

EQSS Model6253 – OverWatch™ JLG R-Series



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



REV 1.2

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Model6253 OverWatch™ Installation Manual

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DOCUMENT ABSTRACT:

This Installation Manual details the manufacturer's installation instructions for installing the Model6253 OverWatch™ on a JLG 3246R scissor lift.

PRODUCT NAME:

Model6253 OverWatch™ Operator Detection System

REFERENCE DOCUMENTS:

DO001195 Model6253 OverWatch - User Manual

CURRENT DOCUMENT REVISION:

1.2

REVISION INFORMATION:

- 1.1 Initial Document Creation for installation on a JLG 3246R.
- 1.2 Update to include installation steps for hard wire connections and more detailed installation graphics.

Important Information

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N23041

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.

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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 3.2mm
6	Drill 5.0mm
7	Metric sockets or spanners
8	Needle nose pliers
9	Screw drivers
10	Soldering Iron


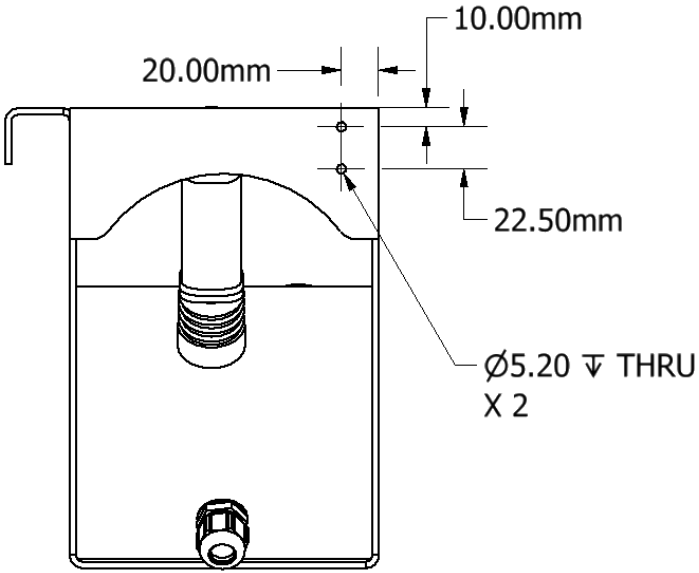
Installation Time

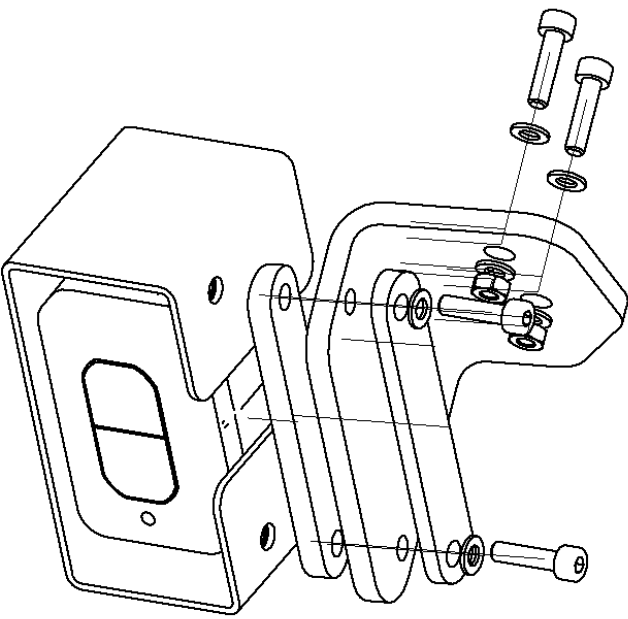
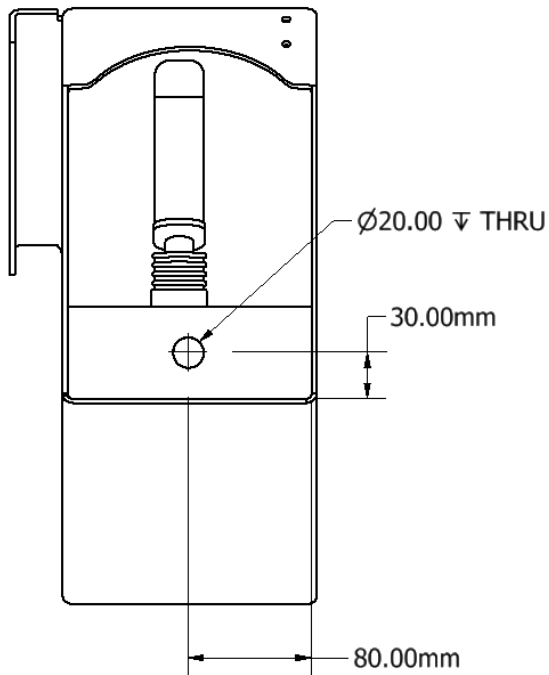
The suggested time required to install the OverWatch™ is as detailed below

Task	Estimated Time (Minutes)
Open the operator control box	2
Drilling of all mounting holes for the various components	15
Mechanical assembly	10
Electrical assembly	15
Post installation system tests	10
Close the operator control box	3
Total	55

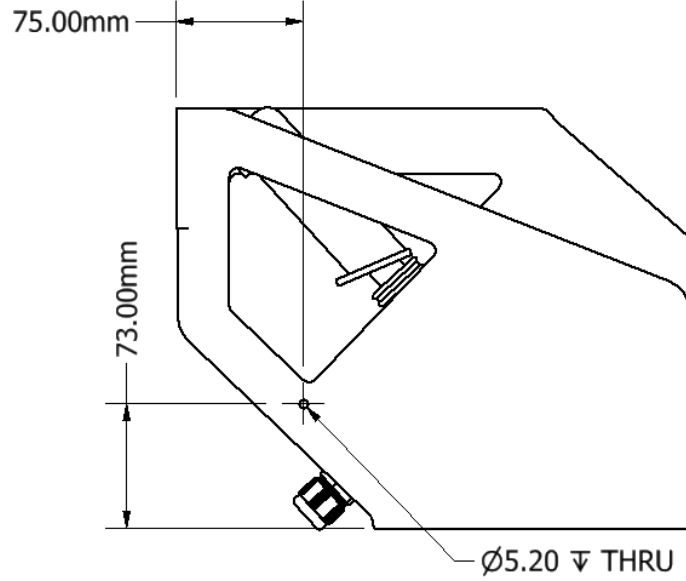
Installation Instructions

Operator Sensor

Step	Description	Diagram
1.	The operator sensor should be positioned as shown in the image to the right.	
2.	Drill two holes for the operator sensor bracket in the location shown in the diagram.	

<p>3.</p>	<p>Install the operator sensor as shown in the diagram, using the supplied bracket, nuts, bolts, and washers. The sensor should be positioned so when it is mounted it is twisting away from the joystick, thus that it aligns with the centreline of the operator's body when standing in the normal working position.</p>	
<p>4.</p>	<p>Install the cable gland in the location shown in the diagram.</p>	


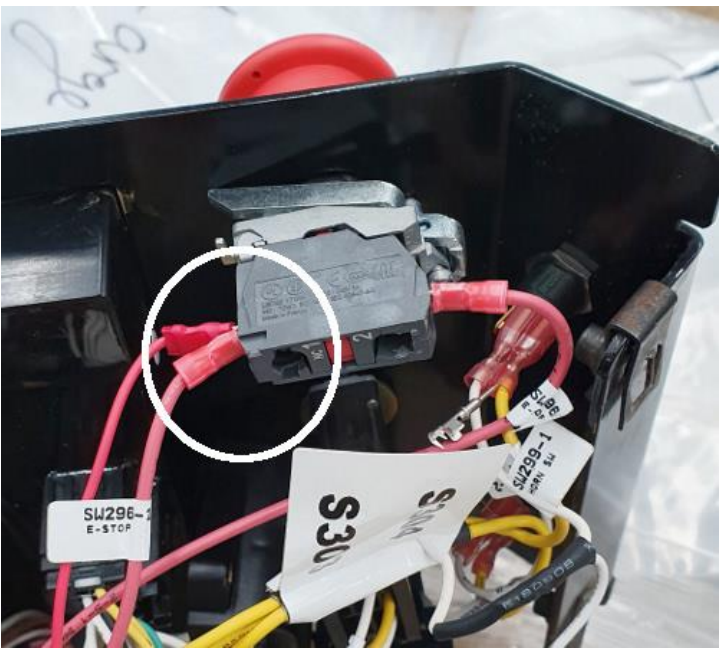
5. Install the p-clip in the location shown in the image.


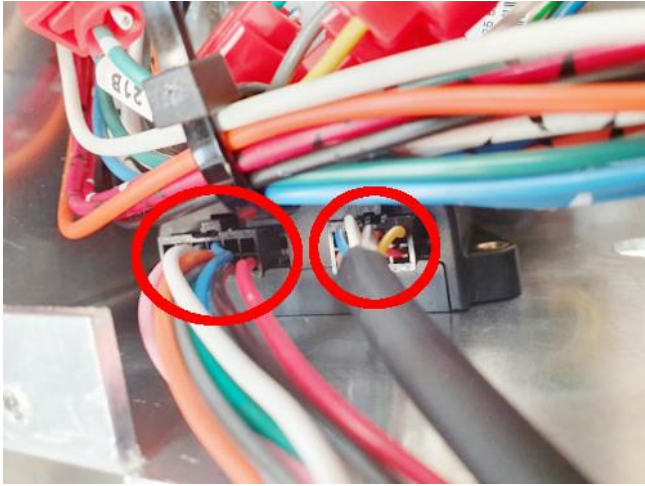


Control Module

Step	Description	Diagram																											
1.	Using the supplied M4 bolts and washers, mount the control module inside the platform control enclosure (mount on bottom of metal enclosure), in the location shown in the image.																												
2.	The OverWatch™ is to be installed by cutting and crimping the connections into the existing control box wiring. The connection instructions will be explained in more detail in the next few steps.	<table border="1"> <thead> <tr> <th>PIN</th> <th>Colour</th> <th>Location</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Red</td> <td>+24V</td> </tr> <tr> <td>2</td> <td>Black</td> <td>GND</td> </tr> <tr> <td>3</td> <td>Green</td> <td>Enable/Deadman – Switch Side (Yellow/White wire from joystick circuit board)</td> </tr> <tr> <td>5</td> <td>White</td> <td>Horn Splice (To Horn Relay)</td> </tr> <tr> <td>8</td> <td>Blue</td> <td>Enable/Deadman – ECU Side</td> </tr> <tr> <td>9</td> <td>Orange</td> <td>Elevate Switch Splice</td> </tr> <tr> <td>10</td> <td>Purple</td> <td>Drive Switch Splice</td> </tr> <tr> <td>12</td> <td>Grey</td> <td>Joystick 0-5V Splice</td> </tr> </tbody> </table>	PIN	Colour	Location	1	Red	+24V	2	Black	GND	3	Green	Enable/Deadman – Switch Side (Yellow/White wire from joystick circuit board)	5	White	Horn Splice (To Horn Relay)	8	Blue	Enable/Deadman – ECU Side	9	Orange	Elevate Switch Splice	10	Purple	Drive Switch Splice	12	Grey	Joystick 0-5V Splice
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<p>3.</p>	<p>Trigger Switch Connection:</p> <p>Cut wire ID WHT 43-1 (TRIGGER) in half.</p> <ul style="list-style-type: none"> • Solder the Green wire from the OverWatch™ Harness to the joystick side of the 43-1 wire. • Solder the Blue wire from the OverWatch™ Harness to the ECU side of the 43-1 wire. 	
<p>4.</p>	<p>Joystick Connection:</p> <p>Solder the Grey wire from OverWatch™ Harness to the wire with WHT 90 (JOY SIG), making a splice connection.</p>	
<p>5.</p>	<p>Horn Connection:</p> <p>Solder the Green from the Relay of the ECU Harness to wire ID WHT 85, which is connected to SW299-1.</p> <p>Solder the Green from the Relay of the ECU Harness to wire ID YEL PWR, which is connected to SW299-2.</p>	

<p>6.</p>	<p>Drive & Elevate Connections:</p> <ul style="list-style-type: none"> • Connect the Violet wire from the OverWatch™ Harness the wire with ID WHT 82. Which is attached the drive selection switch in the operator control box. • Connect the Orange wire from the OverWatch™ Harness the wire with ID WHT 83. Which is attached the elevate selection switch in the operator control box. 	
<p>7.</p>	<p>Power Connection:</p> <p>Install the Red wire from the OverWatch™ Harness into Pin-1 (SW296-1) of the E-Stop Switch.</p>	

<p>8.</p>	<p>Ground Connection:</p> <p>Solder the Black wire from the OverWatch™ Harness to the wire BLK ID 1-41 (PLT GND)</p>	
<p>9.</p>	<p>Connect the 8-pin connector from the Operator Sensor and the 12-pin connector from the Solder the white wire from the OverWatch™ Harness, into the Control Module and re-fit the joystick back into the enclosure.</p>	

Post Installation Configuration

Overview

After the OverWatch™ 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 (2019 onwards). Firefox or Chrome are recommended.

Wi-Fi Connection & Web Page Access

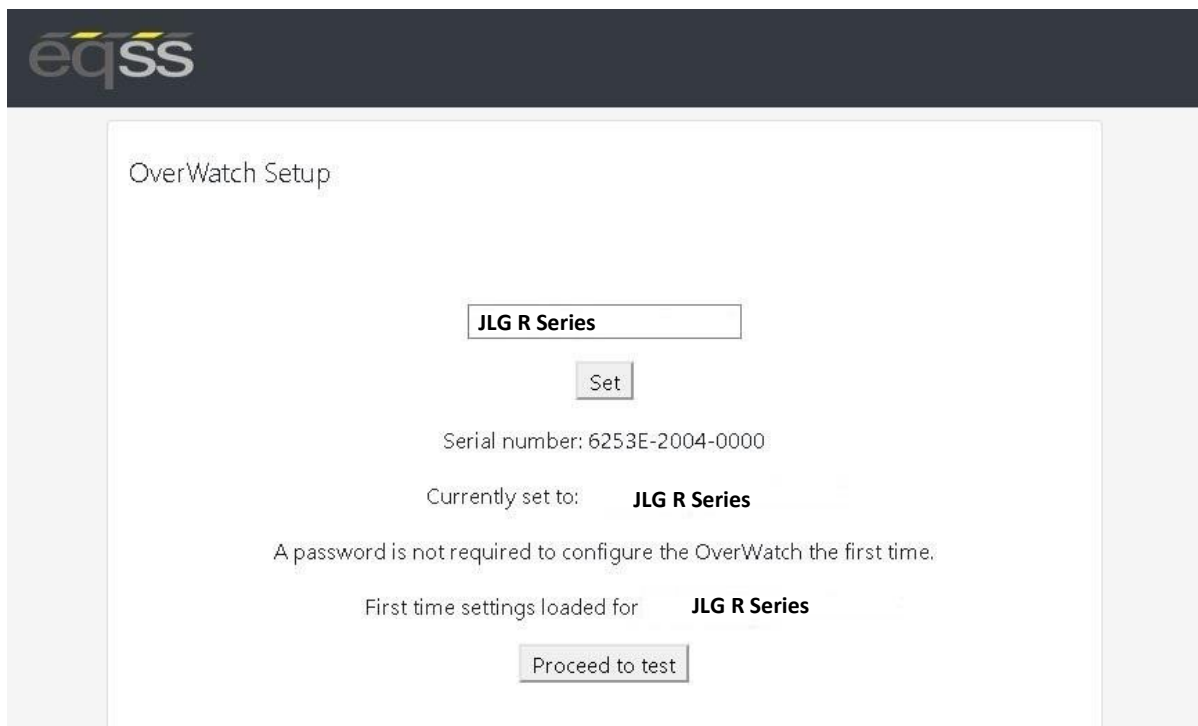
To enable the Wi-Fi connection on the OverWatch™ to complete the configuration follow the steps below.

1. Power down the platform control box with the ESTOP
2. Wait 10 seconds
3. Power up the platform control box with the ESTOP
4. While standing in the operator position, 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, Edge)
12. 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

JLG R Series

Set

Serial number: 6253E-2004-0000

Currently set to: **JLG R Series**

A password is not required to configure the OverWatch the first time.

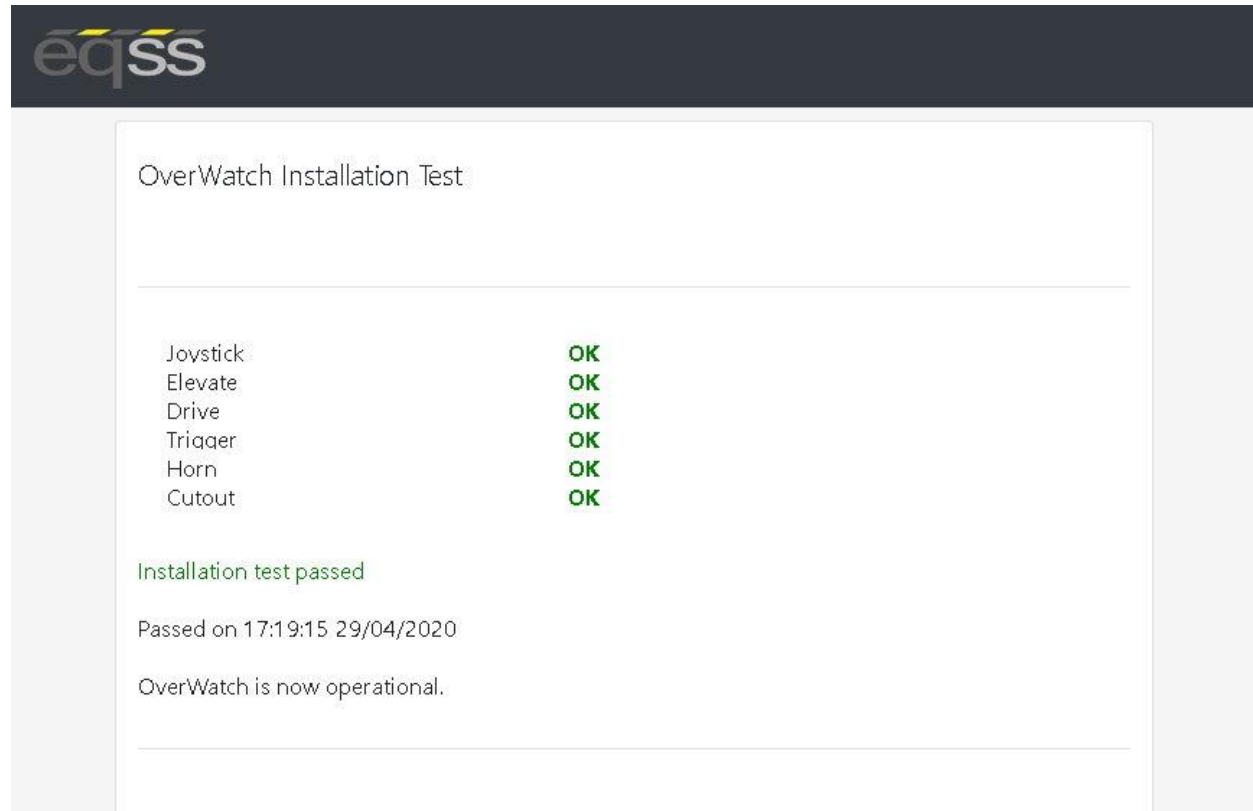
First time settings loaded for **JLG R Series**

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 list of components and their status:

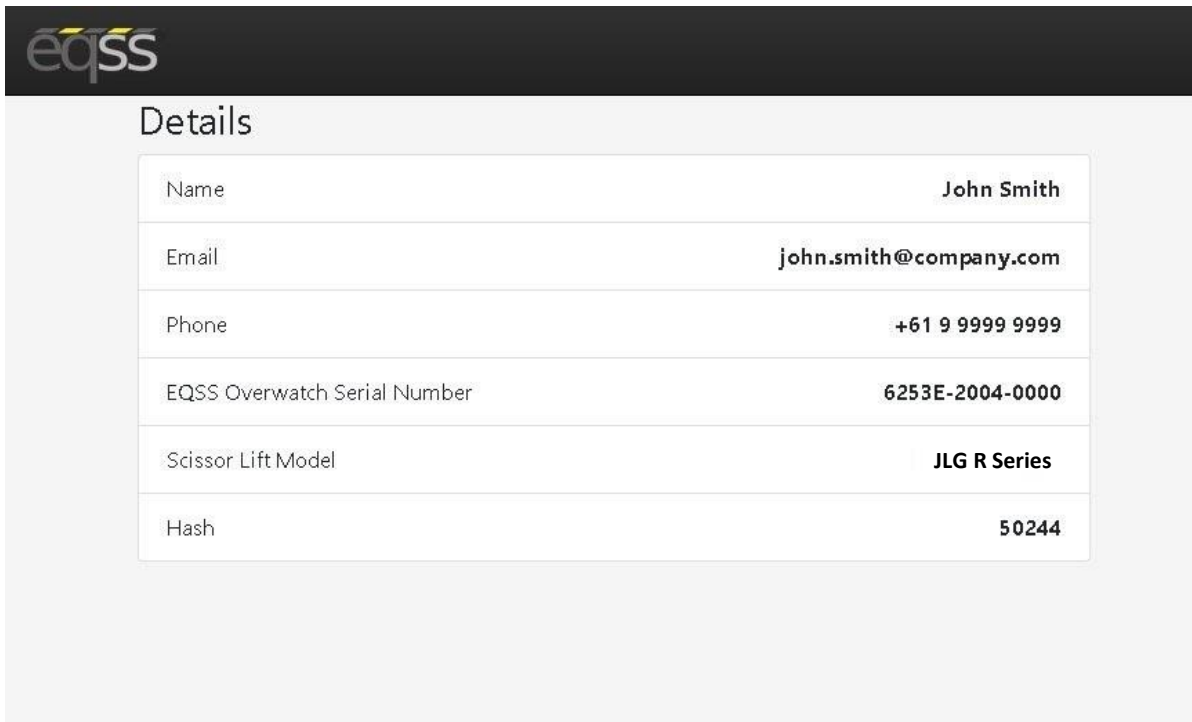
Joystick	OK
Elevate	OK
Drive	OK
Tripper	OK
Horn	OK
Cutout	OK

Below the list, 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 to be supplied by a service manager. The authorisation password is generated from the EQSS website. The EQSS website requires a login username and password. If you are a service manager and do not have a username and password, contact EQSS to register. Follow the instructions below to obtain an authorisation password.

1. Open your preferred web and enter the following into the address bar <http://www.eqss.com.au/overwatch> to open the Login page
2. Select Customer
3. Enter your username and password
4. Ask the service technician for the serial number shown on the Setup page or on the ECU module along with the owner details of the EWP and complete the details form then click Generate Hash
5. Provide the 5-digit hash password to the service technician



The screenshot shows a web interface with the EQSS logo at the top left. Below the logo is a section titled 'Details' containing 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	JLG R Series
Hash	50244

System Settings

Default Settings

See the sections below for details on each of the JLG MRT OverWatch™ system default settings.

Setting Name	Description	Default
deltaseek	This specifies which of the previous lidar reading to compare against the current one to calculate the speed.	20
max_safe_velocity	This is the velocity threshold for the cutout in cm/s. for drive mode.	100
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. in elevate mode.	80
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
max_safe_velocity_neutral	This is the velocity threshold for the cutout in cm/s. in neutral mode.	60
max_safe_displacement_neutral	This is the maximum permitted distance in cm the operator may be away from the calibration position in neutral mode.	40
fwddispadj	The coefficient to apply to the displacement when the displacement is toward the sensor.	-0.8
fwdveloadj	The coefficient to apply to the velocity when the displacement is toward the sensor.	-1
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	Any lidar reading below this will trigger a cutout with the message: "Operator Zone"	15
zone_maximum	Any lidar reading above this will trigger a cutout with the message: "Operator Zone"	120
horn_count_max	The number of times the horn will sound when alerting the operator if the trigger remains pressed during the cutout.	2
horn_time_ms	The amount of time in milliseconds each individual horn should play.	200
adc_elevate_threshold	For the elevate ADC input, a reading above this indicates the EWP is in elevate mode.	2000

Setting Name	Description	Default
adc_drive_threshold	For the drive ADC input, a reading above this indicates the EWP is in drive mode.	2000
adc_trigger_threshold	For the trigger ADC input, a reading above this indicates the trigger is pressed.	250
adc_joystick_fwd_threshold	For the joystick ADC input, a reading above this indicates the joystick has been pushed forward.	1283
adc_joystick_bwd_threshold	For the joystick ADC input, a reading below this indicates the joystick has been pulled backward.	1483
override_cooldown	The amount of time in milliseconds the system will wait before accepting another override request.	20000
override_time	The amount of time in milliseconds the override will last before it expires, and normal operation is resumed.	15000
override_listening_time	The amount of time in milliseconds the system will wait while the deadman is held down before considering it not to be part of the triple click override request.	300
override_reset_time	The amount of time in milliseconds the override system will wait before resuming listening after the deadman has been released at the end of an override period.	500
override_triple_click_time	The amount of time in milliseconds 3 clicks of the deadman needs to occur in order to trigger the override.	2000
lidar_fault_timeout	The amount of time in milliseconds of silence from the sensor module before a fault condition is triggered.	1000
cutout_fault_timeout	The amount of time in milliseconds a discrepancy between the cutout and the cutout sensor is permitted before a fault condition is triggered.	3000
throttle_time	Period after the trigger is pressed, the system does not track velocity.	2000
time_before_welcome	Time after power on before welcome audio is played	250
stuck_displacement	How much movement is considered to be non operator movement / trapped	20
stuck_time	Period, after cutout to determine if the operator is not moving and is trapped	5000
stuck_time_long	After the stuck time this is the interval between horn alerts	10000
wifi_on_click_count	The number of times the trigger needs to be pressed after startup to enter Wi-Fi mode.	10
wifi_on_click_time	The timeout after startup before OverWatch stops listening to the trigger click method of turning on the Wi-Fi	10000

Setting Name	Description	Default
wifi_on_gesture_count	The number of times to cover and uncover the sensor to enter Wi-Fi mode.	3
wifi_on_gesture_time	The timeout before OverWatch stops waiting for the next part of the gesture in milliseconds	3000
wifi_on_gesture_initial_time	The timeout after startup before OverWatch stops waiting for start of the gesture in milliseconds	10000
driving_state_timeout	Mode selection switch timeout	7000

Polarity and Input Style

The table below describes each setting

Setting Name	Description	Default
joystick_drive_forward	Direction of joystick to move EWP forward	forward
joystick_elevate_upward	Direction of joystick to move EWP upward	backward
joystick_neutral_move	Direction of joystick that requires monitoring when in neutral	forward
elevate_polarity	Direction of signal logic	high
drive_polarity	Direction of signal logic	high
trigger_polarity	Direction of signal logic	high
joystick_polarity	Direction of signal logic	low
neutral_safe	Monitor when no drive mode set	yes
driving_state_input	Direct, timer based or separate joysticks	direct

Bypass

Setting Name	Description	
test_cutout_state	Test channel enabled for primary cutout	bypassed

Connection Schematics – Typical Application

