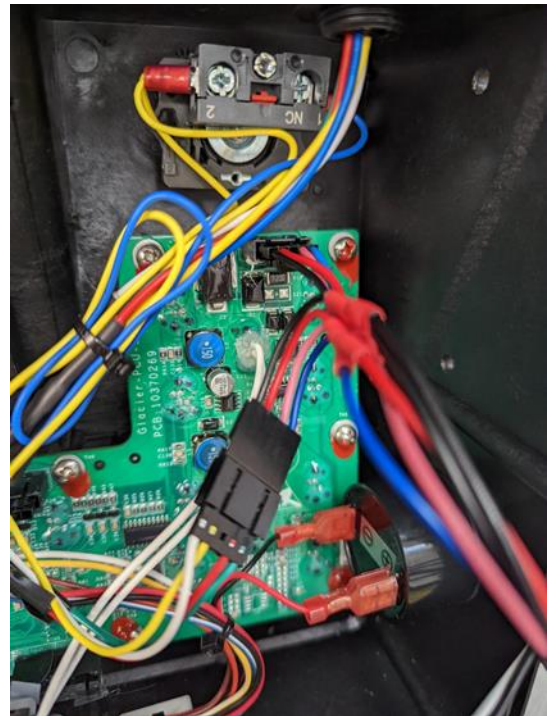
Step	Description	Diagram
1.	<p>Control Box Cover Remove the control box from the mounting bracket and remove the cover from the bottom of the control box.</p>	
2.	<p>Cable Gland Drill a 20 mm hole in the location shown for the operator sensor cable gland.</p> <p>The cable gland will be installed towards the end of the installation.</p>	
3.	<p>OverWatch ECU Mount Remove the adhesive cable tie point on the inside of the control box enclosure.</p> <p>Drill two M4 holes into the side of the control box in the location shown.</p> <p>The ECU will be installed towards the end of the installation.</p> <p>The ECU mounting holes positions need to be precise as space inside the control box is very tight.</p>	


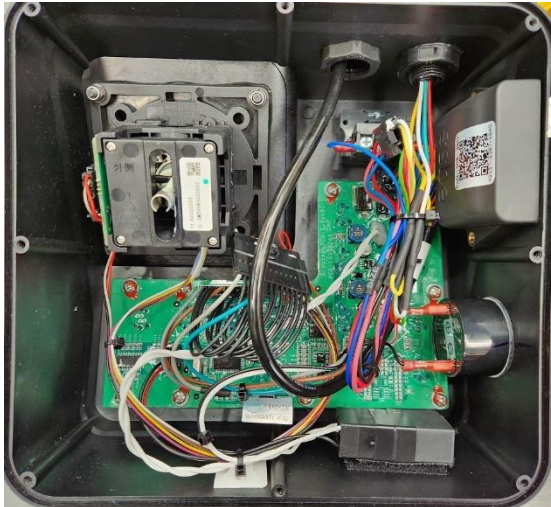

<p>4. Wire Harness Wiring connections are made with the AS002289 harness.</p>	
<p>5. Horn Cut away the protective PCB coating on the horn switch. Solder the two white wires from the OverWatch harness to the horn switch PCB as shown. Seal the contacts with hot glue</p>	

6. **Deadman & Joystick Connection**
Connect the large black 14 pin tee connector from the OverWatch harness to the joystick connections.



7. **Power & CAN**
Connect the small black 5 pin tee connector from the OverWatch harness to the power connector on the PCB.



<p>8.</p>	<p>Cable Gland & ECU Mounted Install the cable gland into the control box, pull approximately 120mm of cable from the operator sensor through and secure the cable gland.</p> <p>Connect the operator sensor and wire harness to the OverWatch ECU.</p> <p>Remove the 5-pin connector installed earlier from the PCB to mount the OverWatch ECU.</p> <p>Mount the OverWatch ECU to the control box using the supplied bolts and secure using threadlocker.</p> <p>Reconnect the 5-pin connector removed previously to the PCB.</p>	
<p>9.</p>	<p>Cables Secured Use cable ties to secure the power tee connectors and joystick connectors to the existing wire harness.</p> <p>Secure the relay block by using the velcro as shown.</p>	
<p>10.</p>	<p>Control Box Cover Replace the control box cover and mount back onto the bracket</p>	

Post Installation Configuration

Overview

After the system has been installed it must be configured with the parameters to suit the machine. Follow the instructions below to configure the OverWatch.

Minimum system requirements

Any smart phone, tablet or laptop that meets the following requirements:

- The device can connect to a Wi-Fi access point
- The device has an up to date web browser installed. Firefox, Chrome or Safari are recommended.

Wi-Fi Connection & Web Page Access

To enable the Wi-Fi connection on the OverWatch to complete the configuration follow the steps below.

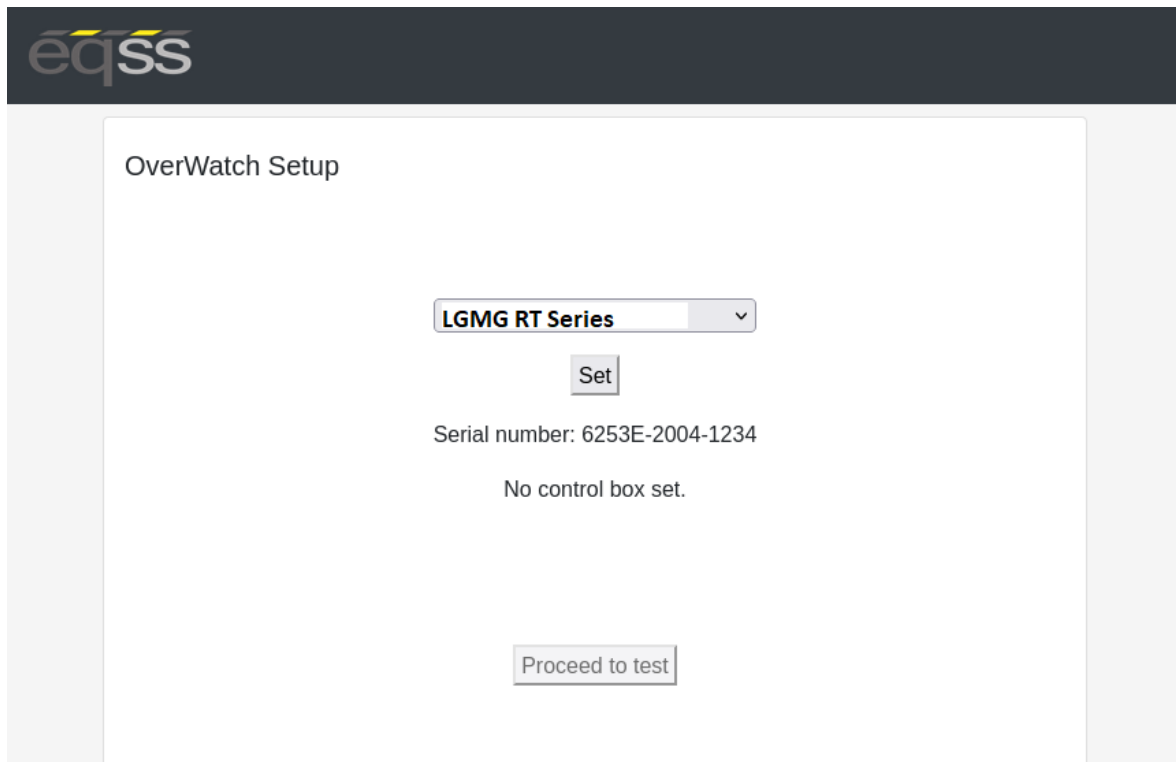
1. Power down the platform control box with the ESTOP
2. Wait 5 seconds
3. Power up the platform control box with the ESTOP
4. While standing **in front of the operator sensor**, switch on the OverWatch
5. As the welcome chime starts to play, cover the sensor. The LED will flash white then black to acknowledge.
6. Remove your hand from the sensor. The LED will flash white then black to acknowledge.
7. After covering then uncovering the sensor this way 2 more times, "Wi-Fi On" will be announced
8. On your Wi-Fi enabled device (laptop, tablet, smartphone, etc), show the available wireless networks
9. Select the wireless network (starts with "overwatch") to connect to the OverWatch
10. When prompted, enter the **password 12345678**
11. Open your preferred web browser (Chrome, Firefox, Safari)

Enter the following into the address bar <http://192.168.4.1> to open the OverWatch main page

Machine Model Selection

Follow the instructions below to configure the OverWatch.

1. Select the Setup option
2. If there is a password field at the bottom of the page, follow the instructions in Change Model Configuration to obtain the password and enter the password field
3. Select the EWP Model from the drop-down list and click Set
4. Click on Proceed to test to begin the installation test



OverWatch Setup

LGMG RT Series

Set

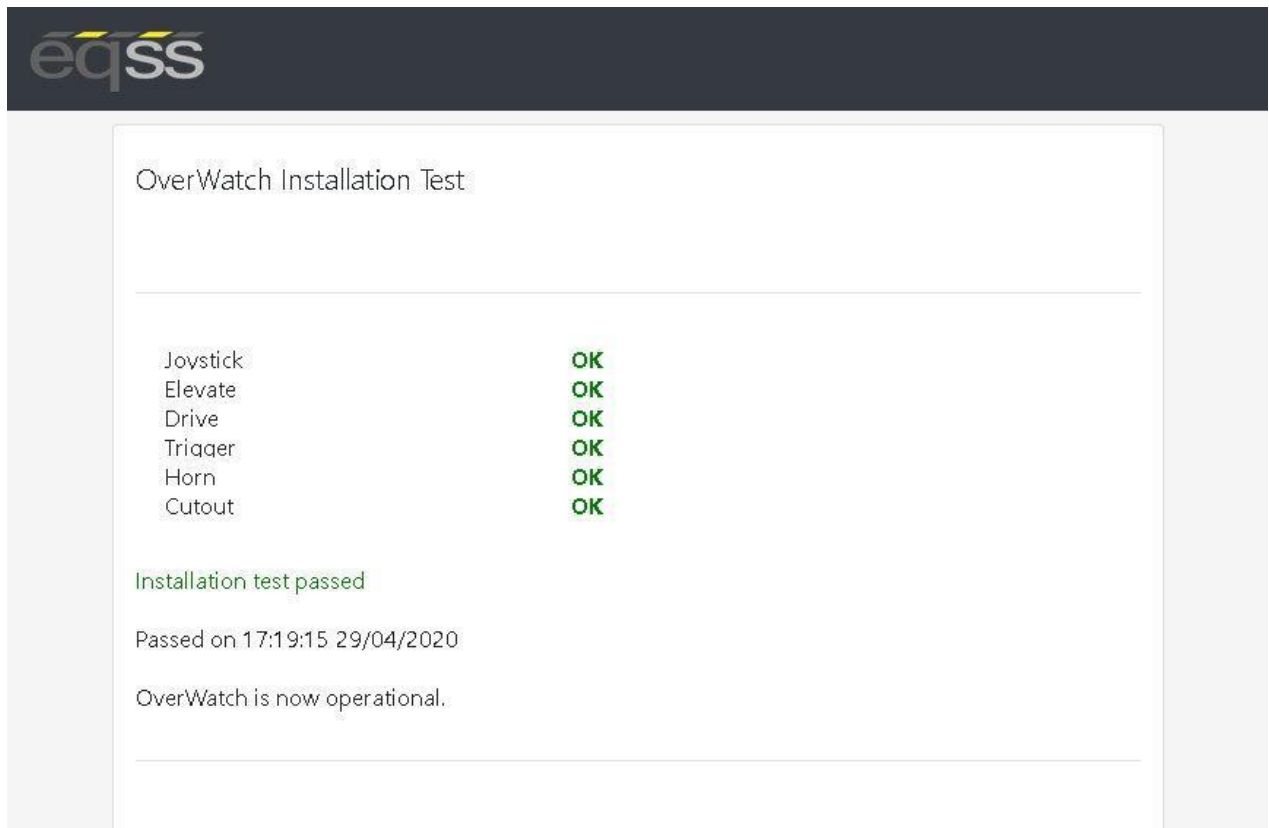
Serial number: 6253E-2004-1234

No control box set.

Proceed to test

Installation Test

After the model configuration has been set or updated an Installation Test must be performed. This will ensure the installation has been correctly performed and the OverWatch is functioning correctly. Follow the instructions on the web page to complete the Installation Test.



The screenshot shows a web interface for the OverWatch Installation Test. At the top left is the eqss logo. The main heading is "OverWatch Installation Test". Below this is a table of test results:

Joystick	OK
Elevate	OK
Drive	OK
Tripper	OK
Horn	OK
Cutout	OK

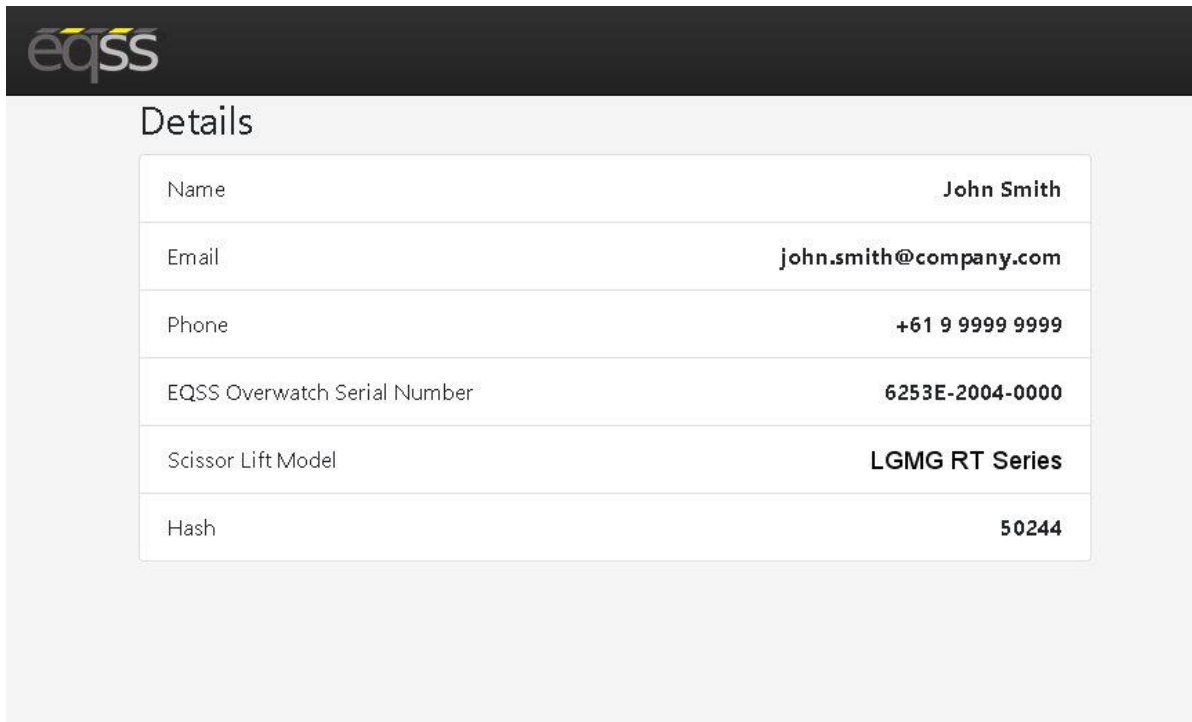
Below the table, the text "Installation test passed" is displayed in green. Underneath, it says "Passed on 17:19:15 29/04/2020" and "OverWatch is now operational.".

Change Model Configuration

To reconfigure the OverWatch for a different model requires an authorisation password. The authorisation password is generated from the EQSS website. The EQSS website requires a login username and password, contact EQSS for these details.

Follow the instructions below to obtain an authorisation password. It is important to note that each ECU has a unique serial number and a unique password.

1. Open your web and enter the following into the address bar <http://www.eqss.com.au/overwatch> to open the Login page
2. Enter your username and password
3. Enter the EUC serial number which is shown on the setup page or on the ECU serial number sticker, also enter the owner and model details of the EWP and then click Generate Hash
4. The generated Hash code or password can be used to change the model configuration.



The screenshot shows the 'Details' page of the EQSS website. It features a table with the following information:

Name	John Smith
Email	john.smith@company.com
Phone	+61 9 9999 9999
EQSS Overwatch Serial Number	6253E-2004-0000
Scissor Lift Model	LGMG RT Series
Hash	50244

System Settings

Setting Name	Description	Default
max_safe_velocity	This is the velocity threshold for the cutout in cm/s for drive mode.	95
max_safe_displacement	This is the maximum permitted distance in cm the operator may be away from the calibration position in drive mode.	50
max_safe_velocity_elevate	This is the velocity threshold for the cutout in cm/s for elevate mode.	75
max_safe_displacement_elevate	This is the maximum permitted distance in cm the operator may be away from the calibration position in elevate mode.	50
zone_obstruction	If the lidar sensor reading is below this, the lidar is considered to be obstructed (with paint or thick coat of dust) and the system is cutout until the obstruction is cleared.	5
zone_minimum	The minimum calibration distance. If the operator is closer to the sensor than this "operator zone" will be announced.	15
zone_maximum	The maximum calibration distance. If the operator is further from the sensor than this "operator zone" will be announced.	120
throttle_time	Period after the trigger is pressed (ms) during which initial velocity reading is computed.	2000

Harness Drawing AS002289

Revisions

Rev.	Date	Author	Description
1.0	27/04/2024	Bhavani Kacharapu	Initial

Final Assembly Photo: <https://drive.google.com/file/d/1A1dw3BzertV3qMkUjgkic4etz-7Q/view>

Per Number: AS002289
Revision: 1.0

Bill of Materials

Id	Description	Part Number	Quantity
1	1 Molex, Microfit, 3.0, 12 Way, Female	CN001316	1
2	Automotive Relay Socket	CN001335	1
3	104257-4, TE AMPMODU Male, 5 position	CN001413	1
4	109583-4, TE AMPMODU Female, 5 position	CN001472	1
5	Molex, SL Plug, 14 Pos, 071070013	CN001364	1
6	Molex, SL, Receptacle, 14 Pos, 0095959414	CN001366	1
7	Micro-3.0, Female Terminals, 0450500001	CN001331	11
8	Relay Socket, 4 Pin	CN001332	2
9	5-6502-2 AMPMODU Male Socket	CN001349	4
10	1-104489-2 AMPMODU Female Pin	CN001346	4
11	Molex, SL, Male Pin, 0016030107	CN001367	14
12	Molex, SL, Female Socket, 0016020086	CN001367	14
13	Relay Socket Terminal, 6.3mm	CN001359	2
14	SPDT 30A Horn Relay 12V	SN001081	1
15	82k Ohm 0.5 Watt Metal Film Resistor	RE001230	1
16	HC0049, 20AWG, Green	CB001050	300 mm
17	HC0049, 20AWG, Yellow/Green	CB001100	50 mm
18	HC0049, 20AWG, Grey	CB001053	370 mm
19	HC0049, 20AWG, Red	CB001054	370 mm
20	HC0049, 20AWG, White	CB001055	800 mm
21	HC0049, 20AWG, Orange	CB001051	60 mm
22	HC0049, 20AWG, Violet	CB001057	60 mm
23	HC0049, 20AWG, Brown	CB001077	370 mm
24	HC0049, 20AWG, Pink	CB001052	370 mm
25	HC0049, 20AWG, Blue	CB001049	370 mm
26	HC0049, 20AWG, Black	CB001048	1940 mm
27	HC0049, 20AWG, Yellow	CB001056	60 mm

Conductor Tables

From	To	Conductor	Color	Notes
C3_TM1	S8_JOY	W32.Gray	Gray	Joystick Male
C3_TM2	C2_TF2	W1.Black	Black	Link2
C3_TM3	C2_TF3	W2.Black	Black	Link3
C3_TM4	R1_Load_POS	W14.Black	Black	Link4
C3_TM6	C3_TF6	W25.Black	Black	Link5
C3_TM7	C3_TF7	W28.Black	Black	Link7
C3_TM8	C3_TF8	W29.Black	Black	Link8
C3_TM9	C3_TF9	W34.Black	Black	Link9
C3_TM10	C2_TF10	W35.Black	Black	Link10
C3_TM11	C2_TF11	W36.Black	Black	Link11
C3_TM12	C2_TF12	W37.Black	Black	Link12
C3_TM13	C2_TF13	W38.Black	Black	Link13
C3_TM14	C2_TF14	W39.Black	Black	Link14

Notes

- Cable Tie
- Heat-shrink all splice points
- Twist wires together

Replacement Parts

Replacement parts for this OverWatch kit are available from EQSS, for all inquiries please email sales@eqss.com.au
Shown below are the part numbers for the major components included in this model specific kit.

Part Number	Description
AS002152	OverWatch - Complete kit for LGMG RT Series Control Box
AS002039	OverWatch - Operator Sensor with M20 gland
AS002157	OverWatch – Electronic Control Unit (ECU)
AS002289	OverWatch – LGMG RT Harness
AS002326	OverWatch - Sensor Guard V2
ME001818	OverWatch – L Bracket 30/45