INSTALL MANUAL

EQSS Model6253 – OverWatch™
Snorkel SxxxxE Series

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

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DOCUMENT ABSTRACT:
This Installation Manual details the manufacturer's installation instructions for installing the Model6253 OverWatch on a Snorkel SxxxxE Scissor Lift.

PRODUCT NAME:
Model6253 OverWatch Operator Detection System

REFERENCE DOCUMENTS:
DO001195 Model6253 OverWatch - User Manual

CURRENT DOCUMENT REVISION:
1.0

REVISION INFORMATION:

- 1.0 Initial Document Creation for installation on a Snorkel SxxxxE Scissor Lift.

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.

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	Metric sockets or spanners
8	Needle nose pliers
9	Screw drivers

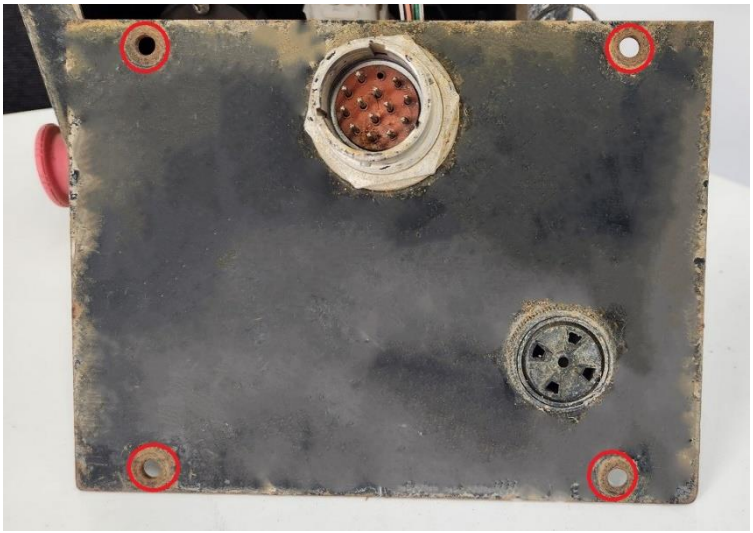
Installation Time

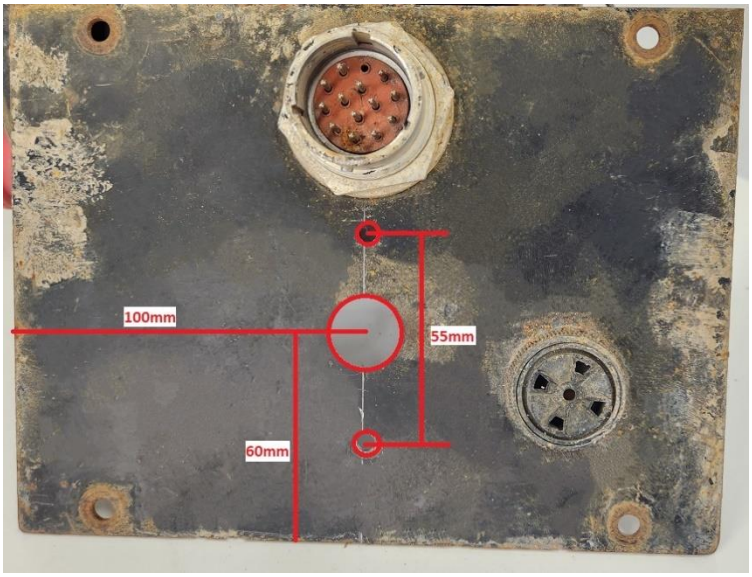
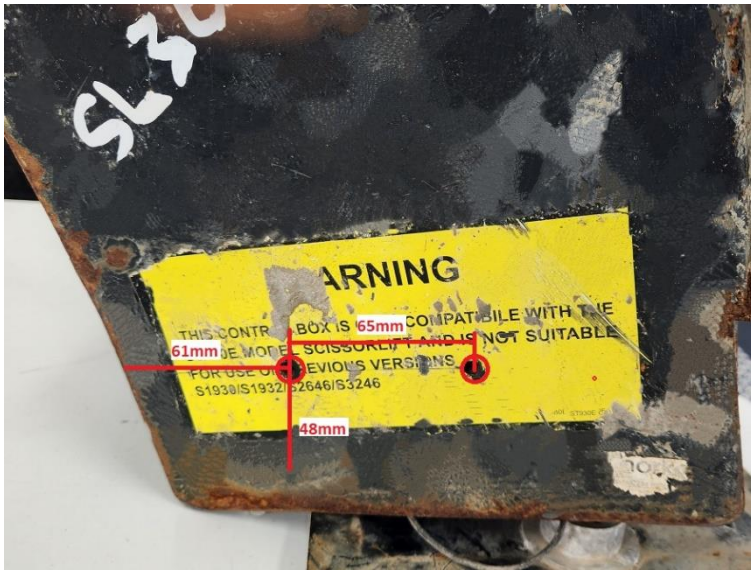
The suggested time required to install the OverWatch is as detailed below.

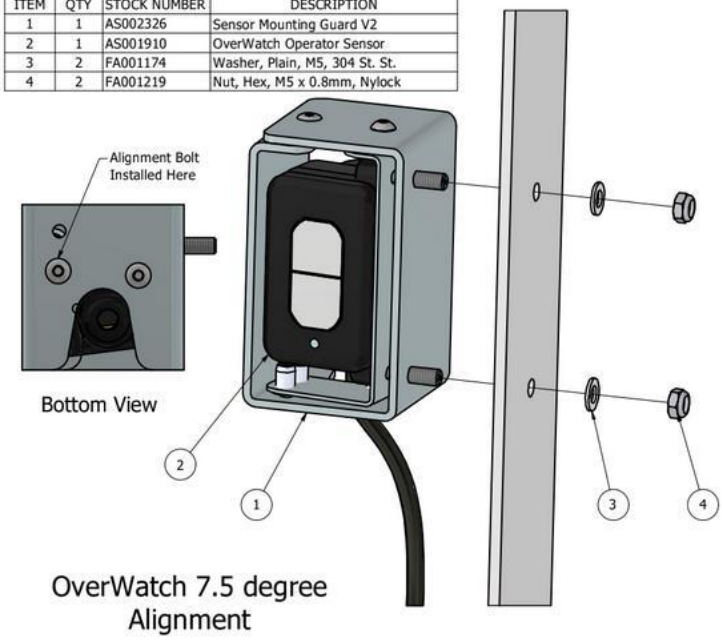
Task	Estimated Time (Minutes)
Open the operator control box	1
Drilling of all mounting holes for the various components	13
Mechanical assembly	10
Electrical assembly	20
Post installation system tests	10
Close the operator control box	1
Total	**55**

Installation Instructions

Operator Sensor

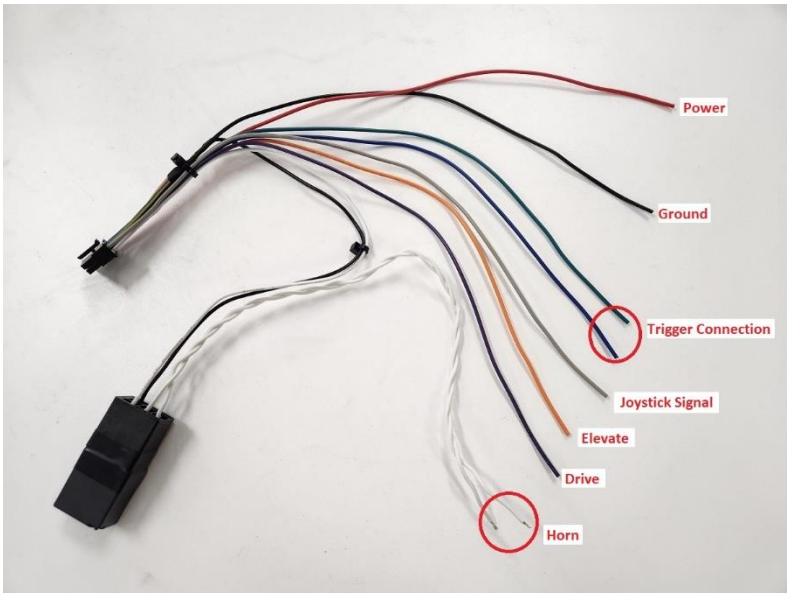
Step	Description	Diagram
1.	Remove the bottom cover of the control module.	
2.	Drill two **6mm** holes into the metal housing as shown in the location. These holes are required to mount the operator sensor bracket. **Note**: Use sensor bracket (ME001864) as a drilling template.	

3.	Drill a **20mm** hole and two **5.2mm** holes for the operator sensor gland and cable gland guard as shown in the image.	
4.	Drill two **5.2mm** holes to mount the ECU module. Note that the two holes are **65mm** apart.	

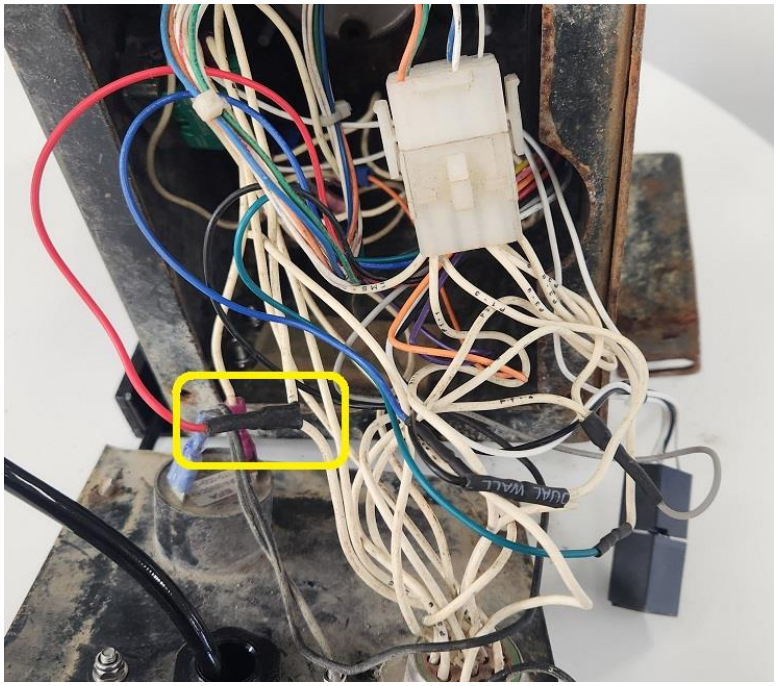
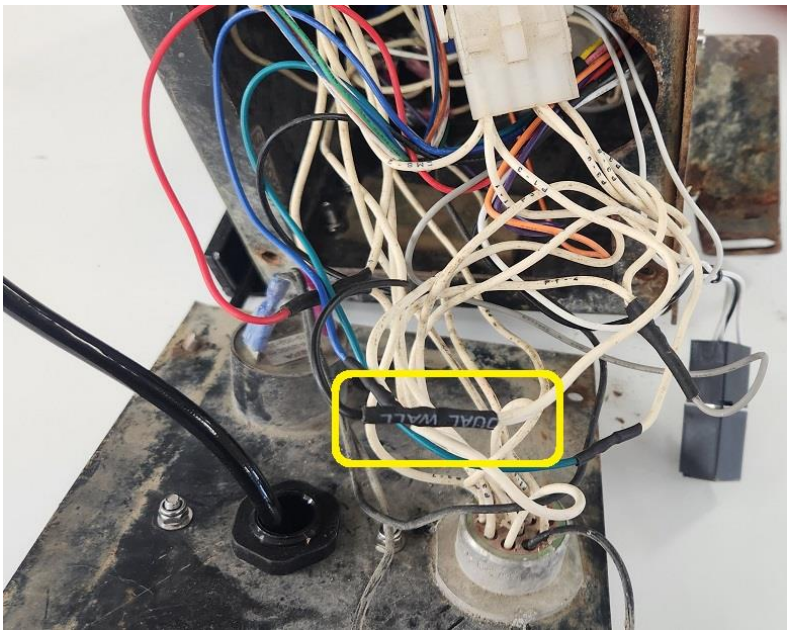
5.	Mount the operator sensor bracket to the control box enclosure by using the nuts, bolts, and washers. Use the following hardware from the kit. 2 x M6 x 16mm Button Head Screws 2 x M6 Lock Nuts 4 x M6 Washers	
6.	**Sensor Mounting Guard V2 (AS002326)** This bracket (AS002326) supersedes the original V1 design. Attach the bracket in position using the M5 nuts and washers. Make sure that the sensor is on the 7.5-degree angle, such that it is twisted outwards from the joystick controller. **The 7.5-degree twist is achieved by rotating the sensor inside the assembly and using the bolt hole as show in the image.**	PARTS LIST ITEM | QTY | STOCK NUMBER | DESCRIPTION 1 | 1 | AS002326 | Sensor Mounting Guard V2 2 | 1 | AS001910 | OverWatch Operator Sensor 3 | 2 | FA001174 | Washer, Plain, M5, 304 St. St. 4 | 2 | FA001219 | Nut, Hex, M5 x 0.8mm, Nylock 

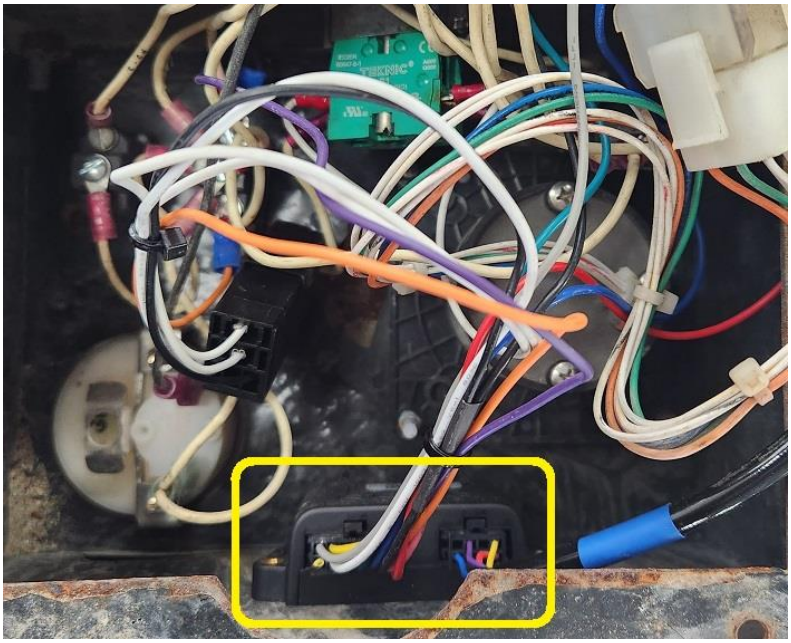
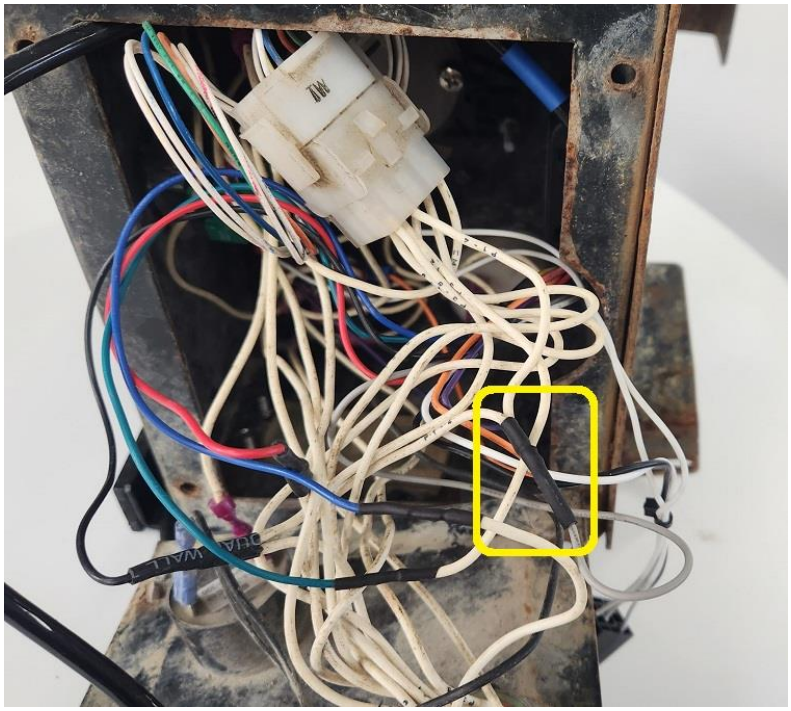
7.	Install the cable gland and gland guard. Route the operator sensor cable as shown in the image and secure the cable to the metal enclosure by using the P-clip and cable tie. Use the existing bottom metal cover screw for the P-clip.	

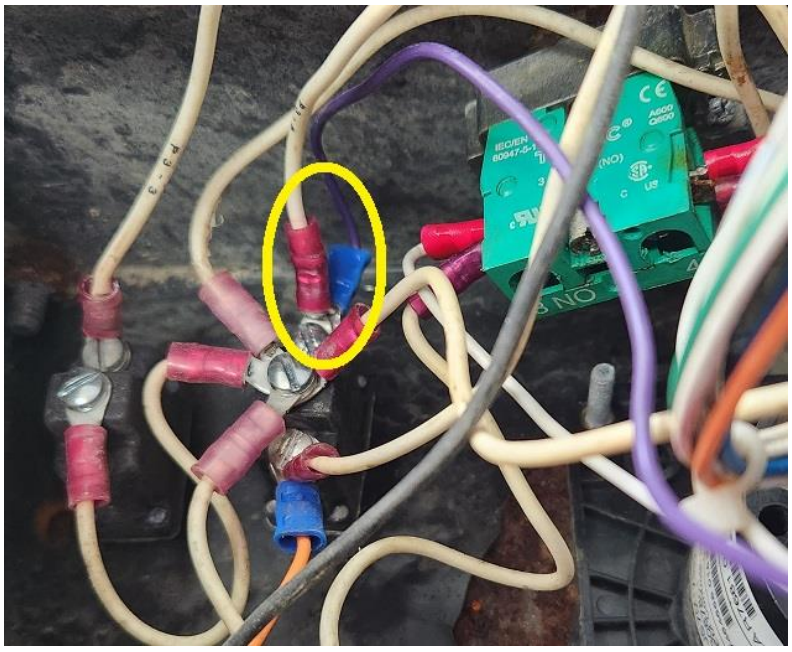
Control Module

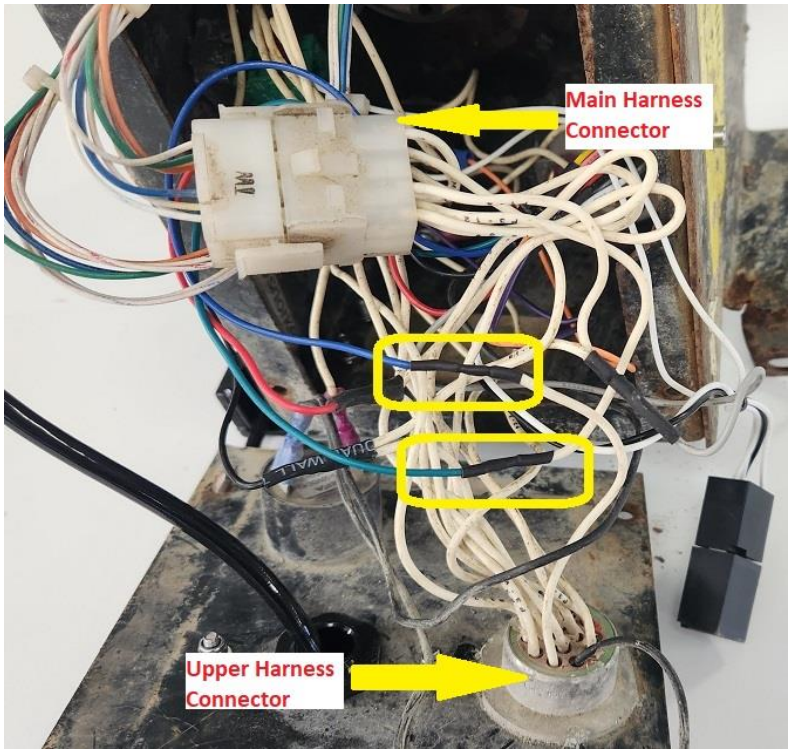
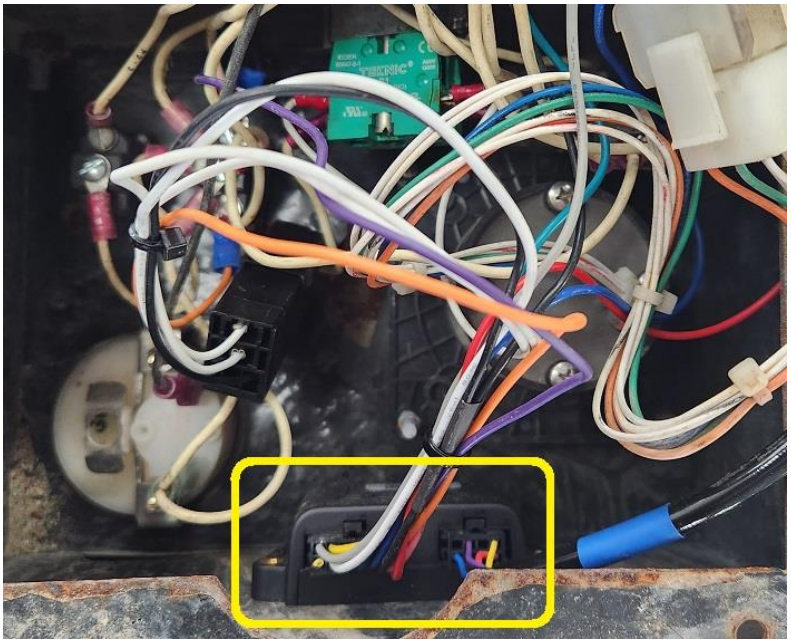
Step	Description	Diagram
1.	Wiring connections are made from the OverWatch harness **AS001931**.	
2.	Follow the table for the wire connections.	

ECU PIN NUMBER	Colour	Snorkel 1930E Wire ID	Description
1	Red	P3-1 EMS Platform	Power
2	Black	P1-3	Ground
3	Green	P3-12 Joystick Side	Trigger Enable-Joystick side
5	White	RLY	Horn Relay
8	Blue	P3-12 ECU Side	Trigger Enable-ECU side
9	Orange	P3-7	Elevate
10	Purple	P3-6	Drive
12	Grey	P1-4	Joystick Analog Input
RLY	RLY White	Relay Switch-1	Horn Switch Side 1
RLY	RLY White	Relay Switch-2	Horn Switch Side 2

3.	**Power Connection:** Splice the **red** wire from the OverWatch harness to the white wire **P3-1** on E-Stop switch.	
4.	**Ground Connection:** Splice the **black** wire from the OverWatch harness to the white wire **P1-3** on the connector.	

5.	Install the OverWatch ECU module by using the supplied M4 screws and washers as shown in the image. The ECU must be mounted so the connectors are facing downwards to avoid any potential water ingression.	
6.	**Joystick Connection:** Splice the **grey** wire from the OverWatch harness to the **white wire P1-4** on the connector as shown in the image.	

7.	**Elevate Connection:** Crimp the ring terminal on the **orange** wire from the OverWatch harness and install the **orange** wire with the wire **P3-7** on the Drive/Elevate switch as shown in the image.	
8.	**Drive Connection:** Crimp the ring terminal on the **purple** wire from the OverWatch harness and install the **purple** wire with the wire **P3-6** on the Drive/Elevate switch as shown in the image.	

9.	**Trigger Connection:** Cut the wire **P3-12** from the main harness connector. Solder the **green** wire from the OverWatch harness to the main harness connector side and solder the **blue** wire from the OverWatch harness to the control box upper harness connector side.	
10.	Connect the 8-Pin connector from the operator sensor and the 12-Pin connector from the OverWatch harness, into the ECU module. Make sure to tie all the wires together by using a cable tie to avoid any damages during the closure.	

11.	Re-fit the machine control box and close the bottom cover. 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 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. Firefox, Chrome or Safari are recommended.

Wi-Fi Connection & Web Page Access

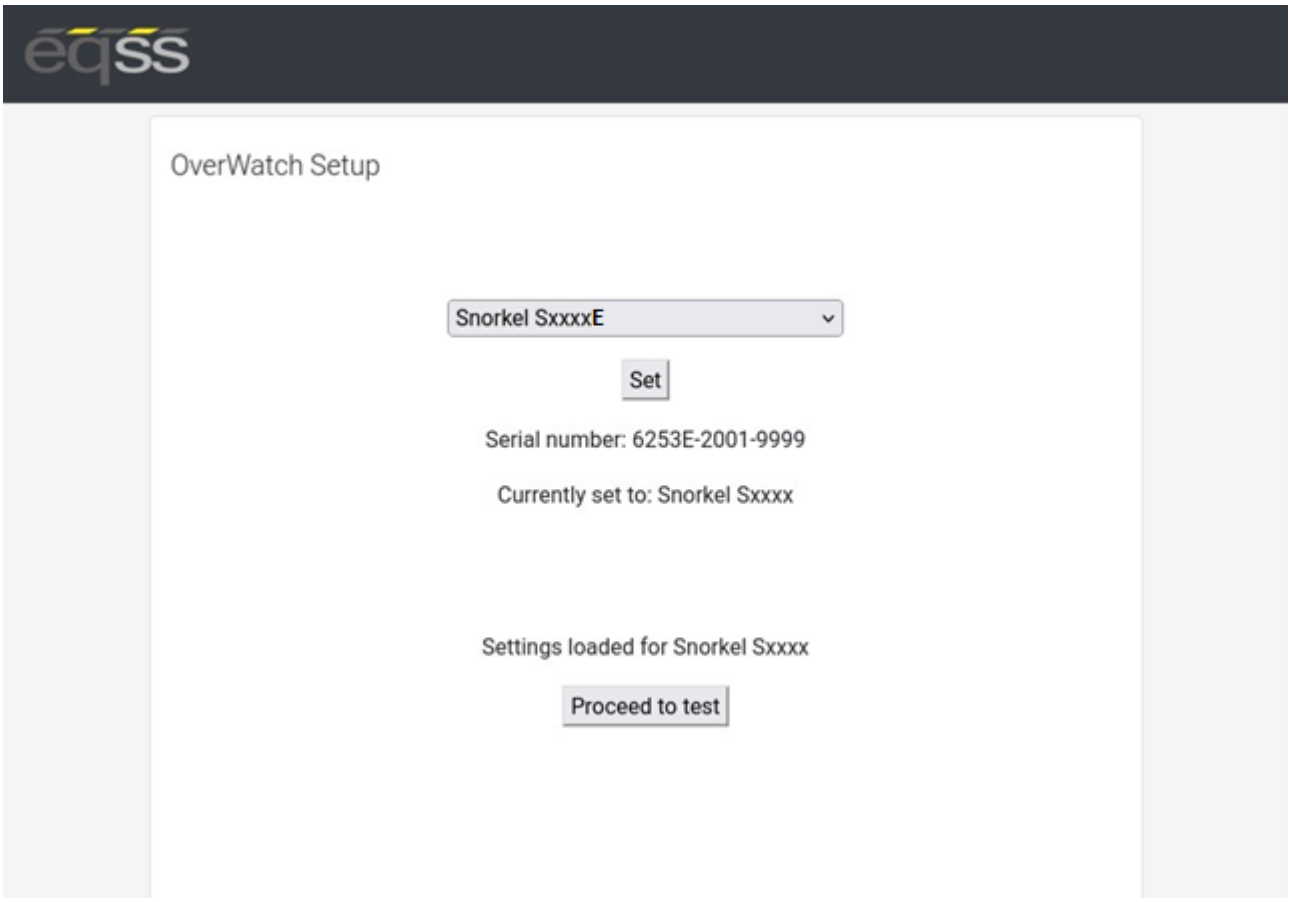
To enable the Wi-Fi connection on the OverWatch to complete the configuration follow the steps below.

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

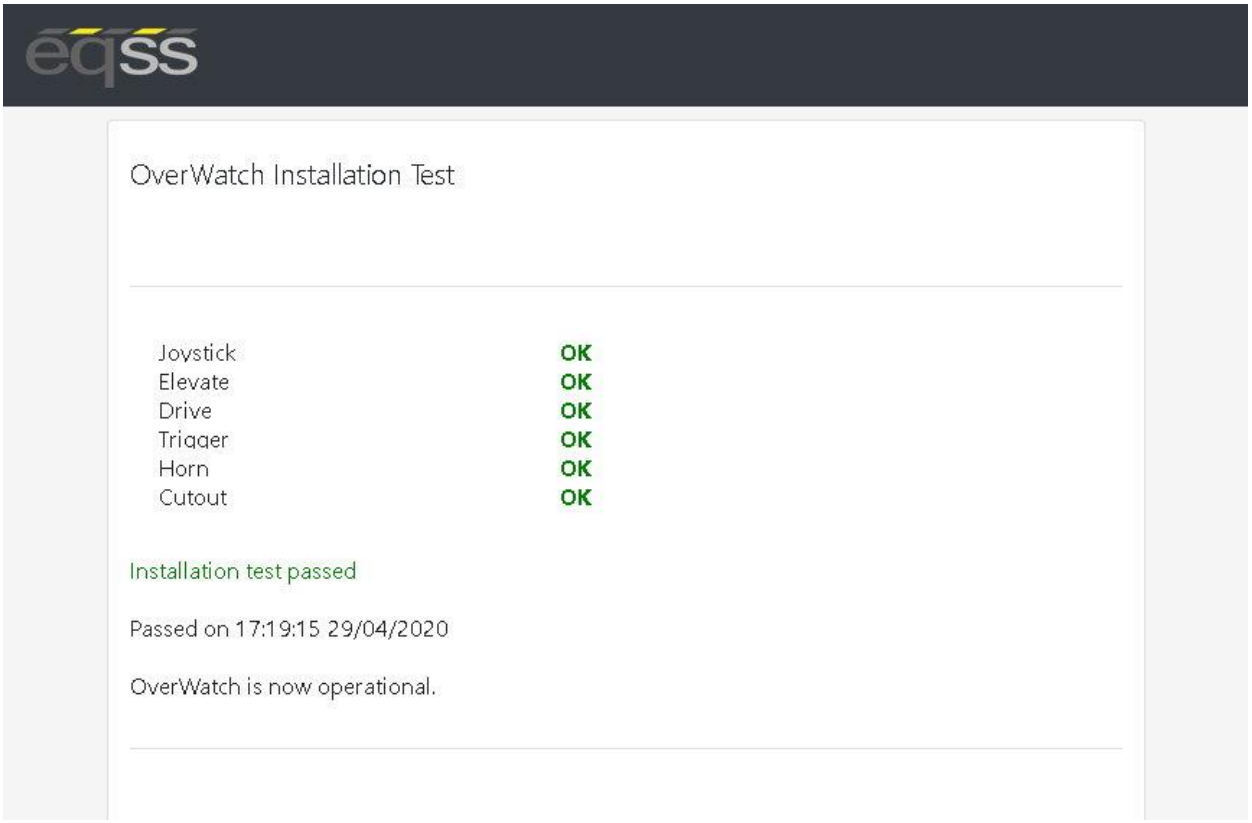
Follow the instructions below to configure the OverWatch.

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 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.

Settings

Default Parameters

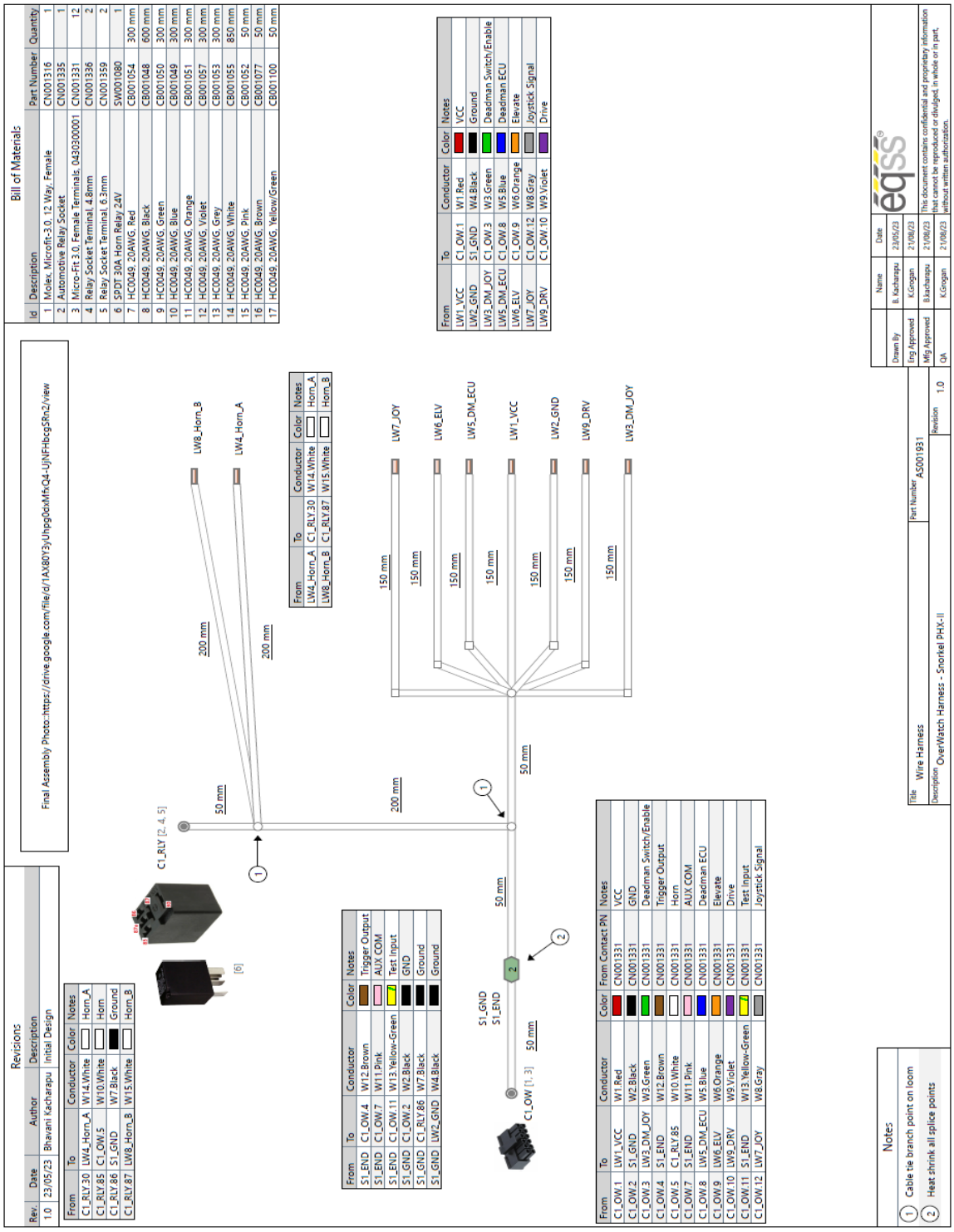
The OverWatch is configurated with the following default parameters.

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.	85
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.	17
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.	1000
adc_drive_threshold	Threshold value for the drive ADC input.	1000
adc_trigger_threshold	Threshold value for the trigger ADC input.	1000
adc_joystick_fwd_threshold	Forward threshold value for the joystick ADC input.	1500
adc_joystick_bwd_threshold	Backward threshold value for the joystick ADC input.	1400
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

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	high
neutral_safe	Safe or not safe	yes

Harness Drawing AS001931



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
AS002338	OverWatch - Complete kit for Snorkel SxxxxE Series Control Box
AS001910	OverWatch - Operator Sensor with M20 gland
AS001916	OverWatch - Electronic Control Unit (ECU)
AS001931	OverWatch - Snorkel SxxxxE Series Harness
AS002326	OverWatch - Sensor Guard V2
ME001864	OverWatch - Sensor vertical support bracket