UpWatch

NANO 35

JLG Power Towers

Machine:	Nano 35
Document:	DO001856
Revision:	R1V1 - 25/07/2026

Installation Manual

EQUIPMENT SAFETY SYSTEMS
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Document Abstract:

UpWatch installation instructions for JLG Power Towers Nano 35

Product Name:

Model6503-H – UpWatch / Push Around Vertical Lift - Secondary Guarding System

Reference Documents:

DO001849 – UpWatch Operators Manual

Document Revision:

1.1

Revision Information:

1.0 Initial Document Creation for installation on JLG Nano 35
1.1 Addition of part numbers and update of images for new sensor bracket version

Important Information

Information contained in this publication regarding this device's installation and applications, is accurate at the date of publication and may be superseded by updates. Always obtain the latest version from our website and avoid printing. The user agrees to all terms and conditions of use for Equipment Safety Systems products as detailed on our website. This product is subject to our standard warranty as detailed on our website.
Failure to follow these installation instructions may void warranty.

The EQSS Model6503-U UpWatch is designed as an aid to the operator. The device detects the operator's position and movement with respect to the EWP's direction of movement and calculates if a crushing event is occurring, at which point it will trigger the cut-out of the machine's operation. The device responds to an event where actual contact occurs to the EWP operator. As a secondary guarding system, the device is designed to minimise the occurrence of an event resulting in serious injury or fatality.

UpWatch is a secondary guarding system only and does not discharge the operator from operating the EWP in accordance with the manufacturer's correct operating procedures. The device does not provide protection against all operational hazards that may be encountered while operating an EWP. It may not work in all situations and environments, it is not intended as a replacement for the safety features installed by the manufacturer of an EWP, and it will not provide adequate protection where an operator has failed to conduct a proper safe work assessment or uses the EWP in an unsafe way. The device should not be relied upon to safely operate the EWP and should not replace the correct operational training and safe work procedures.

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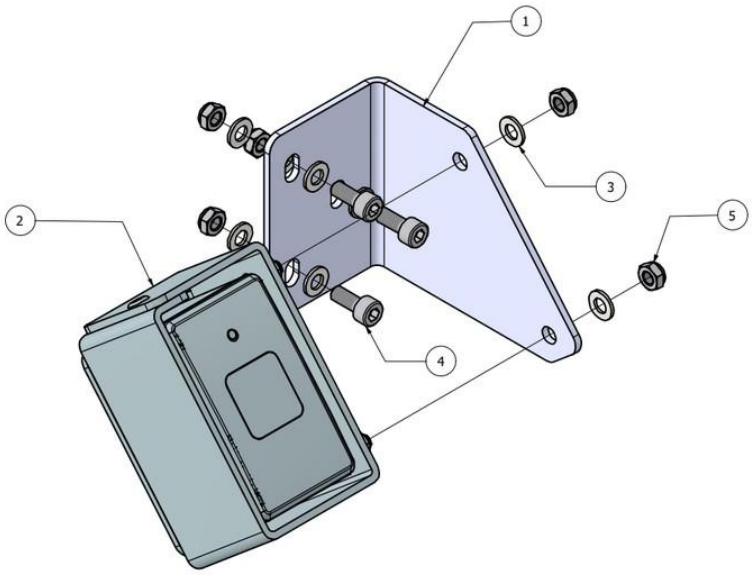
Specifications

The UpWatch is produced to the following specifications.

ELECTRICAL	
Supply Voltage	7VDC to 36VDC
Current	350mA @ 12VDC
Protection	1000mA Regulation
CONNECTIVITY	
CAN	2.0
Inputs	2 x Analogue - 12 bit
Outputs	1 x SSR 4A | 1 x Digital 0.5A
Wi-Fi	802.11 b/g/n
Bandwidth	2.4GHz
Diagnostics	Embedded Server
Static IP	192.168.1.5
PROCESSOR	
Architecture	32Bit LX6 140MHz
RAM	524KB
Flash	16MB – Data Storage
Watchdog	250mS
Data Logging	1024
Bootloader	OTA
AUDIO	
Feedback	Voice & Alarms
Language	Multilingual
Power	4W, 8Ω
Sound Level	100dB @ 10cm
SENSOR	
Type	LIDAR
Light Source	VCSEL
Wavelength	905nm
Field of View	Typ. 14 x 1
Eye Safety	Class 1 Eye Safe [EN60825]
ENVIRONMENTAL	
Operating Temp	-20°C to +65°C
Storage Temp	-25°C to +90°C
Sensor Protection	IP64
Humidity	5% to 98%
Vibration	EN60068-2-6
Shock	EN60068-2-7
EMC	EN61006-6-1 /2 /3/ 4
SAFETY	
Function Safety	SIL1 / CAT2 Plc

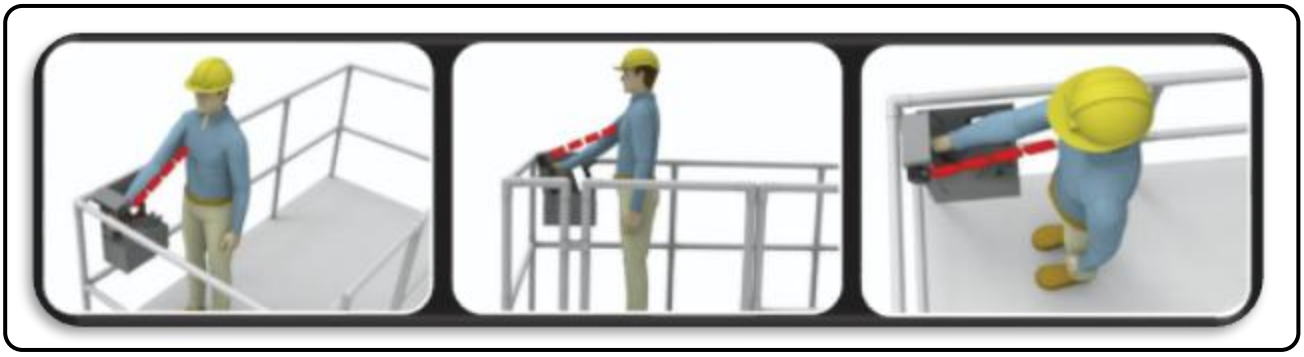
Mechanical Quick Start

The UpWatch sensor bolts onto an angled support bracket which mounts to the machine. It is necessary to use the provided bracket as this ensures the sensor is positioned and angled correctly. This allows for the UpWatch sensor to target the operator at the central mid chest region. It is critical to mount the sensor exactly as specified in th is manual for correct operation. The sensor is mounted at an **angle of 50 degrees** from the vertical.



Item	Quanty	Part Number	Description
1	1	ME001905	UpWatch - Sensor Bracket 50D
2	1	AS002550	UpWatch - Sensor 6503-4-1
3	8	FA001174	M5 Washer
4	3	FA001067	M5 x 12mm Socket Head
5	5	FA001219	M5 Lock Nut

Follow the mounting instructions in this manual, it is critical that the sensor is positioned correctly such that it has a visible sight of the operator's mid chest region when standing in the normal operational position.



Electrical Quick Start

The UpWatch is an embedded single node sensor and is hardwired to the controller box directly. The system connects to the machine inside the controller box and interfaces with power, elevate and deadman signals.

SENSOR CONNECTIONS			
Series			Cable PUR, 22 AWG
Contacts			5 Core
Cable Length			350mm – Deutsch DTM 4 Way Male
Cable Outer			PUR Black
Wire 1		Power 12/24V DC	Wires are to be soldered inside the pendant and sealed with heat shrink. White and yellow wires are crimped into the same node. DTM Male Connections, Pin 1 Brown, Pin 2 Black, Pin 3 White/Yellow, Pin 4 Blue
Wire 2		GND, 0V	
Wire 3		Dead Man Input 0-24VDC	
Wire 4		Elevate Input 0-24VDC	
Wire 5		Elevate Output 4A	

The UpWatch connects to the pendant controller, if the pendant is not as shown in the images below do not proceed with the installation and contact EQSS.

Due to space constraints and the requirement for the pendant controller to be removed for maintenance purposes a Deutsch connector is installed in line with the UpWatch sensor, allowing the sensor to be disconnected. When the sensor is disconnected a blanking plug must be used to enable vertical operation functions.

Pendant Controller PTNE201
Use this Manual

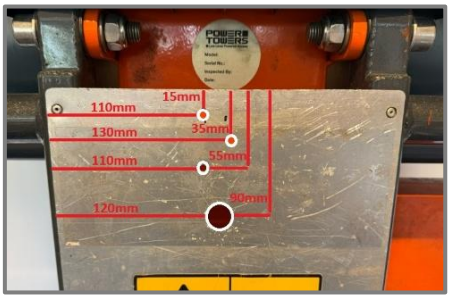
Pendant Controller 1001332504
Use this Manual

Sensor Mounting

Drill Mounting Holes:

Drill three 6mm holes to mount the UpWatch sensor bracket. And one 25mm hole for the sensor cable with Deutsch connector to pass through. Note the hole locations must be exact to ensure the sensor is mounted in the correct position. Measurements are taken from the left-hand side and top side of the aluminium plate

Hole 1 – 110mm from left and 15mm down (6mm)
Hole 2 – 110mm from left and 55 down (6mm)
Hole 3 – 130mm from left and 35 down (6mm)
Hole 4 – 120mm from left and 90 down (25mm)



Mount the Bracket:

Mount the UpWatch sensor bracket (ME001905) using the M5x12 bolts nuts and washers

Mount the Sensor:

Mount the UpWatch to the bracket using the M5 nuts and washers, confirm that the sensor is angled at 50 degrees from the vertical and run the sensor cable with the 4-pin Deutsch connector through the cable hole

Secure the Cable:

Using the existing top left hole in the machine's pendant holder, position the UpWatch cable through the P-Clip and secure in place using the M4 hardware – It is critical that the cable is secured correctly and pointing downwards as show in the image. This will allow the pendant controller to attach to the sensor

Wiring Pendant PTNE201

PTNE201 – Pendant Controller:

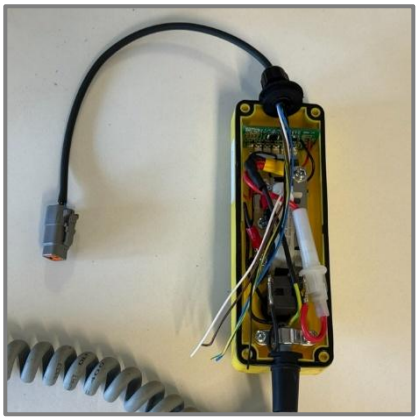
IMPORTANT: This installation procedure is only for the PTNE201 pendent controller as shown in the image. There are various pendants depending on the machine's year of manufacturer. Only proceed with this procedure if the pendent matches the image.

Isolate the machines power and remove the back cover of the pendant controller by removing the 4 screws

Cable Gland Installation:

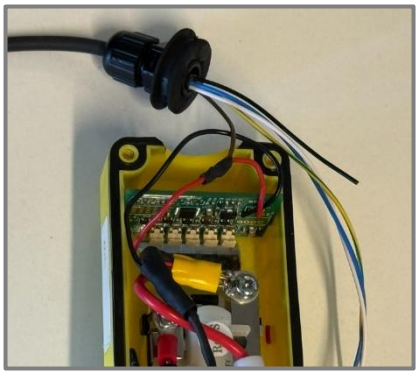
Remove the existing rubber gromet at the top of the pendant and install the suppled cable gland, grommet and connection cable with the crimped 4 pin Deutsch connector as shown in the image.

Make sure the gland clamps the out jacket of the cable and the single wires are exposed inside the pendant ready for internal connections



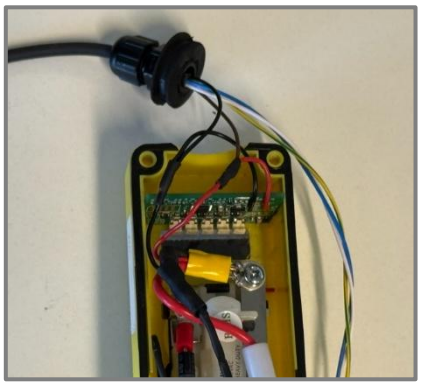
Brown Wire:

Slice and solder the brown wire from the UpWatch harness to the red wire which connects to the small internal circuit board, this is the 12V power connection, solder and apply heat shrink as shown in the image



Black Wire:

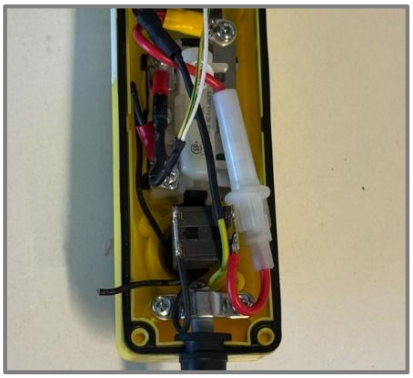
Slice and solder the black wire from the UpWatch harness to the black wire which connects to the small internal circuit board, this is the ground 0V connection, solder and apply heat shrink



White & Yellow Wire:

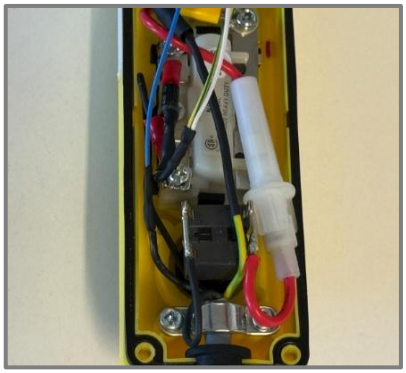
Locate the black wire which connects to the elevate switch and cut the wire before the inline diode

Join the UpWatch yellow and white wires to the switch side of the cut wire as shown in the image. Solder the wire and apply heatsink



Blue Wire:

Join the UpWatch blue wire to the machine side of the cut wire as shown in the image. Solder the wire and apply heatsink



Final Assembly:

Reassemble the pendent controller, and when putting everything back together make sure no wires become trapped or pinched

Mount the Pendent:

Position the pendent controller in its normal location and connect the UpWatch to the machine via the Deutsch connector. Make sure that the cable is routed to the left-hand side as per the image. Once the installation is completed, the UpWatch needs to be configured and tested using the App via WiFi

Wiring Pendant 1001332504

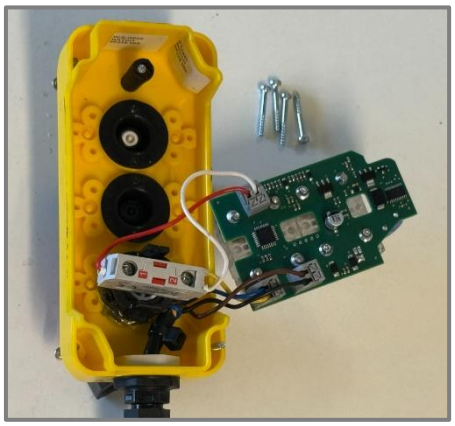
1001332504 – Pendant Controller:

IMPORTANT: This installation procedure is only for the 1001332504 pendent controls as shown in the image. There are various pendants depending on the machine's year of manufacturer. Only proceed with this procedure if the pendent control matches the image

Isolate the machines power and remove the back cover of the pendant controller by removing the 4 screws

Remove Circuit Board:

Remove the internal circuit board from the pendent control by removing the 4 screws as shown in the image, the circuit board needs to be removed to drill a 12mm hole to mount the UpWatch cable gland

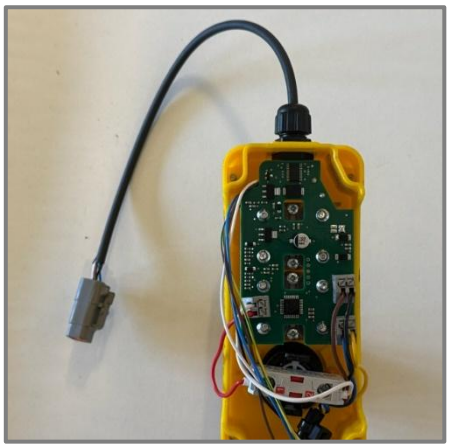


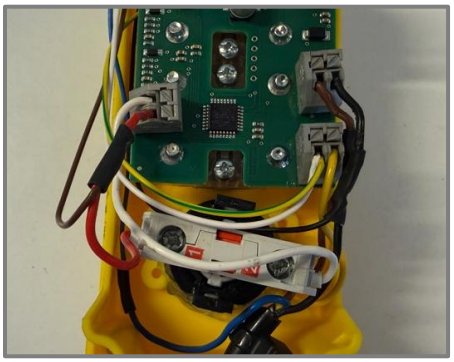
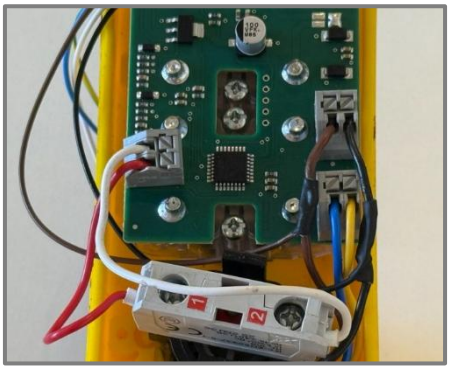
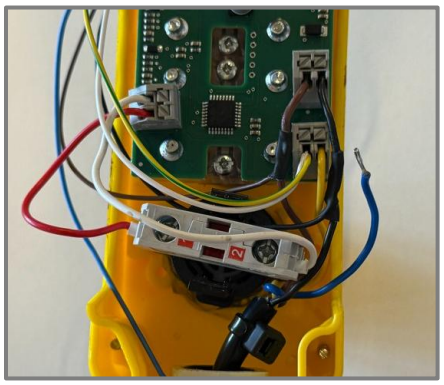
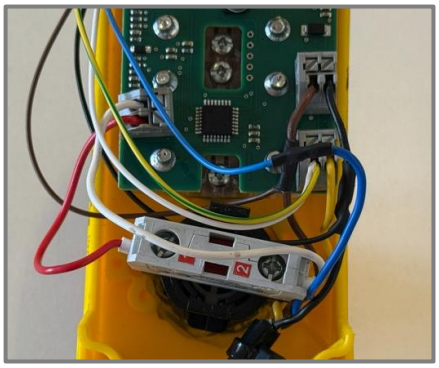
Mount the Gland:

Drill a 12mm hole in the top of the pendent control, use a wide step drill and avoid contacting the transparent light pipe. Once the hole is made, mount the gland and the supplied loom

Make sure the gland clamps the out jacket of the cable and the single wires are exposed inside the pendant ready for internal connections

Route the wires to the top of the circuit board as shown in the image and take care not to interfere with the transparent light pipe



Brown Wire: Slice and solder the brown wire from the UpWatch harness to the red wire which connects to the circuit board, this is the 12V power connection, solder and apply heat shrink as shown in the image	
Black Wire: Slice and solder the black wire from the UpWatch harness to the black wire which connects to the circuit board, this is the ground 0V connection, solder and apply heat shrink	
White & Yellow Wire: Locate the blue wire which connects to the circuit board and remove it from the connector, join the UpWatch white and yellow wires together with solder and plug into the circuit board connector which the blue wire was removed from	
Blue Wire: Join the UpWatch blue wire the blue wire, which was removed from the circuit board connector, solder and apply heat shrink	

Final Assembly: Reassemble the pendent controller, and when putting everything back together make sure no wires become trapped or pinched	
Mount the Pendent: Position the pendent controller in its normal location and connect the UpWatch to the machine via the Deutsch connector. Make sure that the cable is routed to the left-hand side as per the image. Once the installation is completed, the UpWatch needs to be configured and tested using the App via WiFi	

Device Configuration

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

Install the OverWatch App

The OverWatch App is available for download on the Apple App Store and the Google Play Store. Search for the "EQSS OverWatch" App or download using the QR codes below

Download on the App Store

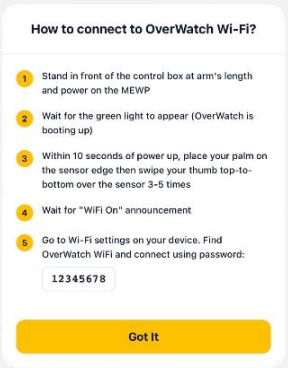
GET IT ON Google Play

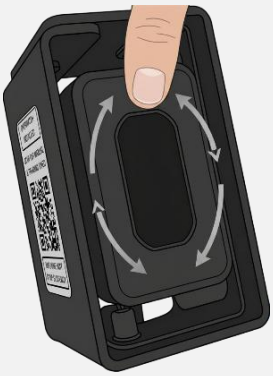
Open the App

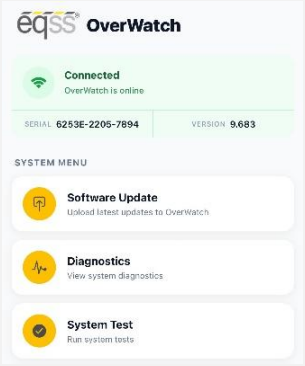
Open the EQSS OverWatch App on your device, when the App starts it will automatically download the latest UpWatch software from the web.

Enable Wi-Fi on the UpWatch

The UpWatch connects to the App via Wi-Fi. Follow the onscreen instructions under **Connect to UpWatch Wi-Fi** in the App



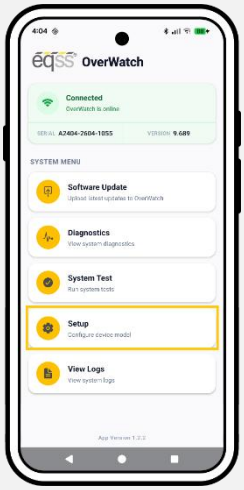


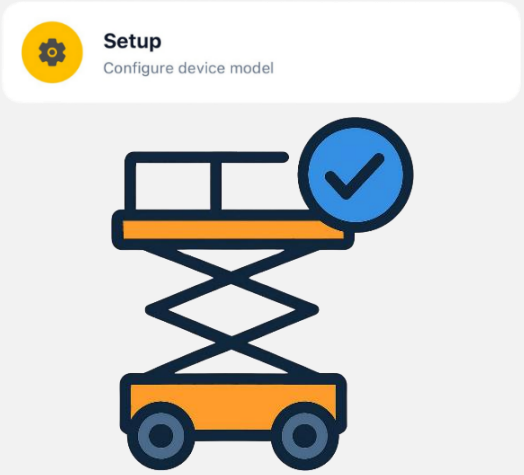


Machine Setup

Set the Machine Model to JLG Nano 35

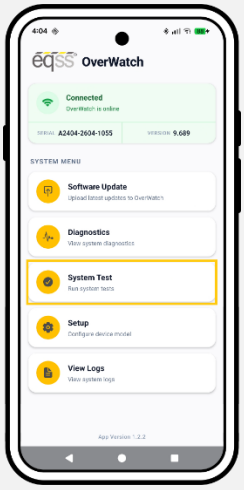
After a new kit installation or a software update, the UpWatch must be told what machine model it is installed on. Each machine model has unique settings such as input thresholds from the electronics and parameters relating to the sensor mounting position. When the UpWatch is connected to the App on Wi-Fi, select setup to select the scissor lift model. Refer to the specific machine installation manual for more information.

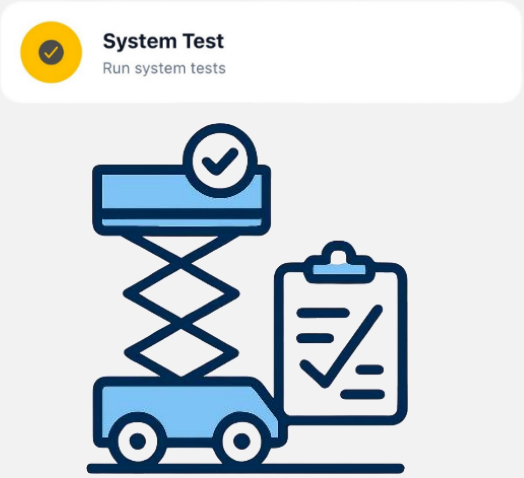




System Test

The system test is used to verify the UpWatch is installed correctly and all signals are working. The system test is used on a new installation or after a software update. The onscreen prompts will guide the test process, and the test must pass for the UpWatch to become operational.





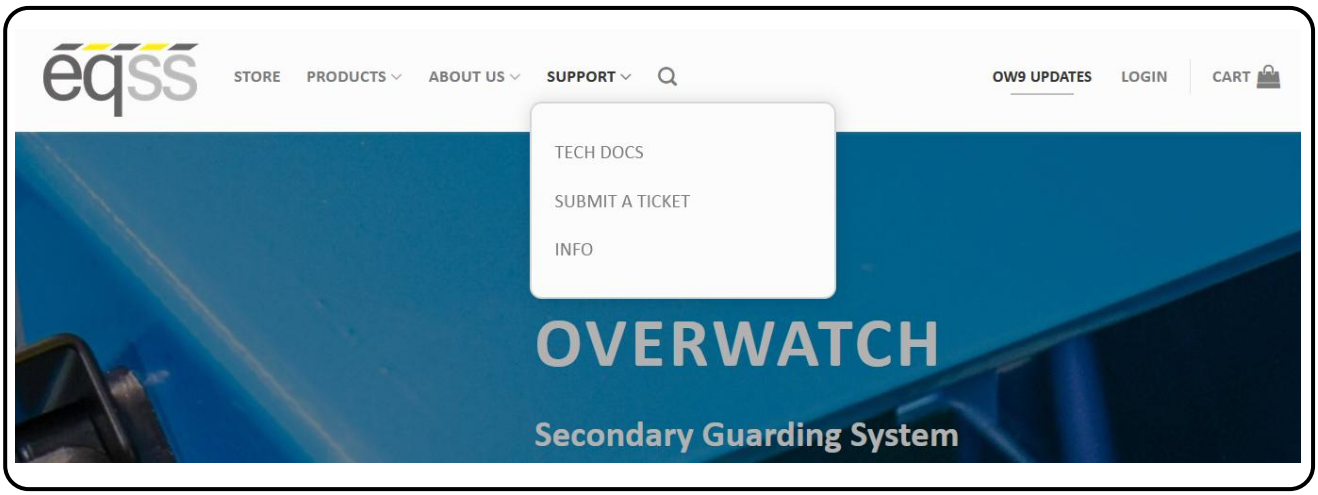
Replacement Parts

Replacement parts for this UpWatch kit are available from the EQSS online store (https://eqss.com.au/store) Shown below are the part numbers for the components included in this model specific kit.

Part Number	Description
UPW-JLG-N35-1	UpWatch – Complete Kit for JLG Nano 35
AS002550	UpWatch – Operator Sensor 6503-3-4-1
ME001905	UpWatch - Universal Sensor Bracket 50D
ME001901	UpWatch - Sensor Protection Cover

Support

The best place for support is the EQSS knowledge base and Tech Docs on the website, this contains detailed solutions to common questions. You can also submit a support request which will be responded to immediately.



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