I N S T A L L   M A N U A L

EQSS Model6253 – OverWatch™ Snorkel RT-Series

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DOCUMENT ABSTRACT:
This Installation Manual details the manufacturer's installation instructions for installing the Model6253 OverWatch™ on a Snorkel RT-Series 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 Snorkel RT-Series Scissor Lift.
- 1.2 Update of instructions to include additional wiring detail.

Important Information

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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

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	10
Post installation system tests	10
Close the operator control box	1
Total	**45**

Installation Instructions

Operator Sensor

Step	Description	Diagram
1.	Mount the operator sensor to the supplied bracket, using the supplied M4 washers and security bolts, and position the bracket in the location as shown in the image.	
2.	Mount the module in the located position using the supplied M5 nuts, bolts, and washers.	
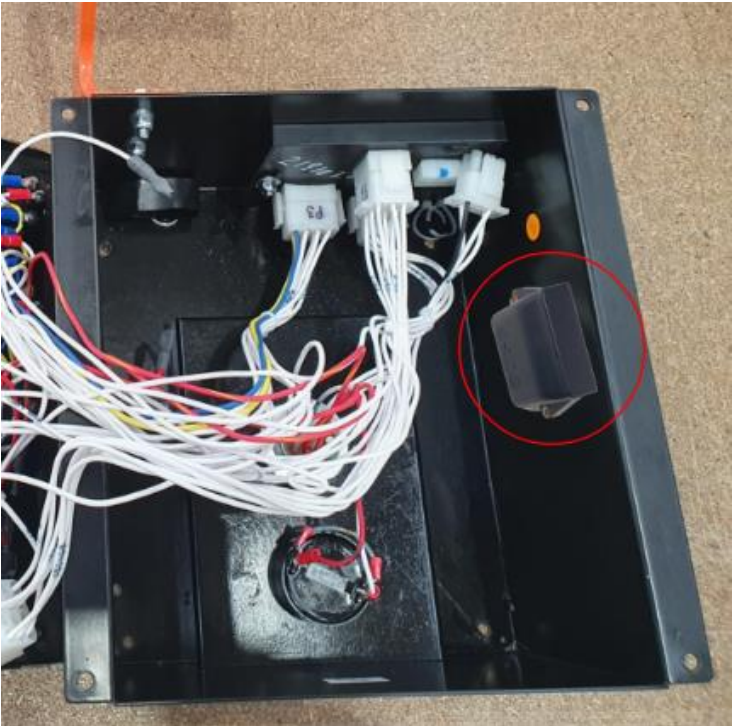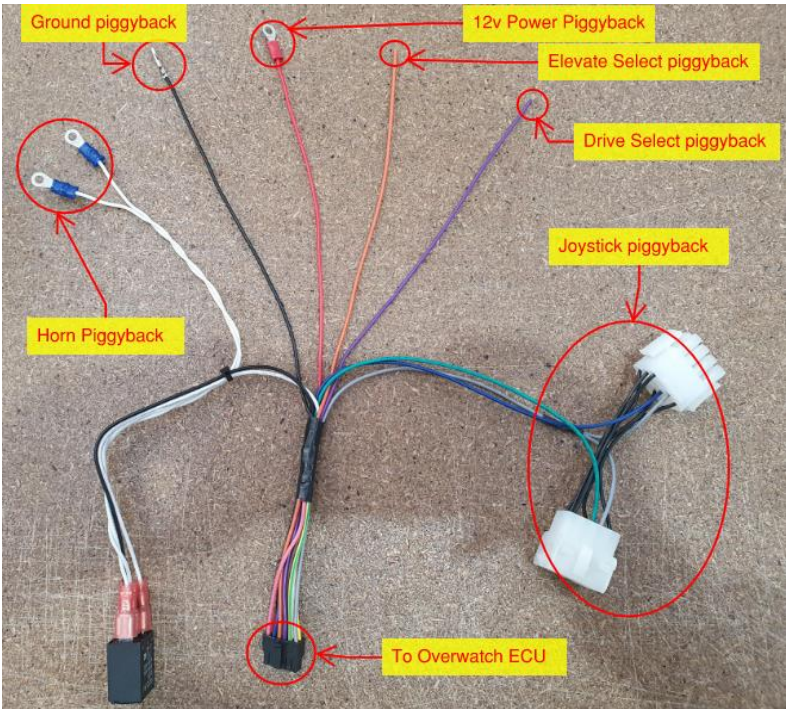
3.	Remove the front panel from the outer metal enclosure	
4.	Install the supplied cable gland in the location as shown in the image. Feed the wire from the operator sensor into the enclosure. Use the cable tie and adhesive cable tie guide provided to secure the cable.	
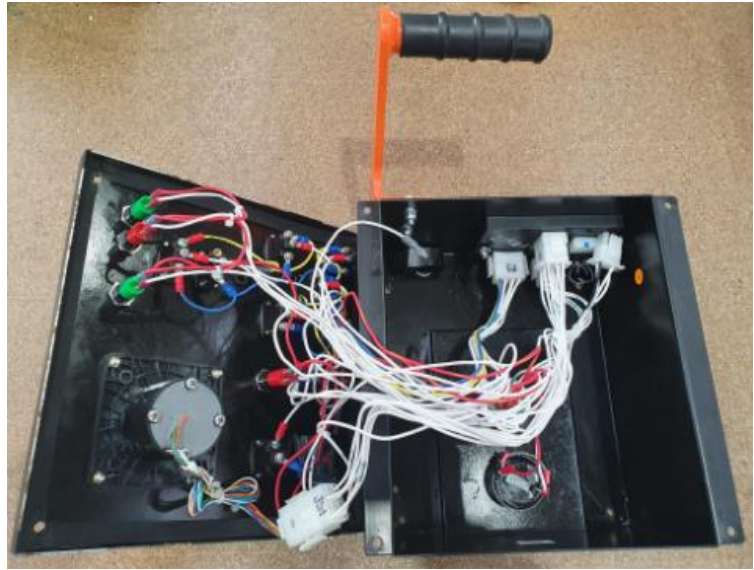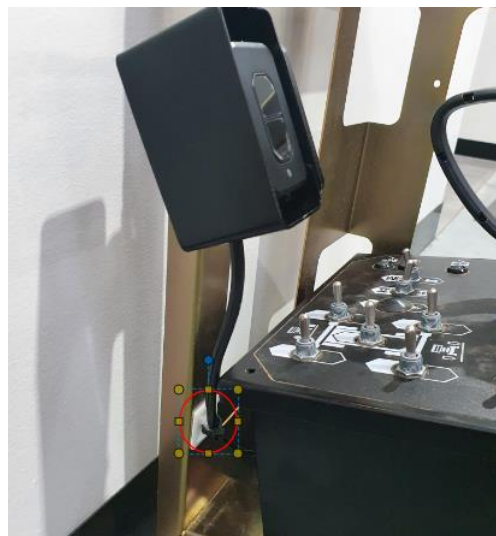
Control Module

Step	Description	Diagram
1.	Use the Velcro provided to mount the OverWatch™ ECU to the inside the box at the location nominated on the photo. Make sure to point the connection port downward.	
2.	Wiring connections are made by the Harness AS001962.	

3.	The connectors listed in the table will need to be connected inside the machines control box.	

EQSS Wiring Harness Connection	EQSS Harness Cable Colour
12v power	Red cable
Ground	Black cable
Joystick piggyback	Molex 9 pin White connectors
Horn piggyback	White
Drive Select piggyback	Purple
Elevate Select piggyback	Orange

4.	**Joystick Connection:** Disconnect the 9-Pin connector from the joystick and install the OverWatch™ Harness Joystick connector in series, as shown in the image.	
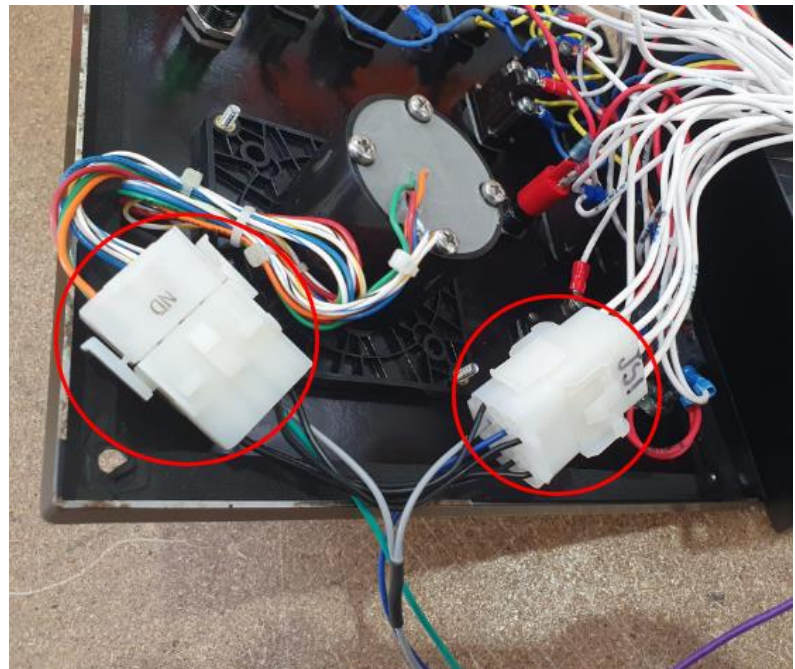
5.	**Horn Connection:** At the back the horn switch, attach the ring lug White wires from the OverWatch™ Harness as shown in the image.	
6.	**Drive and Elevate Connections:** Locate the Drive and Elevate signal lights in the control box: Splice the Purple wire from the OverWatch™ Harness into the white cable labelled DRV-LMP behind the Drive Light. Splice the Orange cable from the OverWatch™ Harness into the white cable labelled LIFT-LMP behind the Elevate Light.	
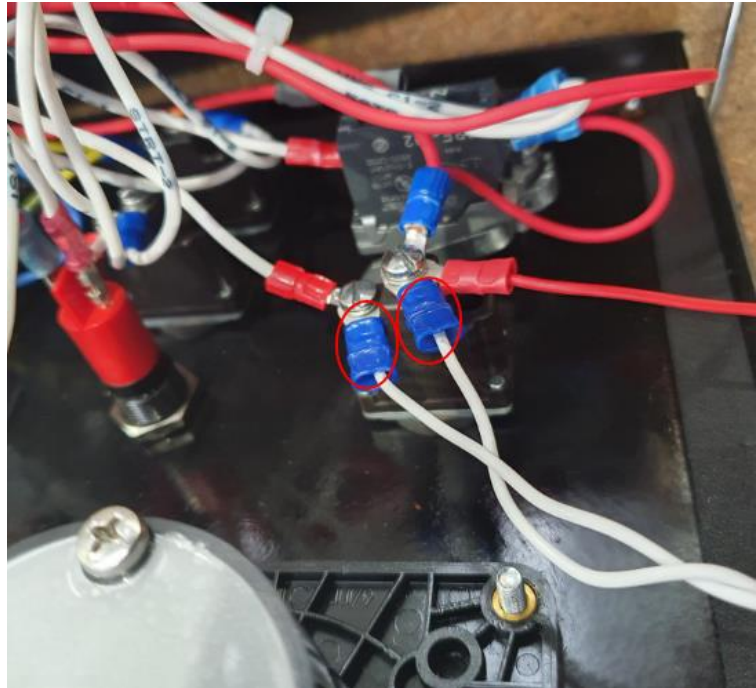
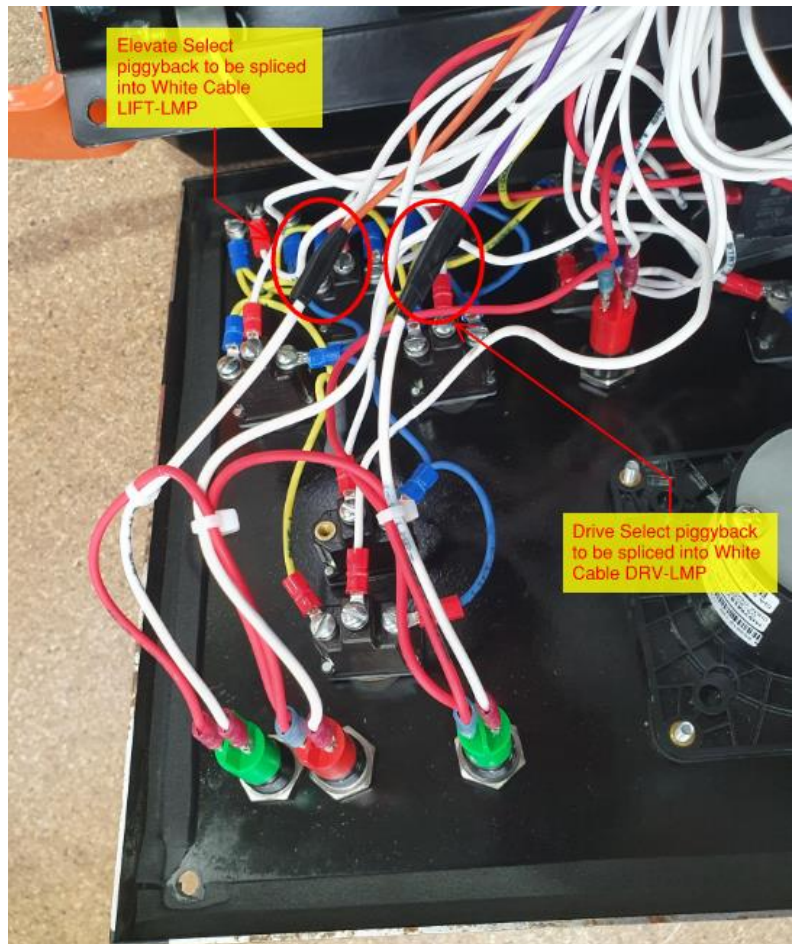|		
7.	**Power Connection:** At the back the horn switch, attach the Red wire from the OverWatch™ Harness as shown in the image. Double check that this is the same terminal that goes to the E-stop.	
8.	**Ground Connection:** Inside the control box, locate the 6-pin connector that has a black cable in pins 1 and 2. Install the OverWatch™ Harness Ground connection piggyback connector in series. If this location is not available, splice the black wire from the OverWatch™ Harness into the Black cable going into 6-pin connector as marked in the image.	
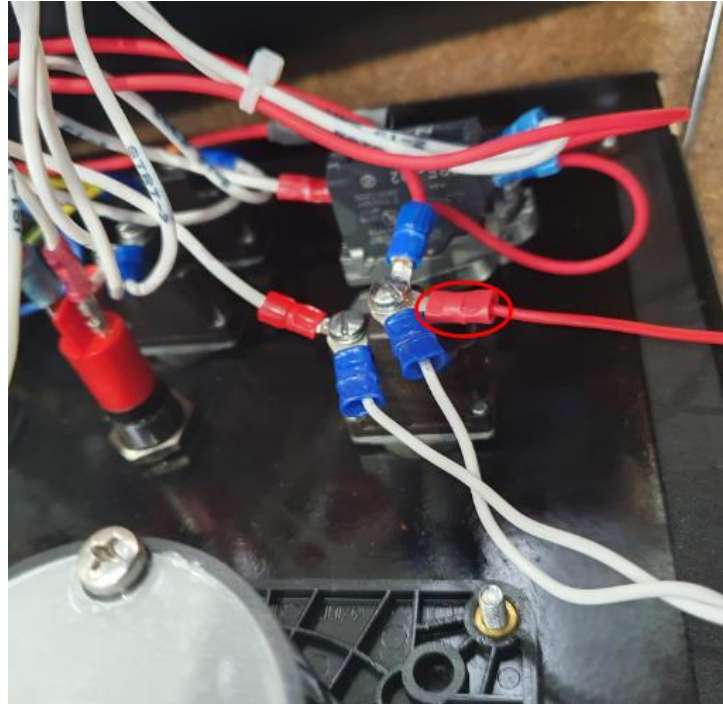
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| REV 1.2 | 22/09/2020 | Model6253 OverWatch™ Installation Manual | Document # DO001238 |

| 9. | Connect the 8-Pin connector from the Operator Sensor and the 12-Pin connector from the machine connection harness, into the Control Module and close up the control box. Take great care to ensure no cable are crushed while closing the box. | |

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.

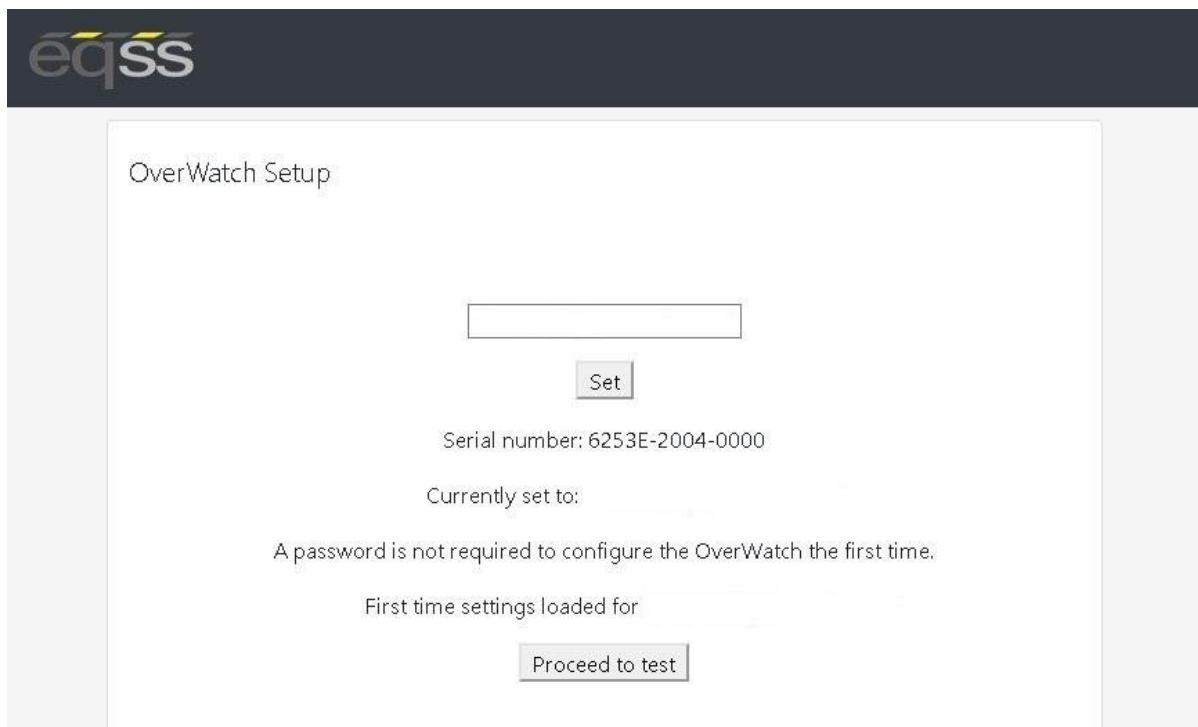## Wi-Fi Connection & Web Page Access

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

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| REV 1.2 | 22/09/2020 | Model6253 OverWatch™ Installation Manual | Document # DO001238 |

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 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 don't 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

Details

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

OEM Special Configuration

Overview

When installing the OverWatch™ on a new model there are number of parameters which need to be adjusted or fine-tuned to suit a specific EWP model. The instructions below should be performed by the OEM of the EWP. Once the OverWatch™ settings have been set and tested, they will then be supplied to EQSS to be used for other installations.

Wi-Fi Connection & OEM Web Page Access

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

1. Press the emergency stop button to power off the EWP

2. Cover the sensor with your hand

3. While the sensor is still covered release the emergency stop button to power on the EWP

4. Leave your head over the sensor until it says "Wi-Fi On"

5. On your Wi-Fi enabled device (laptop, tablet, smartphone, etc), show the available wireless networks

6. Select the wireless network starts with "overwatch" to connect to the OverWatch™

7. When prompted, enter the password "12345678"

8. Open your preferred web browser (Chrome, Firefox, Safari, Internet Explorer)

9. Enter the following into the address bar http://192.168.4.1/oem.html to open the OverWatch™ OEM page

10. Follow the instructions in OEM Password below to obtain the OEM login password

OEM Password

The OEM settings are password protected. The OEM password is generated from the EQSS website. The EQSS website requires a login username and password. If you are an OEM and do not have a username and password, contact EQSS to register. Follow the instructions below to obtain an OEM 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 OEM

3. Enter your username and password

4. Enter your name and contact details along with the serial number of the OverWatch™ then click Generate Hash

5. Enter the 5-digit hash password into the OEM password field

Settings

The OEM Settings page allows modification of all the OverWatch™ parameters. See the sections below for details on each setting.

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.	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. in 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
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.	1000
adc_drive_threshold	For the drive ADC input, a reading above this indicates the EWP is in drive mode.	1000

Setting Name	Description	Default
adc_trigger_threshold	For the trigger ADC input, a reading above this indicates the trigger is pressed.	1000
adc_joystick_fwd_threshold	For the joystick ADC input, a reading above this indicates the joystick has been pushed forward.	1550
adc_joystick_bwd_threshold	For the joystick ADC input, a reading below this indicates the joystick has been pulled backward.	1350
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
wifi_on_gesture_count	The number of times to cover and uncover the sensor to enter Wi-Fi mode.	3

Setting Name	Description	Default
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	forward
joystick_neutral_move	Direction of joystick that requires monitoring when in neutral	forward
elevate_polarity	Direction of signal logic	low
drive_polarity	Direction of signal logic	low
trigger_polarity	Direction of signal logic	high
joystick_polarity	Direction of signal logic	high
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

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Snorkel RT-Series Installation Manual

| REV 1.2 | 22/09/2020 | Model6253 OverWatch™ Installation Manual | Document # DO001238 |

Connection Schematics – Typical Application

Model 6253 OverWatch™
Digital Controls Application Note

Page 1 of 1

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