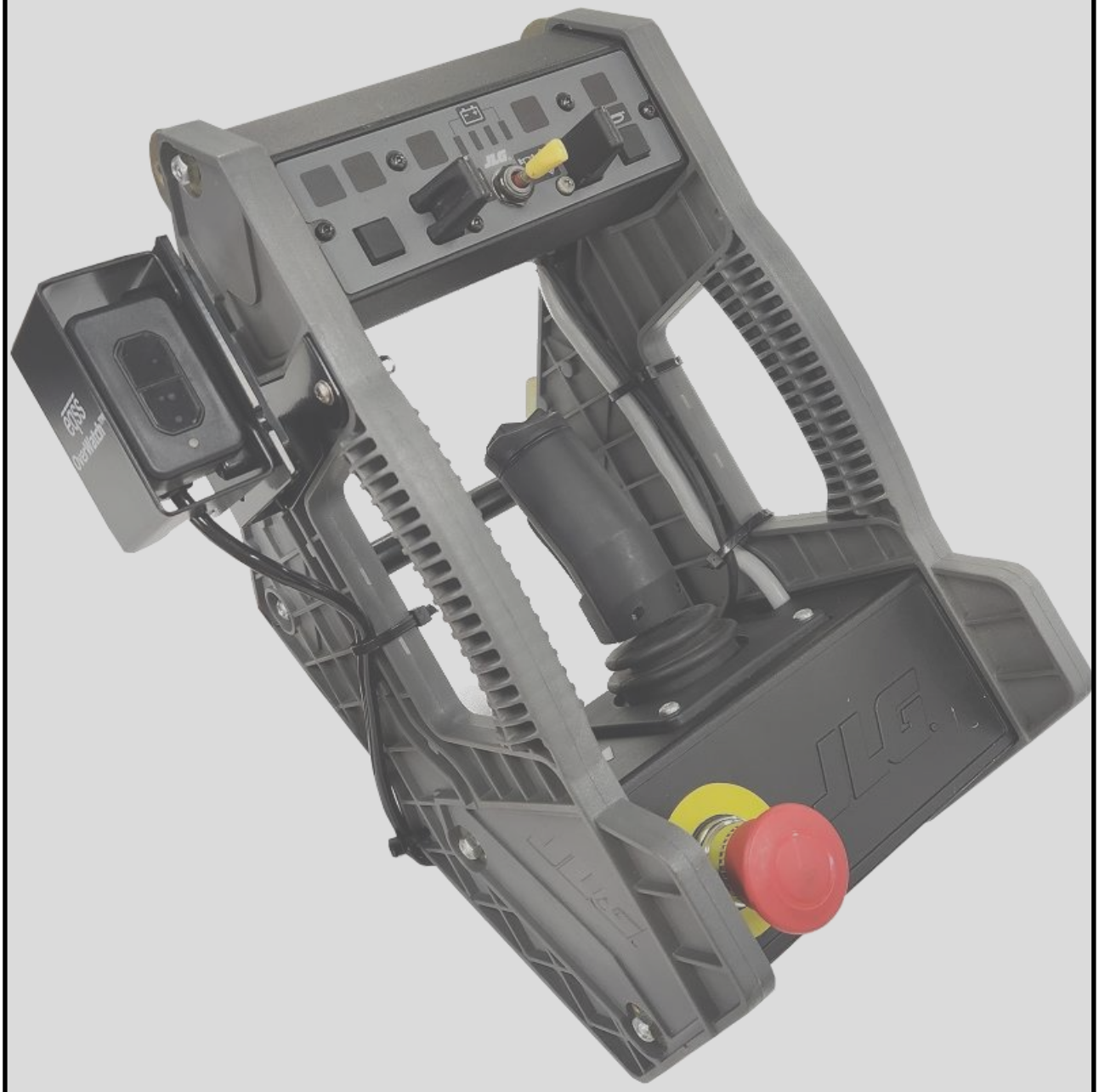
INSTALL MANUAL

EQSS Model6253 – Overwatch™
JLG xxxxES Series



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

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DOCUMENT ABSTRACT:
This Installation manual details the instructions for installing the Model6253 OverWatch on a JLG xxxxES Series Scissor Lift.

PRODUCT NAME:
Model6253 OverWatch Operator Detection System

REFERENCE DOCUMENTS:
DO0001195 Model6253 OverWatch User Manual

CURRENT DOCUMENT REVISION:
2.0

REVISION INFORMATION:

- 1.0 Initial Document Creation for system installation on a JLG xxxxES Series
- 1.1 Update of wire connection and sensor mounting instructions
- 1.2 Update of schematic
- 1.3 Update to be suitable with quick connect harness installation
- 1.4 Update on installation procedures to use Plug and Play loom
- 1.5 Update on installation procedures to suit newer model of ES Boxes
- 1.6 Update of title page image and mounting instructions to reflect new bracket
- 1.7 Update of installation images
- 1.8 Update on config name and system settings
- 1.9 Inclusion of mounting guard V2 and update of configuration procedures
- 2.0 Update of mounting guard V2 image

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in this publication regarding this device's applications and the like, is provided only for your convenience and may be superseded by updates.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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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.

Table of Contents

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	Drill 10.5mm
8	Metric sockets or spanners
9	Needle nose pliers
10	Screw drivers

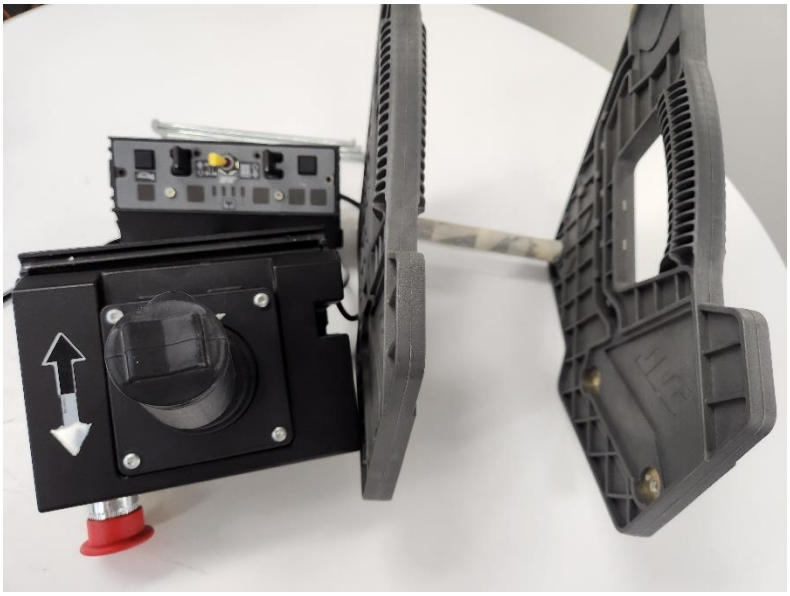
Installation Time

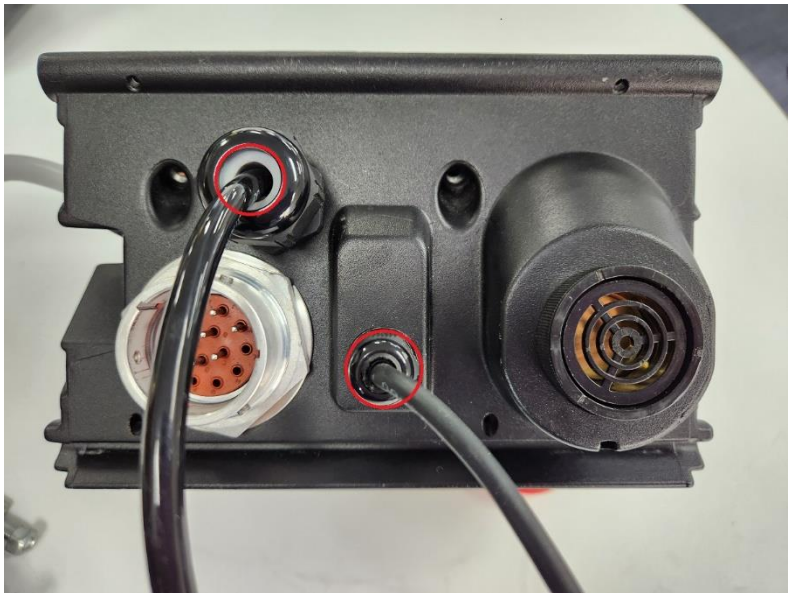
The suggested time required to install the OverWatch is as detailed below.

Task	Estimated Time (Minutes)
Open the operator control box	5
Drilling of all mounting holes for the various components	15
Mechanical assembly	20
Electrical assembly	10
Post installation system tests	10
Close the operator control box	15
Total	**75**

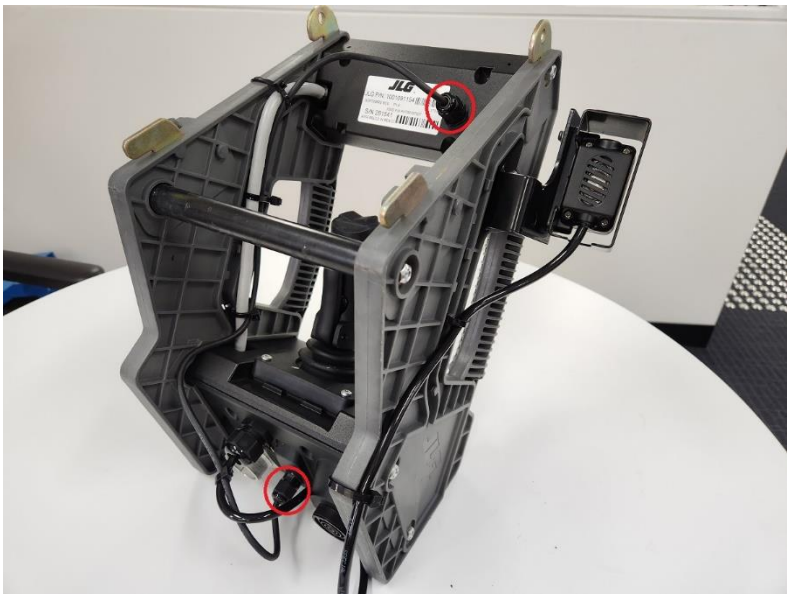
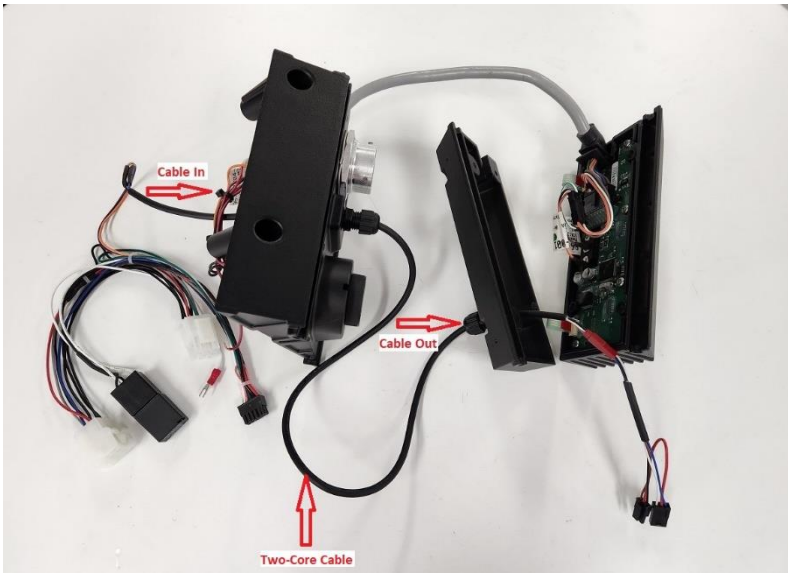
Installation Instructions

Operator Sensor

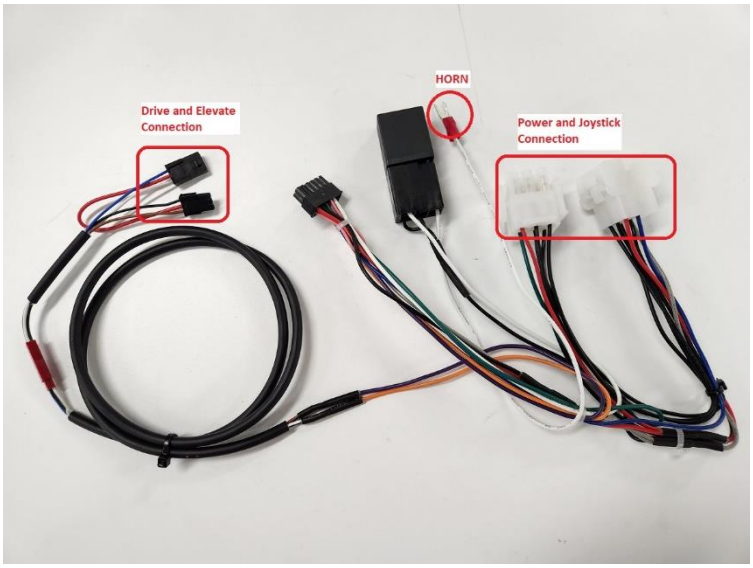
Step	Description	Diagram
1.	Remove top and bottom modules from the plastic housing.	
2.	Open the top module and drill a 12mm hole on the back panel of the enclosure to install the M12 cable gland. The position of the hole is detailed in the image, being **30mm** from the top edge and **40mm** from the right edge.	

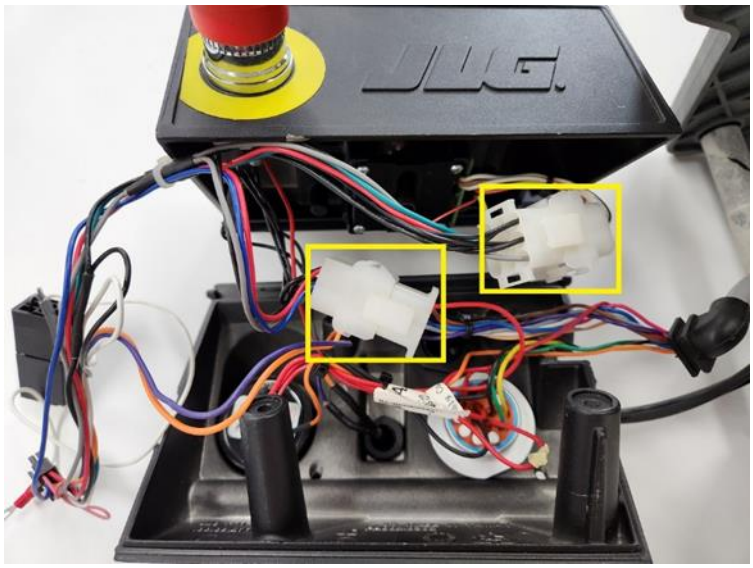
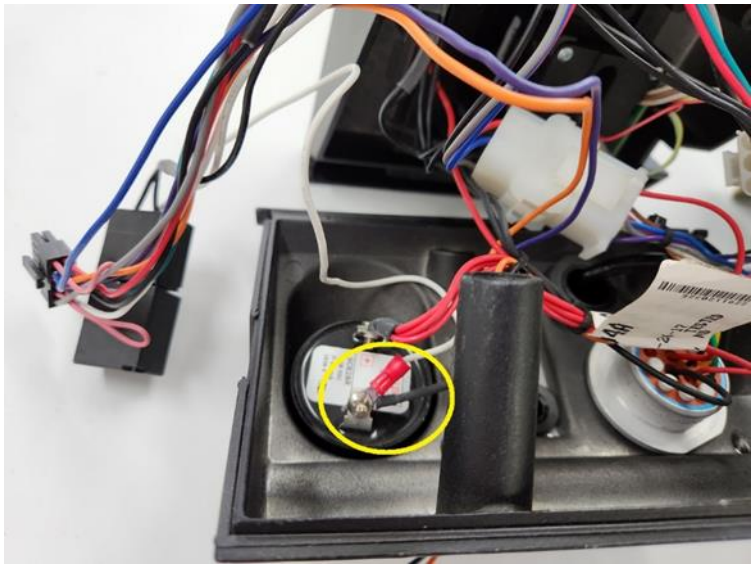
Step	Description	Diagram
3.	Open the bottom module and prepare to drill two holes, make sure that all internal cables are clear before drilling holes on the back panel of the control box enclosure as shown in the image.	
4.	**Operator Sensor Gland:** Drill a 20mm hole to install the sensor cable gland in the location shown in top left of the image. **28mm** from the top edge to the centre **55mm** from the left edge to the centre	

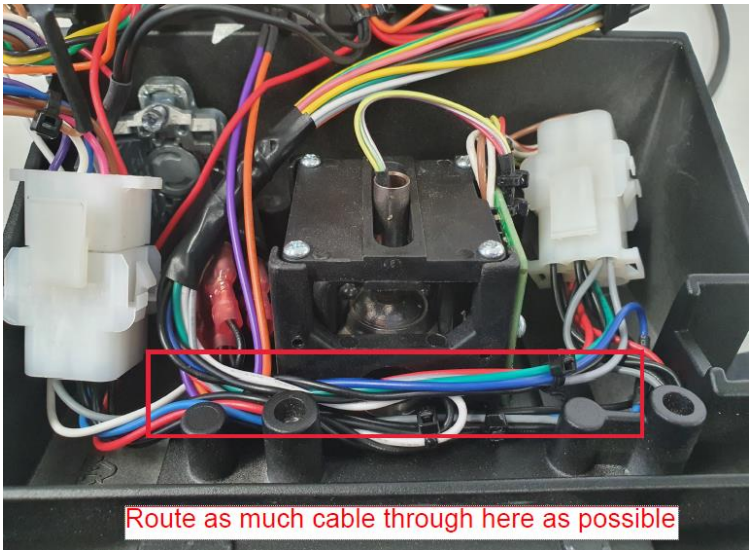
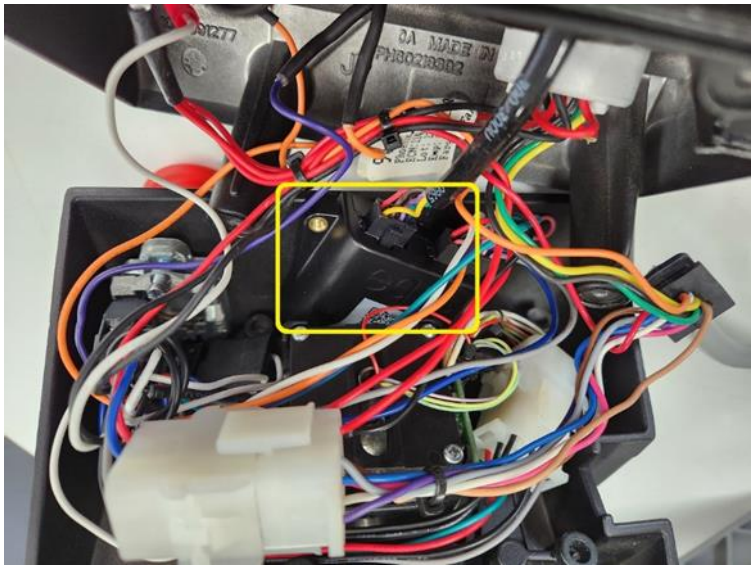
Step	Description	Diagram
5.	**Drive/Elevate Gland:** Drill a 12mm hole to install M12 cable gland in the location shown in the image. Horizontal and vertical distance measured as **11mm** as shown in the image. **Note: Install cable gland at the exact location shown in image** Feed the two-core cable from the Overwatch harness through the gland.	 

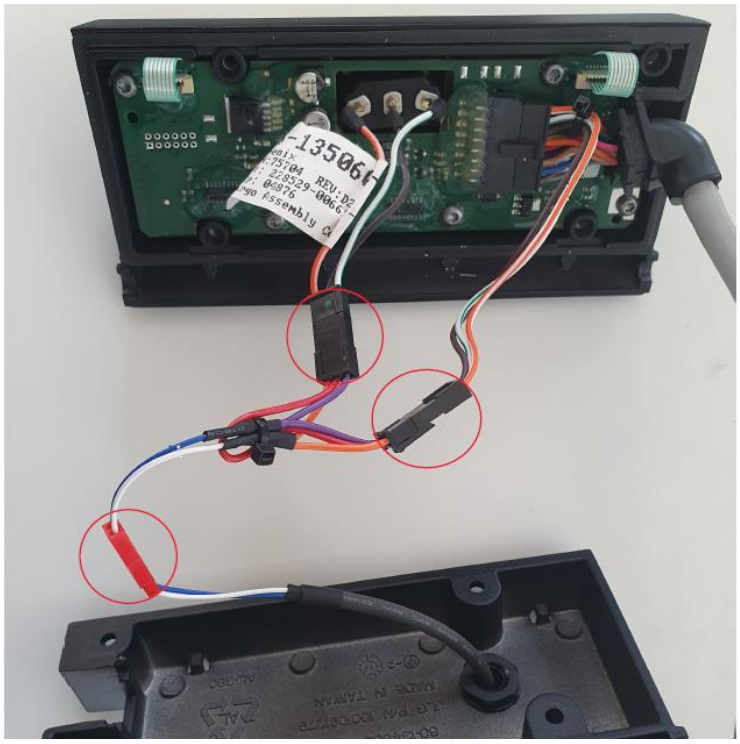
Step	Description	Diagram
6.	Run the two-core cable from the bottom unit to the top unit, through the two M12 cable glands. Route the cables using cable ties, as shown in the image. Refer to the adjacent image for feeding direction of the two-core cable.	 

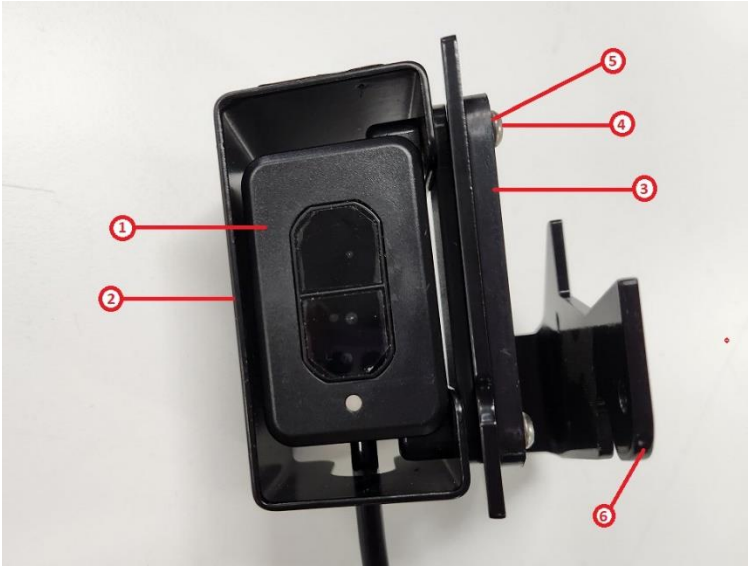
Control Module

Step	Description	Diagram
1.	Wiring connections are made with the **AS001937** harness.	
2.	The following connections will be done in the bottom module.	

Step	Description	Diagram
3.	**Joystick and power:** Disconnect the 9-pin connector from the JLG joystick and install the Overwatch harness in series.	
4.	**Buzzer:** At the back of the buzzer on the **Negative** side, install the Overwatch buzzer connection (**white wire**).	

Step	Description	Diagram
5.	Place the Overwatch ECU module at an angle and in the location as shown in the image. Neatly manage the cables, making sure the joystick connectors are positioned as shown. **Make sure the cables are secure and in position as not to be pinched or damaged during the closure.**	 

Step	Description	Diagram
6.	The following connections will need to be done in the top module.	
7.	**Drive and Elevate Select:** At the back of the drive/elevate switch disconnect the existing 3 pin connector and install the drive/elevate cable from the OverWatch harness in series.	

Step	Description	Diagram
8.	**Sensor Mounting Guard V1 (ME001794)** Mount the operator sensor to the mounting bracket ME001819 by using the wedges, sensor guard, bolts, and washers. The orientation of the wedge blocks is critical for the correct positioning of the operator sensor. Make sure that the sensor is angled, such that it is **twisted inwards** from the joystick controller. Make sure to place the narrow face side wedge in between the sensor guard and mounting bracket. Place the wider face outside the mounting bracket as shown in the image. Mount the sensor in position using the positioning wedges, sensor guard, M4 washers, and bolts.	

PARTS lIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	AS001910	Overwatch™ Operator sensor
2	1	ME001794	Overwatch™ Sensor Guard
3	2	ME001798	Overwatch™ Alignment Wedge
4	2	FA001422	M4 x 20mm Post Trox Butt Screw
5	2	FA001235	Washer, Plain, M4 , 304 St.St.
6	1	ME001819	Operator Sensor Mounting Bracket

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

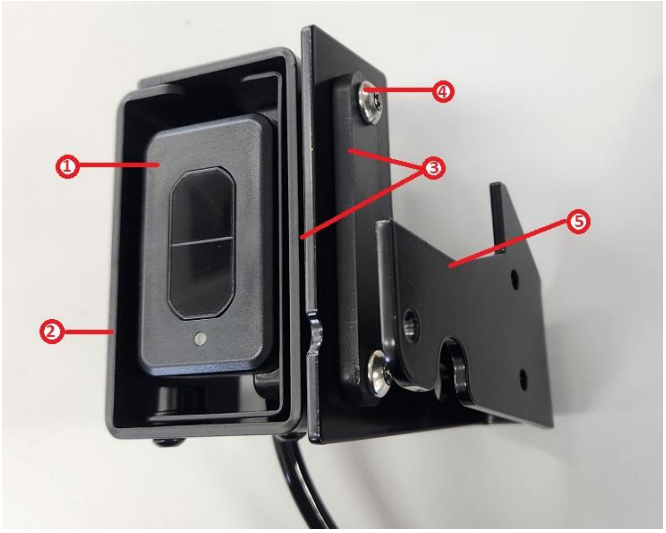
This guard (AS002326) supersedes the original V1 design. Mount the operator sensor to the mounting bracket ME001819 by using the wedges, sensor guard, bolts, and washers.

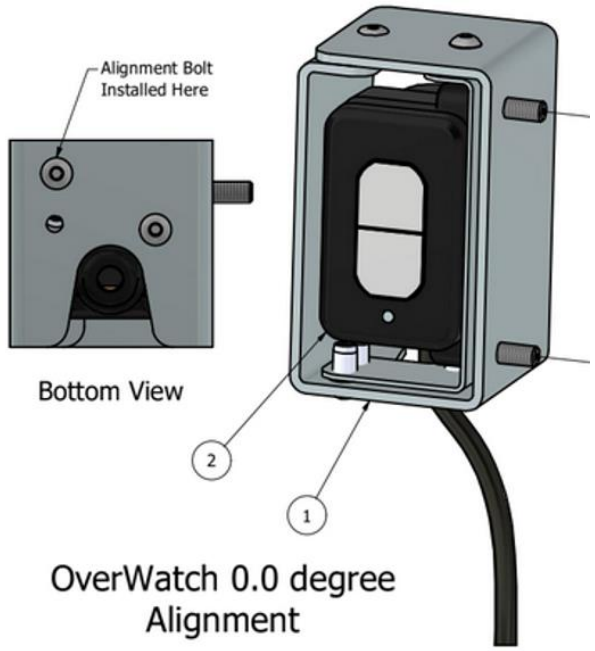
The orientation of the wedge blocks is critical for the correct positioning of the operator sensor. Make sure that the sensor is angled, such that it is **twisted inwards** from the joystick controller. Make sure to place the narrow face side wedge in between the sensor guard and mounting bracket. Place the wider face outside the mounting bracket as shown in the image.

Make sure that the sensor is on the **0.0-degree** position inside sensor guard.

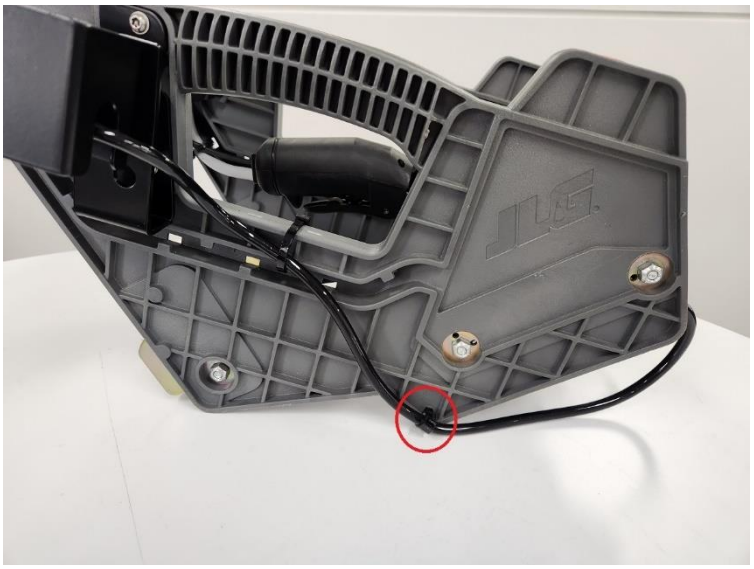
The 0.0-degree angle is achieved by using the bolt hole as show in the image.

PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIOTION
1	1	AS001910	OverWatch Operator sensor
2	1	AS002326	Sensor Mounting Guard V2
3	2	ME001798	Operator Sensor Alignment Wedge
4	2	FA001450	M5 X 10 Socket Head Barrel Nut
5	1	ME001819	Operator Sensor Mounting Bracket





Step	Description	Diagram
10.	Drill two **5mm** holes using the sensor backing plate (ME001820) as a drilling template, as shown in the image.	 

Step	Description	Diagram
11.	Drill one **5mm** hole to route the operator sensor cable by using a cable tie as shown in the image.	

Step	Description	Diagram
12.	Mount the operator sensor assembly in position using the backing plate, M4 washers, nuts, and security bolts. Use the following hardware from the kit. 3 x M4 x 25mm bolts 3 x M4 Lock Nuts 6 x M4 Washers **The backing plate and sensor mount should align with the existing pattern in the control box plastic enclosure.**	 

Step	Description	Diagram
13.	Re-assemble the bottom module and top module and mount to the plastic housing. **Make sure the operator sensor cable runs clear to the joystick enclosure and tighten the M20 gland to seal the cable entry point.** **Care must be taken when closing the boxes, make sure all internal wires are clear of the box edges and bolt inserts, do not pinch or crush any internal wires when closing the boxes.**	

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

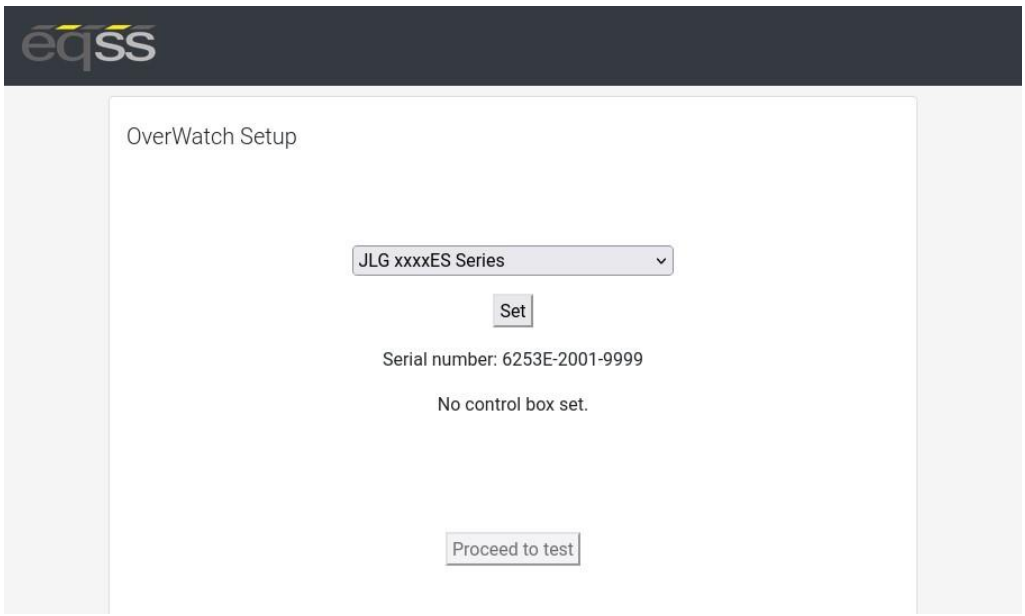
To enable the Wi-Fi connection on the OverWatch to complete the configuration follow the steps below.

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)
12. Enter the following into the address bar http://192.168.4.1 to open the OverWatch main page

Machine Model Selection

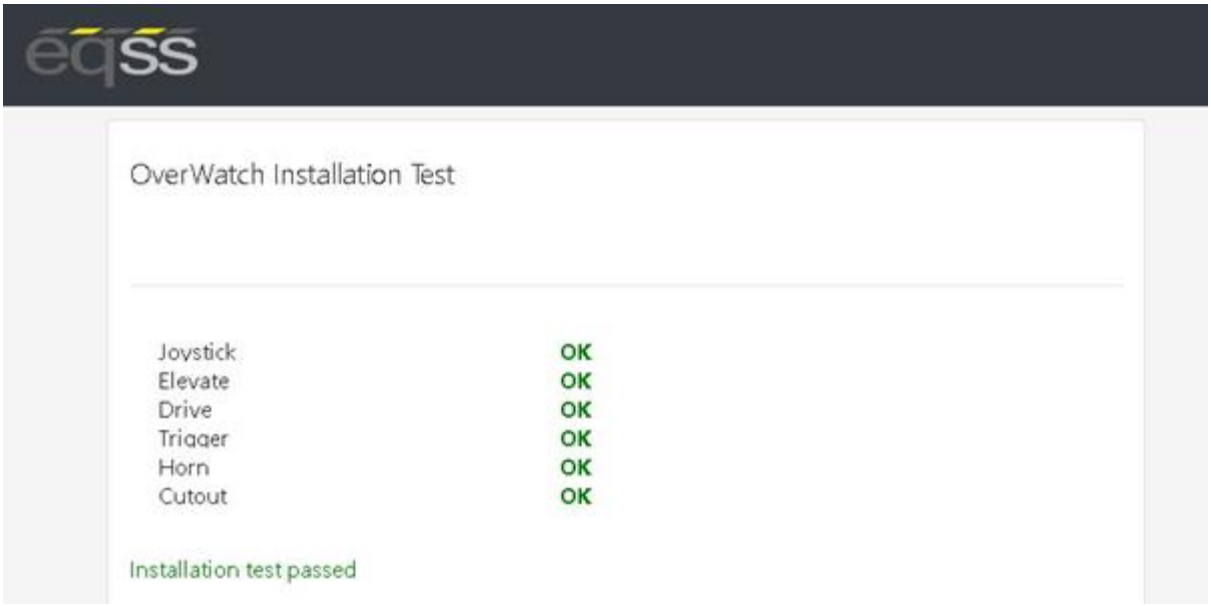
Follow the instructions below to configure the OverWatch.

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



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.

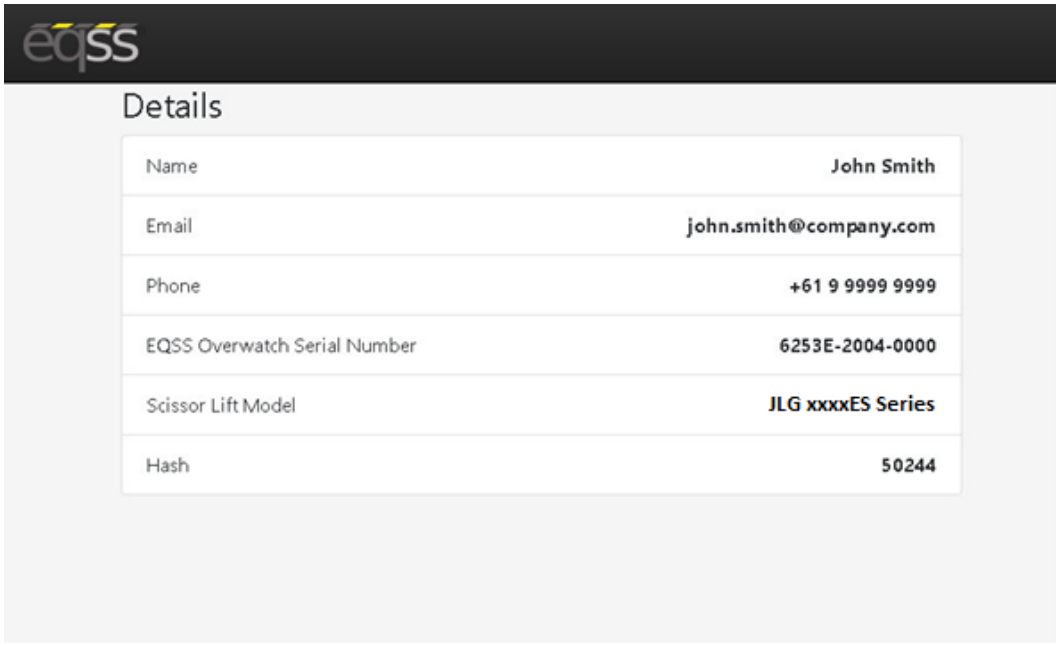


Change Model Configuration

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 browser 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.



System Settings

Default Parameters

The OverWatch is configured with the following default parameters.

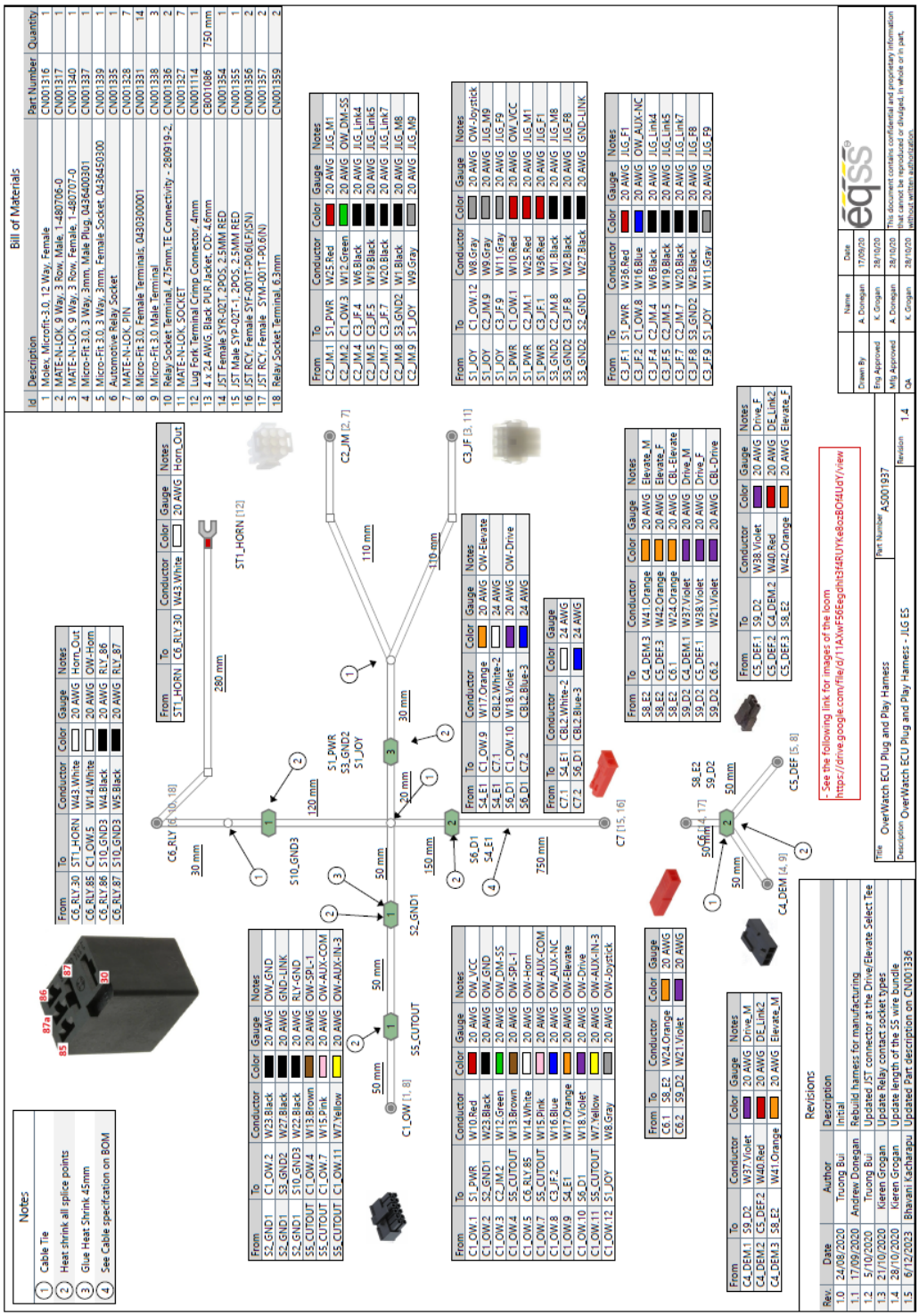
Setting Name	Description	Default
max_safe_velocity	This is the velocity threshold for the cutout in cm/s for drive mode.	100
max_safe_displacement	This is the maximum permitted distance in cm the operator may be away from the calibration position in drive mode.	50
max_safe_velocity_elevate	This is the velocity threshold for the cutout in cm/s for 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
fwddispadj	The proportion of the calibration distance toward the sensor permitted to the operator.	0.7
fwdveloadj	The coefficient to apply to the maximum allowable velocity when the movement of the operator is toward the sensor.	1.0
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.	20
zone_maximum	The maximum calibration distance. If the operator is further from the sensor than this “operator zone” will be announced.	120
adc_elevate_threshold	Threshold value for the elevate ADC input.	300
adc_drive_threshold	Threshold value for the drive ADC input.	300
adc_trigger_threshold	Threshold value for the trigger ADC input.	2000
adc_joystick_fwd_threshold	Forward threshold value for the joystick ADC input.	1250
adc_joystick_bwd_threshold	Backward threshold value for the joystick ADC input.	1450
throttle_time	Period after the trigger is pressed (ms) during which initial velocity reading is computed.	500
driving_state_timeout	Mode selection switch timeout (ms)	7000

Polarity and Input Style

The table below describes each setting

Setting Name	Description	Default
joystick_drive_forward	Direction of joystick to move machine forward	forward
joystick_elevate_upward	Direction of joystick to move machine upwards	backward
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
driving_state_input	Direct or timer based	direct

Harness Drawing AS001937



Replacement Parts

Replacement parts for this OverWatch kit are available from EQSS, 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
AS001938	OverWatch - Complete kit for JLG xxxxES Series
AS001910	OverWatch - Operator sensor with M20 gland
AS001916	OverWatch - Electronic Control Unit (ECU)
AS001937	OverWatch – JLG xxxxES series harness
AS002326	OverWatch - Sensor guard V2
ME001798	OverWatch – 7.5-degree alignment wedge
FA001450	OverWatch – M5 x 10-barrel nut
ME001819	OverWatch – JLG xxxxES mounting bracket – Part A
ME001820	OverWatch – JLG xxxxES backing bracket – Part B