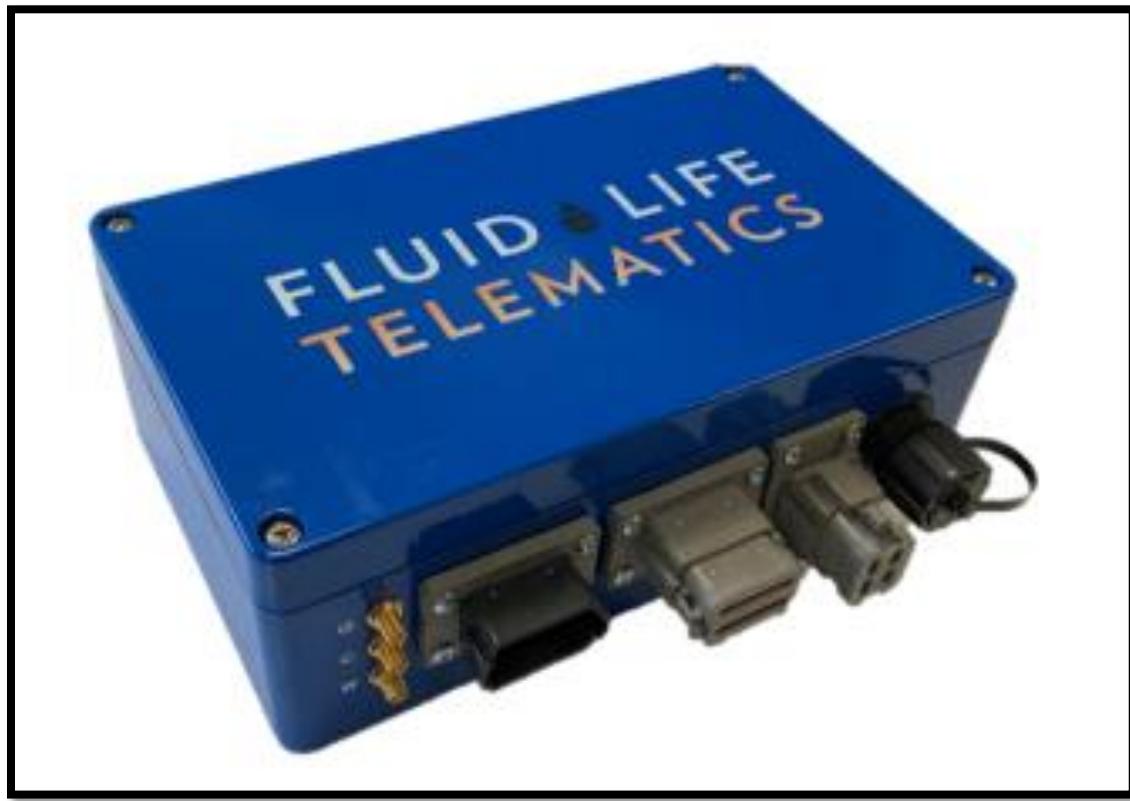


FLUID LIFE UCM TELEMATICS

Software Configuration Guide



myLab

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Telematics Module Overview

Fluid Life Telematics Modules are used to log and transmit oil sensor data from your machine components to our myLab™ web application. For mobile asset applications, it is also able to log and transmit ECM parameters and other OEM sensor data to further unlock your fleet potential.

Safety

This device ensures that personnel safety is not at risk when in operation if installed in compliance with the site-specific safety/installation procedures provided. The software configuration process of the module is enabled upon power-up of the device.

Federal Communications Commission (FCC) Compliance

The Fluid Life Telematics module fully complies with and is approved by the Federal Communications Commission (FCC). The FCC IDs for the module are 2AYWR-FLWIFI1 and 2AYWR-FLTEL1, Grantee Code is 2AYWR and the Equipment Product Codes are FLWIFI1 and FLTEL1 respectively.

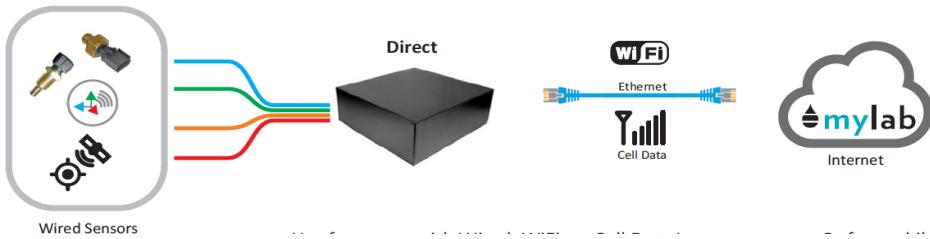
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

As per FCC §15.19(a)(3), this device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes not expressly approved by Fluid Life could void the user's authority to operate the equipment.

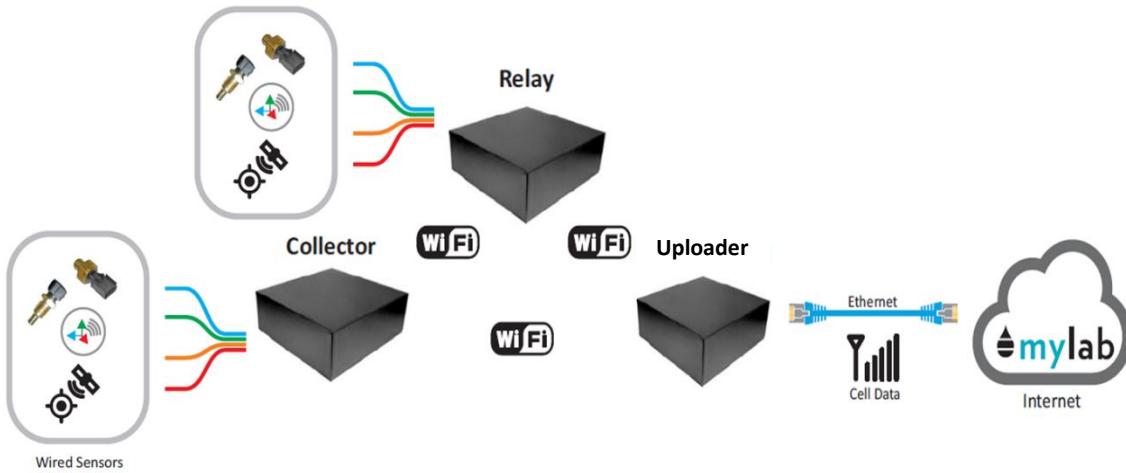
Telematics Module Communications Overview

Direct



- Use for assets with wired, Wi-Fi, or Cell Data internet access or for mobile assets that come into existing Wi-Fi range frequently
- One Telematics module configured as "Direct" box mode is required per asset

Mobile Assets

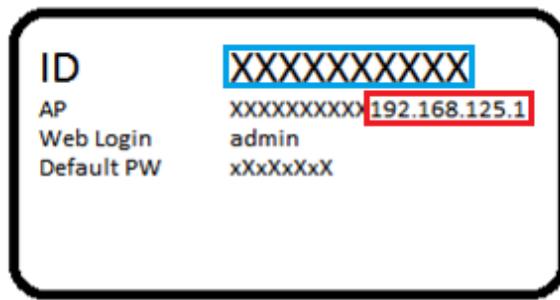


- Telematics modules used for mobile assets that do not come into range of a home base frequently. Relays are fitted to other mobile assets such as maintenance or fueling/lube truck that migrate between remote assets and a home base. Home base relay uploaders need Ethernet or Cell Data Internet access as Wi-Fi is used to transfer data from the collectors on the assets.
- Relays can optionally collect wired Telematics data themselves.
- One Collector is needed per asset, plus one or more relays, and one or more Uploader.
- Collectors can communicate to either a Relay or directly to an Uploader
- Relays do not communicate between each other.

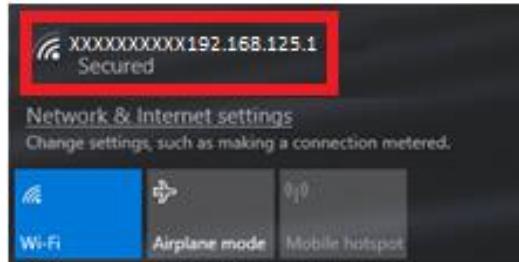
Telematics Module Connection

Connecting to the Module

1. Identify the IP address (outlined in **red**) and SSID (outlined in **blue**) from the label on the Telematics module that you wish to connect.



2. Find the broadcasted Wi-Fi network containing the SSID on the label followed by IP address. For example: Telematics module with the label above will broadcast "XXXXXX192.168.125.1".



3. Connect to the Telematics module using the password printed on the label described below



Note: Due to this being a wireless access to the device, the connection status may appear as follows and is acceptable.



Telematics Module Web Page Access

1. In an internet browser (ie. Chrome or Edge), type in the URL to access the Telematics module web page. The URL is the Telematics module IP Address followed by "**:3000**" as shown below.

Note: For example: for the module "XXXXXXXXXX192.168.125.1" you should type in "**192.168.125.1:3000**"



2. After gaining access to the web page, you will be prompted to a username and password page. The default username is "**admin**" and the default password is referenced on the label on the Telematics module (ie "**randompassword**").



3. Upon a first Login, the user will be prompted to change the password. This is a mandatory step required to ensure secure access to the module for future access by users. The following fields will be displayed:

- New Password: New password to login and access Telematics module configuration web page.
- New Wi-Fi Password: New password for Wi-Fi access/connectivity to the Telematics module.

Note:

- It is recommended that these passwords are different from one another; however, permits the user to set them to be identical.
- Following the password change, you will be required to refresh the page and reconnect to the Telematics module using the new passwords assigned.

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Change Password

New Password	New Wifi Password
<input type="password"/>	<input type="password"/>
Confirm Password	Confirm Wifi Password
<input type="password"/>	<input type="password"/>
<input type="button" value="Change Password"/>	

4. Below you see the “Home” page highlighting the general Telematics module settings and configuration data.

FLUID & LIFE Home Box Config admin ▾

Home

Box ID	WWQZKL2FGM
Box Mode	Factory Setup (Select a mode on the box config screen)
OS Version	1.0
Software Version	1.30.1

eth0

IPv4 Address	192.168.3.147
IPv4 Subnet Mask	255.255.252.0
MAC Address	00:d0:69:51:3e:16
Enabled	true

uap0

IPv4 Address	192.168.125.1
IPv4 Subnet Mask	255.255.255.0
MAC Address	0c:ae:7d:c9:6a:02
Enabled	true

wlan0

IPv4 Address	
IPv4 Subnet Mask	
MAC Address	0c:ae:7d:c9:6a:01
Enabled	true

5. Highlighted in **green** is the section that contains general data and software configurations of the Telematics module and is **non-editable**. Highlighted in **blue** is the section that contains general data and software configurations of the Telematics module that **can be edited**.

Home

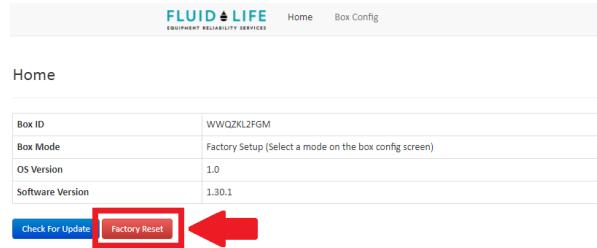
Box ID	WWQ2XL2FGM
Box Mode	Factory Setup (Select a mode on the box config screen)
OS Version	1.0
Software Version	1.30.1
<input type="button" value="Check For Update"/> <input type="button" value="Factory Reset"/>	
ETH0	
IPv4 Address	192.168.3.147
IPv4 Subnet Mask	255.255.252.0
MAC Address	00:06:99:51:3e:16
Enabled	true
uap0	
IPv4 Address	192.168.125.1
IPv4 Subnet Mask	255.255.255.0
MAC Address	0cae:7d:ca:6a:02
Enabled	true
wlan0	
IPv4 Address	
IPv4 Subnet Mask	
MAC Address	0cae:7d:ca:6a:01
Enabled	true
<input type="button" value="Enable Editing"/>	

6. In order to edit the configuration parameters in the **blue** section above, click the “Enable Editing” feature as outlined below.

Note: These tables are for advanced configuration only and do not need to be altered in order for the Telematics module to work properly.

IPv4 Subnet Mask	255.255.255.0
MAC Address	0cae:7d:ca:6a:02
Enabled	true
wlan0	
IPv4 Address	
IPv4 Subnet Mask	
MAC Address	0cae:7d:ca:6a:01
Enabled	true
<input type="button" value="Enable Editing"/>	

7. The red “Factory Reset” button enables the Telematics module to revert back to factory mode setting which resets configuration parameters and the login credentials (to that referenced on the module label).

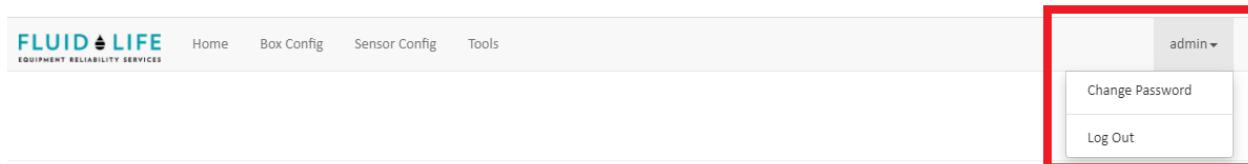


8. When clicking “Factory Reset”, the following message will be prompted on the screen to confirm system reset. Click “Yes” if you wish to proceed if required, otherwise click “No”.



Admin Feature

The “admin” dropdown comprises of the “Change Password” and “Log Out” buttons.



To change password, click “Change Password”. This will prompt a screen to reassign new password for logging into the Telematics module.

Change Password

New Password

Confirm Password

[Change Password](#)

Telematics Module Configuration Overview

1. Click on the “Box Config” tab on the top ribbon highlighted in red to access the user configuration settings.



2. You will initially see a screen highlighting three sections for the box configuration:

- **Box Mode:** Telematics module configuration mode for communications with other modules or *MyLab*.
- **Internet Configuration:** Determines how the box will communicate to *MyLab*.
- **Web Interface Configuration:** Configures the wireless access point of the Telematics Module for future connection.

Box Configuration

[Box Mode](#)

Box Mode

Please select a mode

Box ID

WWQZKL2FGM

[Internet Configuration](#)

Type

Ethernet

Use DHCP Use Static IP

[Web Interface Configuration](#)

Web Interface Access Point SSID Prefix

WWQZKL2FGM

Web Interface Access Point Password

Access Point IP Address

192.168.125.1

Access Point Net Mask

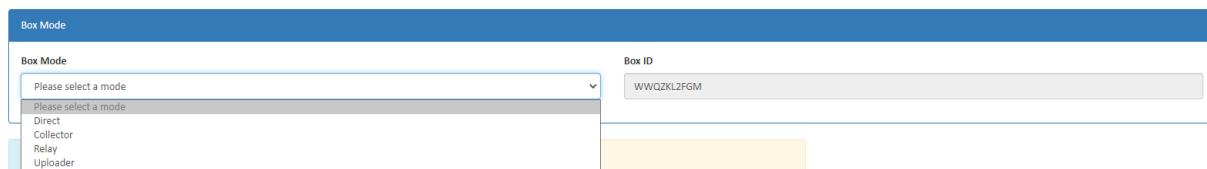
255.255.255.0

[Save](#)

Box Modes

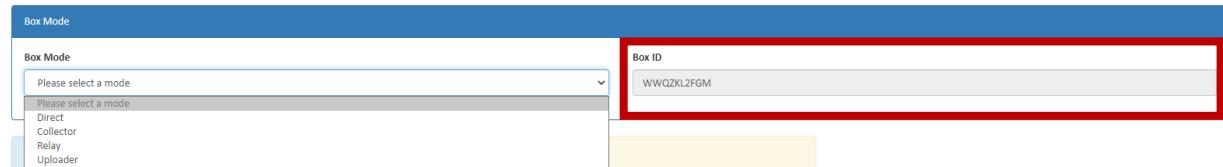
This is where the different box modes and associated settings may be selected, based on the intended purpose of the Telematics module.

1. Select the appropriate box mode for the chosen Telematics module. The configuration steps for the module rely on the selected box mode. Refer to the appropriate box mode configuration in the four sections outlined below:
 - Direct
 - Collector
 - Relay
 - Uploader



The screenshot shows a 'Box Mode' configuration screen. On the left, a dropdown menu is labeled 'Box Mode' with the placeholder 'Please select a mode'. Below the dropdown is a list of options: Direct, Collector, Relay, and Uploader. On the right, a text input field is labeled 'Box ID' and contains the value 'WWQZKL2FGM'. A yellow bar is located at the bottom of the screen.

Note: The “Box ID” is a unique identifier across all boxes and can therefore not be changed.

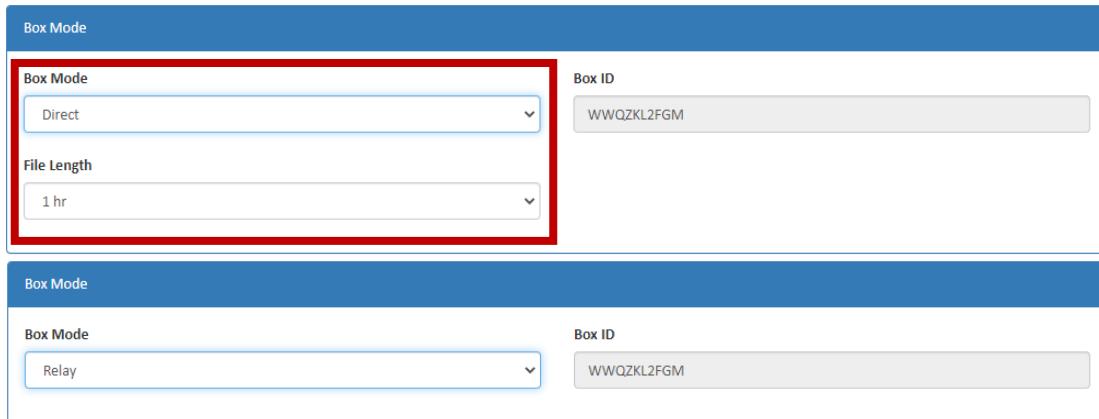


The screenshot shows the same 'Box Mode' configuration screen as the previous one. The 'Box Mode' dropdown is still set to 'Please select a mode'. The 'Box ID' field, which contains 'WWQZKL2FGM', is now highlighted with a red border. A yellow bar is located at the bottom.

2. The “File Length” feature determines the frequency at which the data files will be uploaded to *MyLab*.

Note:

- Direct and Collector box modes will allow “File Length” times between interval ranges of 10 min to 2 hours.
- Uploader and Relay box modes do not collect data; therefore, will not permit “File Length” selection.



Box Mode

Box Mode

File Length

Box ID

Box Mode

Box ID

Telematics Module Configuration Procedure

Refer to one of the four following sub-sections below to ensure appropriate module configuration:

- Direct
- Collector
- Relay
- Uploader

For clarifications regarding Box Mode configuration required for the intended purpose of a specific module, refer to the “Telematics Module Communication Overview” section or consult a Fluid Life representative at 877.962.2400.

Direct Mode

1. For the “Direct” Box Mode configuration, the following screen will appear:
 - Select “Direct” in the dropdown menu from the available box modes.
 - Select the desired file length for data transfer frequency. Selecting shorter intervals will enable frequent data transfers to *MyLab*.

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Home Box Config admin ▾

Box Configuration

Box Mode

Box Mode: Direct

File Length: 1 hr

Internet Configuration

Type: Ethernet
 Use DHCP Use Static IP

Preferred DNS:

Box Orientation

Front of Vehicle

0 180 0 Degrees

Web Interface Configuration

Web Interface Access Point SSID Prefix: WW0ZKL2FGM

Web Interface Access Point Password:

Access Point IP Address: 192.168.125.1

Access Point Net Mask: 255.255.255.0

Save

Internet Configuration

1. There are three available internet configuration options for the Telematics module to communicate to *MyLab*. Configure the module to one of the following for specific configuration steps:
 - **Wi-Fi:** Wi-Fi requires access to the user's wireless network. This includes the network name and password.
 - **Ethernet:** Ethernet requires an Ethernet cable connected from the Telematics module to the user's network.
 - **Cell Data:** Cellular requires an activated SIM card to access a cellular provider's network. You will need to configure the SIM cards' carrier country and provider. A custom cellular APN may also be used by selecting "Set APN Manually" if you require one, but is not necessary.

Internet Configuration

Type: WiFi
 WiFi Ethernet Cell Data

WW0ZKL2FGM

WiFi Password:

Use DHCP Use Static IP

Preferred DNS:

Box Orientation

Front of Vehicle

0 180 0 Degrees

Web Interface Configuration

Web Interface Access Point SSID Prefix: WW0ZKL2FGM

Web Interface Access Point Password:

Access Point IP Address: 192.168.125.1

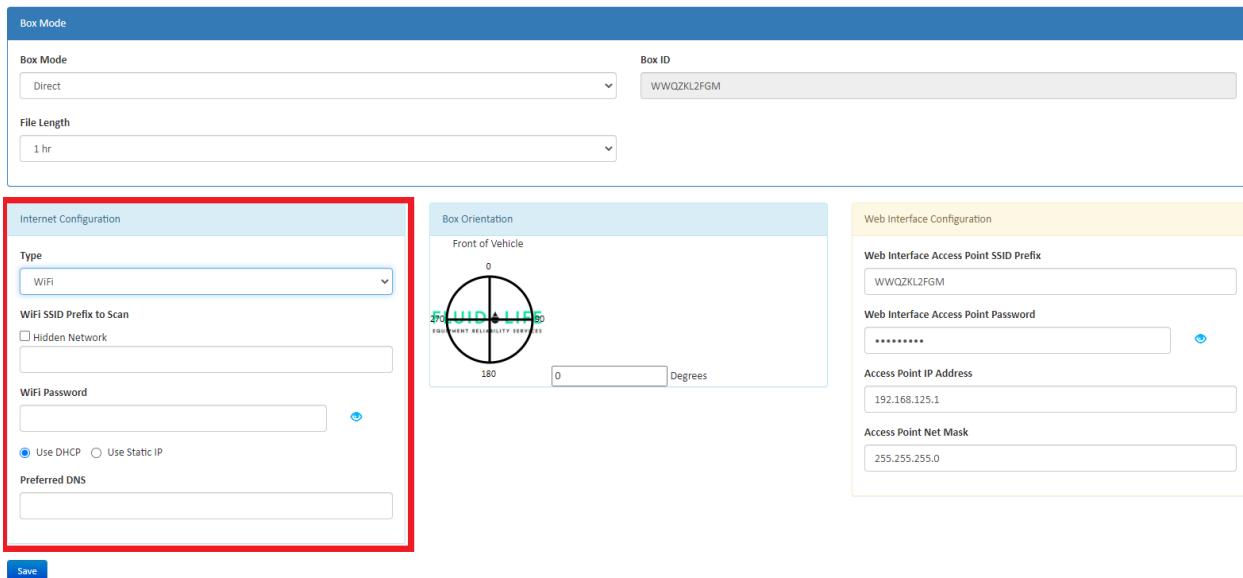
Access Point Net Mask: 255.255.255.0

Save

Wi-Fi

1. For the Wi-Fi internet configuration:

- Set the “WiFi SSID Prefix to Scan” field as the desired Wi-Fi network name that the Telematics module connects to.
- Set the “Wi-Fi password” field to the same one as that of the desired Wi-Fi network which the Telematics module connects to.
- The DHCP, Static IP or Preferred DNS selection is based on end users’ preferred network protocol for this application. The configuration page defaults DHCP as the selected network protocol.



The screenshot shows the 'Box Mode' configuration page. At the top, there are dropdown menus for 'Box Mode' (set to 'Direct') and 'File Length' (set to '1 hr'). To the right, there is a 'Box ID' field containing 'WWQZKL2FGM'. The main configuration area is divided into three sections: 'Internet Configuration' (highlighted with a red box), 'Box Orientation', and 'Web Interface Configuration'. The 'Internet Configuration' section contains fields for 'Type' (set to 'WiFi'), 'WiFi SSID Prefix to Scan' (containing 'WWQZKL2FGM'), 'Wifi Password' (a redacted field), 'Preferred DNS' (a redacted field), and network protocol selection ('Use DHCP' is checked). The 'Box Orientation' section shows a circular diagram with 'Front of Vehicle' at the top, '0' at the top-right, '180' at the bottom-right, and '0' at the bottom. The 'Web Interface Configuration' section contains fields for 'Web Interface Access Point SSID Prefix' (set to 'WWQZKL2FGM'), 'Web Interface Access Point Password' (a redacted field), 'Access Point IP Address' (set to '192.168.125.1'), and 'Access Point Net Mask' (set to '255.255.255.0'). A 'Save' button is located at the bottom left of the configuration area.

Ethernet

1. For the Ethernet internet configuration selected, verify that the DHCP, Static IP and Preferred DNS selection is based on end users’ preferred network protocol used for this application. The configuration web page defaults DHCP as the selected network protocol.

Box Mode

Box Mode

Box ID

File Length

Internet Configuration

Type

Use DHCP
 Use Static IP

Preferred DNS

Box Orientation

Front of Vehicle



Degrees

Web Interface Configuration

Web Interface Access Point SSID Prefix

Web Interface Access Point Password

Access Point IP Address

Access Point Net Mask

Cell Data

For the Cell Data internet configuration there is an option to select either Canada or USA, which lists the available cell network providers for each region.

1. Select the appropriate country in the dropdown for the SIM card

Note:

- Cell Data configuration requires an activated SIM card to access a cellular provider's network. You will need to configure the carrier's country and provider. A custom cellular APN may also be used by selecting "Set APN Manually" if you require one but is not necessary.
- Refer to the "SIM Card Installation" section for steps outlining proper SIM card installation method

Box Mode

Box Mode

Box ID

File Length

Internet Configuration

Type

Country

Cellular APN

Set APN Manually

Box Orientation

Front of Vehicle



Degrees

Web Interface Configuration

Web Interface Access Point SSID Prefix

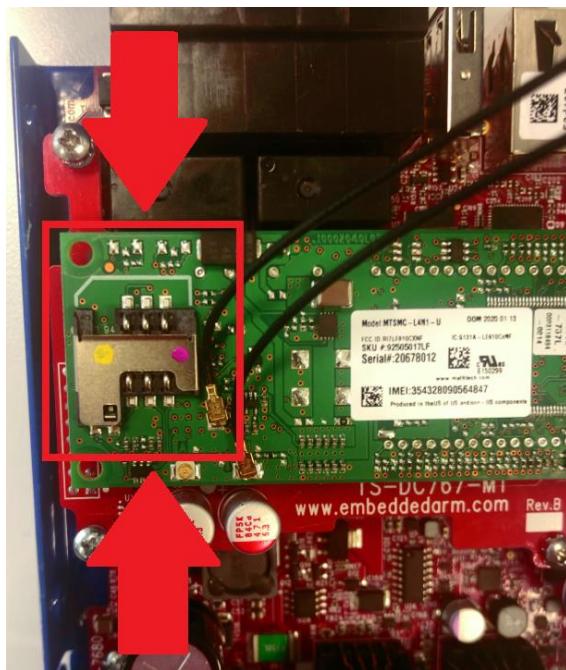
Web Interface Access Point Password

Access Point IP Address

Access Point Net Mask

Sim Card Installation

1. Verify that a standard size activated SIM card is used
2. Unscrew the Telematics module case to access the internal electronics which houses the modem. The modem contains a slot (as highlighted in the image) for the SIM card insertion.



3. Ensure that the SIM card is inserted in the same orientation as shown below and verify that it sits flush to the bottom of the slot with full contact.



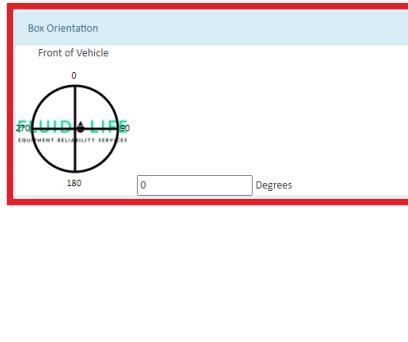
4. When complete, close and tightly fasten with module case with screws.

Box Orientation

The Box Orientation configuration determines the physical orientation of the Telematics module installation with respect to the front of the equipment. This is referred to in "Degrees".

For example, the Fluid Life logo on the Telematics module faces the front of the vehicle at 0 Degrees.

1. Enter a degree value in the field highlighted below



Internet Configuration

Type: Ethernet

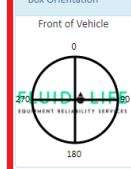
Use DHCP: Use Static IP:

Preferred DNS: []

Box Orientation

Front of Vehicle

0



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180

0 [] Degrees

Web Interface Configuration

Web Interface Access Point SSID Prefix: WWOZKL2FGM

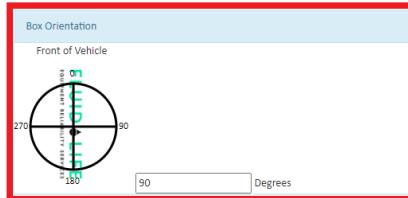
Web Interface Access Point Password: [REDACTED]

Access Point IP Address: 192.168.111.1

Access Point Net Mask: 255.255.255.0

Save

Note: The orientation of the Fluid Life logo on the Telematics module automatically adjusts to the value inputted into the software as shown in the example below.



Internet Configuration

Type: Ethernet

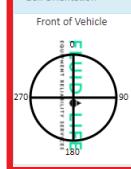
Use DHCP: Use Static IP:

Preferred DNS: []

Box Orientation

Front of Vehicle

90



180

90 [] Degrees

Web Interface Configuration

Web Interface Access Point SSID Prefix: WWOZKL2FGM

Web Interface Access Point Password: [REDACTED]

Access Point IP Address: 192.168.111.1

Access Point Net Mask: 255.255.255.0

Save

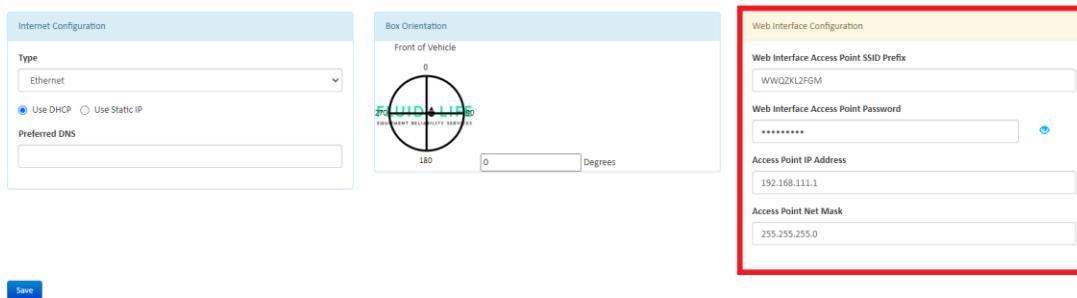
Web Interface Configuration

The “Web Interface Configuration” section configures the **wireless access point** to the Telematics module in order to access its web page.

1. This section contains the following and configures the wireless access point of the Telematics module for future connection:

- **Web Interface Access Point SSID Prefix:** This field is auto populated with the assigned Box ID on the Telematics module label. The prefix can be changed as desired and is recommended to be the company name or any other string that is quick and easy to identify in the list of Wi-Fi networks displayed when attempting to connect.
- **Web Interface Access Point Password:** The new password reassigned upon first login is displayed here as default. This password will be used to access the wireless network upon saving the new settings.
- **Access point IP address** (can be changed only if required)
- **Access Point Net Mask** (can be changed only if required)

Note: When multiple Telematics modules are set up to communicate with each other, ensure that the “Web Interface Access Point SSID Prefix” is **identical** across **ALL** Telematics modules, and the IP addresses are unique between each box mode (which is done by default prior to manually changing settings)



2. Click “Save” to save the configuration parameters for either Wi-Fi, Ethernet or Cell Data.



Collector Mode

The Collector box mode consists of three configuration parameters:

- Wi-Fi Client Configuration
- Box Orientation
- Web Interface Configuration

Box Mode

Box Mode

Collector

Box ID

WWQZKL2FGM

File Length

1 hr

WiFi Client Configuration

WiFi SSID Prefix to Scan

WWQZKL2FGM

WiFi Password

Use DHCP Use Static IP

Box Orientation

Front of Vehicle

0

180

0

0 Degrees

Web Interface Configuration

Web Interface Access Point SSID Prefix

WWQZKL2FGM

Web Interface Access Point Password

Access Point IP Address

192.168.111.1

Access Point Net Mask

255.255.255.0

Save

Wi-Fi Client Configuration

1. For the Wi-Fi Client configuration:

- Set the “WiFi SSID Prefix to Scan” field as the desired Wi-Fi network name that the Telematics module connects to
- Set The “Wi-Fi password” field to the same one as that of the desired Wi-Fi network which the Telematics module connects to
- The DHCP, Static IP or Preferred DNS selection is based on end user’s preferred network protocol for this application. The configuration page defaults DHCP as the selected network protocol.

WiFi Client Configuration

WiFi SSID Prefix to Scan

WWQZKL2FGM

WiFi Password

Use DHCP Use Static IP

Box Orientation

Front of Vehicle

0

180

0

0 Degrees

Web Interface Configuration

Web Interface Access Point SSID Prefix

WWQZKL2FGM

Web Interface Access Point Password

Access Point IP Address

192.168.111.1

Access Point Net Mask

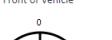
255.255.255.0

Box Orientation

The Box Orientation configuration determines the physical orientation of the Telematics module installation with respect to the front of the equipment. This is referred to in “Degrees”.

For example, the Fluid Life logo on the Telematics module faces the front of the vehicle at 0 Degrees.

1. Input the degree value setting in reference to front of the vehicle.

<p>Internet Configuration</p> <p>Type <input type="text" value="Ethernet"/></p> <p><input checked="" type="radio"/> Use DHCP <input type="radio"/> Use Static IP</p> <p>Preferred DNS <input type="text"/></p>	<p>Box Orientation</p> <p>Front of Vehicle</p>  <p>0 180 0 Degrees</p>	<p>Web Interface Configuration</p> <p>Web Interface Access Point SSID Prefix <input type="text" value="WWQZKL2FGM"/></p> <p>Web Interface Access Point Password <input type="password" value="*****"/></p> <p>Access Point IP Address <input type="text" value="192.168.111.1"/></p> <p>Access Point Net Mask <input type="text" value="255.255.255.0"/></p>
---	--	---

Note: The orientation of the box logo automatically adjusts to the degree orientation inputted into the software as shown below.

Internet Configuration

Type

Use DHCP Use Static IP

Preferred DNS

Box Orientation

Front of Vehicle



Degrees

Web Interface Configuration

Web Interface Access Point SSID Prefix

Web Interface Access Point Password

Access Point IP Address

Access Point Net Mask

Web Interface Configuration

The “Web Interface Configuration” section configures the **wireless access point** to the Telematics module in order to access its web page.

1. This section contains the following and configures the wireless access point of the Telematics module for future connection:

- **Web Interface Access Point SSID Prefix:** This field is auto populated with the assigned Box ID on the Telematics module label. The prefix can be changed as desired and is recommended to be the company name or any other string that is quick and easy to identify in the list of Wi-Fi networks displayed when attempting to connect.
- **Web Interface Access Point Password:** The new password reassigned upon first login is displayed here as default. This password will be used to access the wireless network upon saving the new settings.
- **Access point IP address** (can be changed only if required)
- **Access Point Net Mask** (can be changed only if required)

Note: When multiple Telematics modules are set up to communicate with each other, ensure that the “Web Interface Access Point SSID Prefix” is **identical** across **ALL** Telematics modules, and the IP addresses are unique between each box mode (which is done by default prior to manually changing settings)

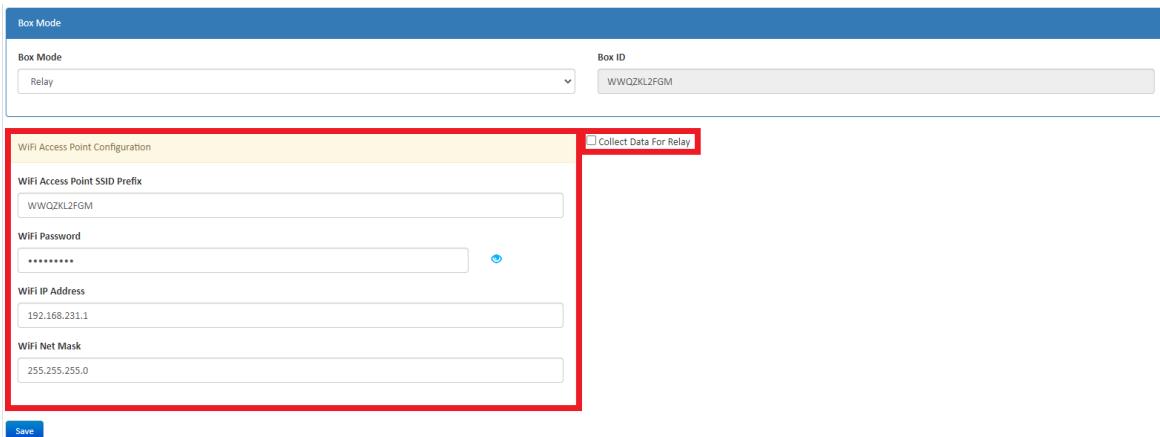
2. Click “Save” to save configuration parameters.

Relay Mode

Wi-Fi Access Point Configuration section determines how the box will communicate to another box **and** configures the wireless access point of the box for future connection. The module SSID or “Wi-Fi name” will be the “WiFi Access Point SSID Prefix” followed by the “Wi-Fi IP Address”

The Relay mode consists of:

- Wi-Fi Access Point SSID Prefix
- Wi-Fi Password
- Collect data for relay



The screenshot shows the 'Box Mode' configuration page. At the top, 'Box Mode' is set to 'Relay' and 'Box ID' is 'WWQZKL2FGM'. Below this, the 'WiFi Access Point Configuration' section is highlighted with a red box. It contains fields for 'WiFi Access Point SSID Prefix' (set to 'WWQZKL2FGM'), 'WiFi Password' (a masked password), 'WiFi IP Address' (set to '192.168.231.1'), and 'WiFi Net Mask' (set to '255.255.255.0'). To the right of this section is a checkbox labeled 'Collect Data For Relay' with a red box around it. At the bottom left is a 'Save' button.

Wi-Fi Access Point Configuration

1. Ensure that the auto populated Wi-Fi Access Point Configuration fields are accurate.

Note:

- The Wi-Fi Access Point SSID Prefix refers to the SSID highlighted on the module label. This prefix must be set to be the same for all modules that will be communicating with each other. It is recommended to use a prefix that is recognizable (i.e. company name)
- The Wi-Fi password is auto populated to the newly reassigned Wi-Fi password upon first login to Telematics Box Web. This field can be changed as desired. Make note of the password for future reference when logging in.
- Wi-Fi IP Address (can be changed if required)
- Wi-Fi Net Mask (can be changed if required)

Data Collection

“Collect Data For Relay” feature enables dual functionality for the Telematics module.

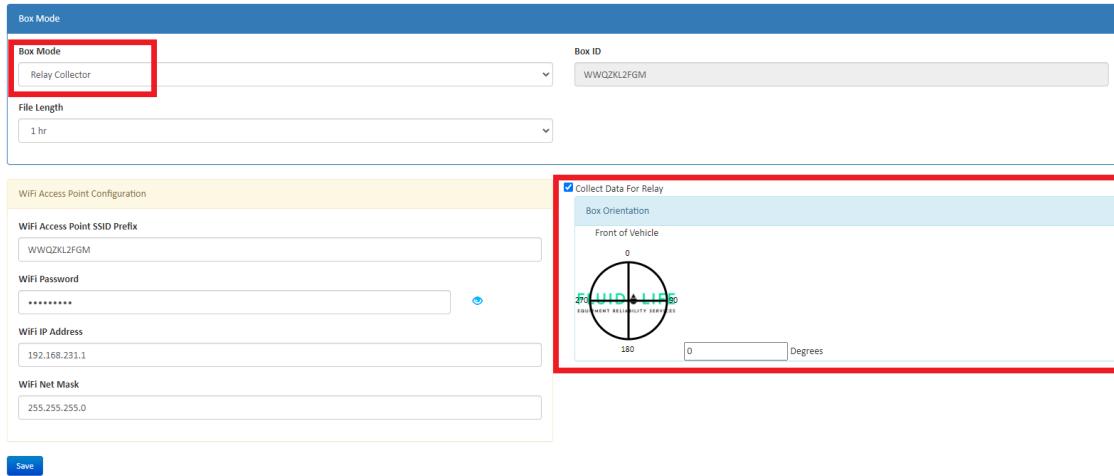
1. Ensure that the “Collect Data For Relay” option is selected only if the box is required to act as a **Collector and a Relay**.

2. This will automatically update the box mode to “Relay Collector” as shown below. Selecting this will prompt a “Box Orientation” section in order to configure the rotation of the box once installed to allow flexibility of installation.

Note: The Box Orientation configuration determines the physical orientation of the Telematics module installation with respect to the front of the equipment. This is referred to in “Degrees”.

For example, the Fluid Life logo on the Telematics module faces the front of the vehicle at 0 Degrees.

3. Input the degree value setting in reference to front of the vehicle.



Box Mode

Box Mode

Relay Collector

Box ID

WWQZKL2FGM

File Length

1 hr

WIFI Access Point Configuration

WIFI Access Point SSID Prefix

WWQZKL2FGM

WIFI Password

WIFI IP Address

192.168.231.1

WIFI Net Mask

255.255.255.0

Collect Data For Relay

Box Orientation

Front of Vehicle

0

180

0

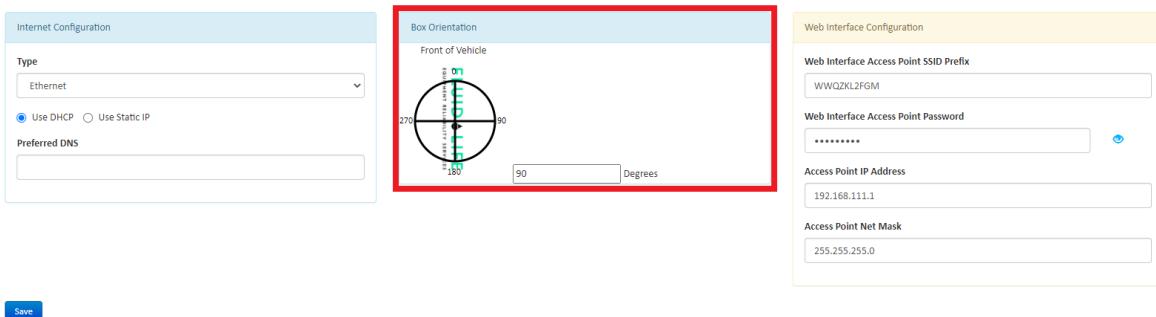
Degrees

FLUID LIFE

EMERGENCY RELIEF SYSTEM SERVICES

Save

Note: The orientation of the box logo automatically adjusts to the degree orientation inputted into the software as shown below.



Internet Configuration

Type

Ethernet

Use DHCP Use Static IP

Preferred DNS

Box Orientation

Front of Vehicle

0

270

90

180

90

Degrees

Web Interface Configuration

Web Interface Access Point SSID Prefix

WWQZKL2FGM

Web Interface Access Point Password

WIFI IP Address

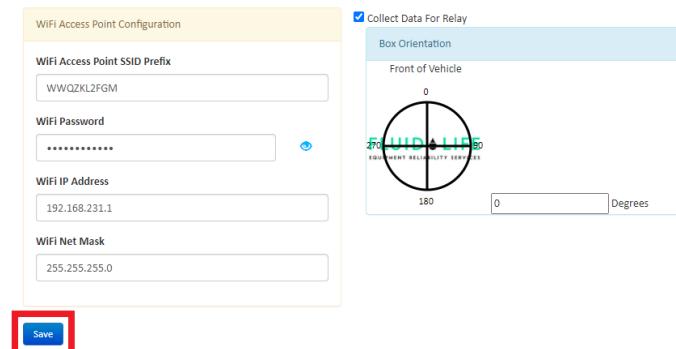
192.168.111.1

Access Point Net Mask

255.255.255.0

Save

4. Click “Save” to save configuration parameters



WIFI Access Point Configuration

WIFI Access Point SSID Prefix

WWQZKL2FGM

WIFI Password

WIFI IP Address

192.168.231.1

WIFI Net Mask

255.255.255.0

Collect Data For Relay

Box Orientation

Front of Vehicle

0

180

0

Degrees

FLUID LIFE

EMERGENCY RELIEF SYSTEM SERVICES

Save

Uploader Mode

The uploader mode consists of three configuration parameters:

- Wi-Fi Client Configuration
- Internet Configuration
- Web Interface Configuration

Box Mode

Uploader

Box ID

WWQZKL2FGM

WiFi Client Configuration

WiFi SSID Prefix to Scan

WWQZKL2FGM

WiFi Password

Use DHCP Use Static IP

Internet Configuration

Type

Ethernet

Use DHCP Use Static IP

Preferred DNS

Web Interface Configuration

Web Interface Access Point SSID Prefix

WWQZKL2FGM

Web Interface Access Point Password

Access Point IP Address

192.168.125.1

Access Point Net Mask

255.255.255.0

Save

Wi-Fi Client Configuration

1. The “Wi-Fi SSID Prefix to Scan” field auto populates the Box ID on the Telematics module label. This should be changed to a desired prefix for relay/collector modules to connect to. The Wi-Fi Access Point SSID Prefix must be identical to the “Web Interface Access Point SSID Prefix”
2. The “Wi-Fi Password” field is auto populated with the new reassigned Wi-Fi password upon first login to Telematics Box Web. This has to be the same password that is configured on the relay/collector modules.

Box Mode

Uploader

Box ID

WWQZKL2FGM

WiFi Client Configuration

WiFi SSID Prefix to Scan

WWQZKL2FGM

WiFi Password

Use DHCP Use Static IP

Internet Configuration

Type

Ethernet

Use DHCP Use Static IP

Preferred DNS

Web Interface Configuration

Web Interface Access Point SSID Prefix

WWQZKL2FGM

Web Interface Access Point Password

Access Point IP Address

192.168.125.1

Access Point Net Mask

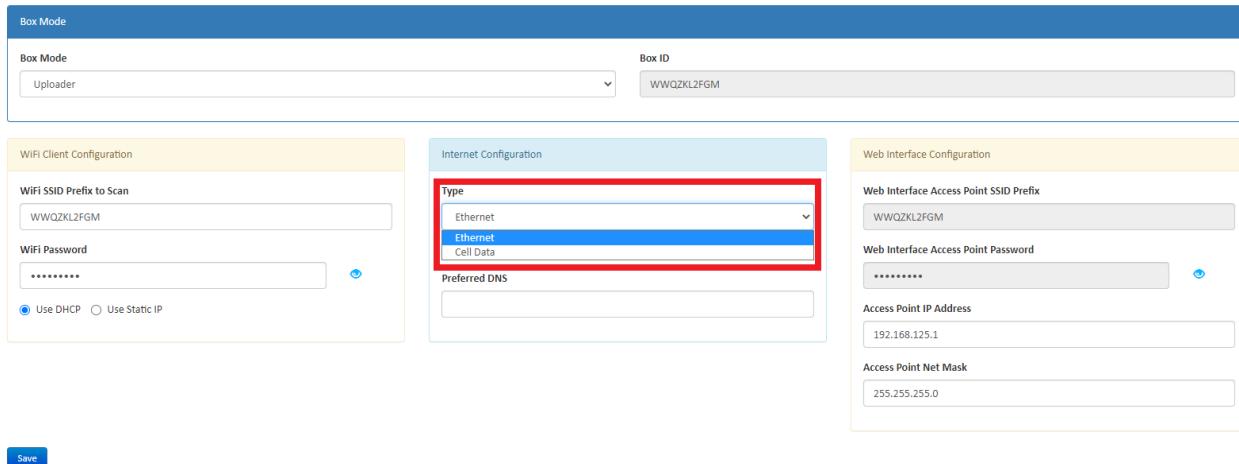
255.255.255.0

Save

Internet Configuration

The “Internet Configuration” section determines how the Telematics module will communicate back to *MyLab*.

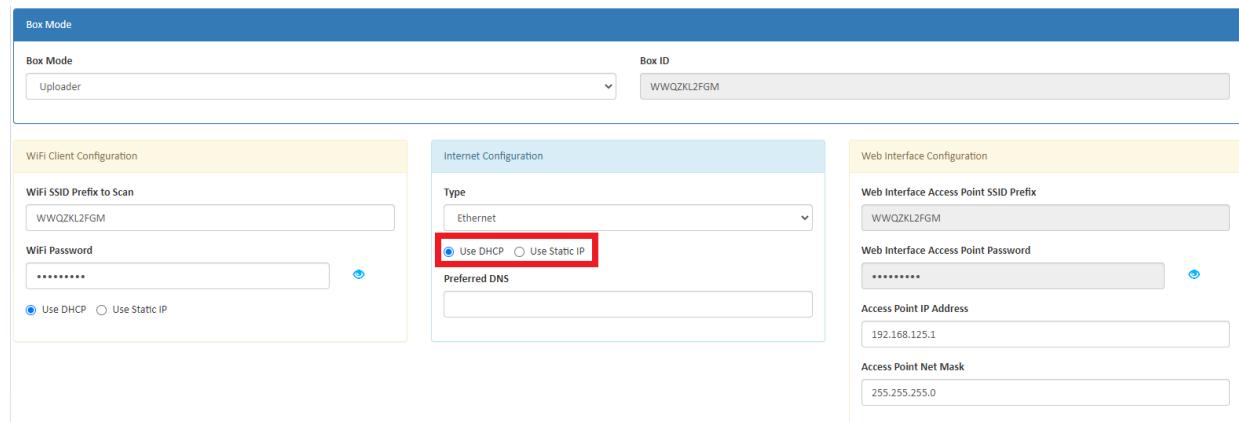
1. Select the internet configuration type to be either Ethernet or Cell Data.



The screenshot shows the 'Internet Configuration' section of the Telematics Box Web interface. The 'Type' dropdown is highlighted with a red box, showing 'Ethernet' selected. The 'Preferred DNS' field is also visible.

Note: Ethernet selection requires an Ethernet cable connected from the box to the user's network.

2. Verify that the DHCP or Static IP selection is based on end user's preferred network protocol used for this application. Telematics Box Web defaults DHCP as the selected network protocol.



The screenshot shows the 'Internet Configuration' section of the Telematics Box Web interface. The 'Use DHCP' radio button is highlighted with a red box, indicating it is selected. The 'Preferred DNS' field is also visible.

Box Mode

Uploader

Box ID: WWQZKL2FGM

WiFi Client Configuration

WiFi SSID Prefix to Scan: WWQZKL2FGM

WiFi Password:

Use DHCP Use Static IP

Internet Configuration

Type: Ethernet

Use DHCP Use Static IP

Preferred DNS:

Web Interface Configuration

Web Interface Access Point SSID Prefix: WWQZKL2FGM

Web Interface Access Point Password:

Access Point IP Address: 192.168.125.1

Access Point Net Mask: 255.255.255.0

3. For the Cell Data internet configuration there is an option to select either Canada or USA, which lists the available cell network providers for each region.

Select the appropriate country in the dropdown for the SIM card

Note:

- Cell Data configuration requires an activated SIM card to access a cellular provider's network. You will need to configure the carrier's country and provider. A custom cellular APN may also be used by selecting "Set APN Manually" if you require one but is not necessary.
- Refer to the "SIM Card Installation" section in "Direct" box mode above for steps outlining proper SIM card installation method

WiFi Client Configuration

WiFi SSID Prefix to Scan: WWQZKL2FGM

WiFi Password:

Use DHCP Use Static IP

Internet Configuration

Type: Cell Data

Country: Canada

Cellular Provider:

Cellular APN:

Set APN Manually

Web Interface Configuration

Web Interface Access Point SSID Prefix: WWQZKL2FGM

Web Interface Access Point Password:

Access Point IP Address: 192.168.125.1

Access Point Net Mask: 255.255.255.0

Save

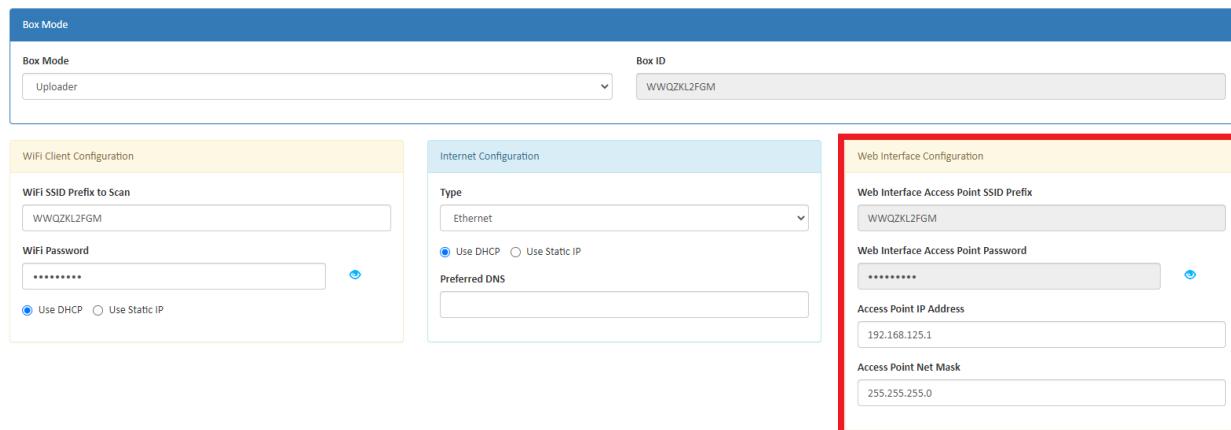
Web Interface Configuration

The “Web Interface Configuration” section configures the **wireless access point** to the Telematics module in order to access its web page.

1. This section contains the following and configures the wireless access point of the Telematics module for future connection:

- **Web Interface Access Point SSID Prefix:** This field is auto populated with the assigned Box ID on the Telematics module label. The prefix can be changed as desired and is recommended to be the company name or any other string that is quick and easy to identify in the list of Wi-Fi networks displayed when attempting to connect.
- **Web Interface Access Point Password:** The new password reassigned upon first login is displayed here as default. This password will be used to access the wireless network upon saving the new settings.
- **Access point IP address** (can be changed only if required)
- **Access Point Net Mask** (can be changed only if required)

Note: When multiple Telematics modules are set up to communicate with each other, ensure that the “Web Interface Access Point SSID Prefix” is **identical** across **ALL** Telematics modules, and the IP addresses are unique between each box mode (which is done by default prior to manually changing settings)



The screenshot shows the configuration interface for a Telematics module. At the top, there is a 'Box Mode' section with a dropdown menu set to 'Uploader' and a 'Box ID' field containing 'WWQZKL2FGM'. Below this are three main configuration sections: 'WiFi Client Configuration', 'Internet Configuration', and 'Web Interface Configuration'. The 'Web Interface Configuration' section is highlighted with a red box. It contains fields for 'Web Interface Access Point SSID Prefix' (set to 'WWQZKL2FGM'), 'Web Interface Access Point Password' (set to '*****'), and 'Access Point IP Address' and 'Access Point Net Mask' fields (both set to their default values).

2. Click “Save” to save the configuration parameters

WWQZKL2FGM

WiFi Password:

Preferred DNS:

Ethernet: Use DHCP Use Static IP

Web Interface Access Point Password:

Access Point IP Address: 192.168.125.1

Access Point Net Mask: 255.255.255.0

Saving Configuration Settings

- Once the configuration settings for the required box mode and configuration parameters have been chosen and applied after clicking “Save”, the following message should appear as a confirmation. Click “OK”.

FLUID  Home Box Config admin ▾

Box Configuration

192.168.3.147:3000 says
Settings saved successfully.

Box Mode

Box Mode: Direct WWQZKL2FGM

File Length: 1 hr

Internet Configuration

Type: Ethernet Use DHCP Use Static IP

Preferred DNS:

Box Orientation

Front of Vehicle

0  180 Degrees

Web Interface Configuration

Web Interface Access Point SSID Prefix: WWQZKL2FGM

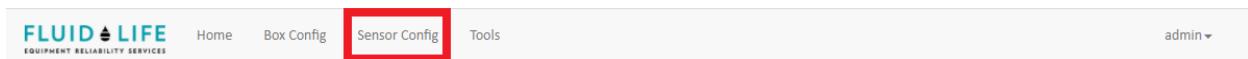
Web Interface Access Point Password:

Access Point IP Address: 192.168.125.1

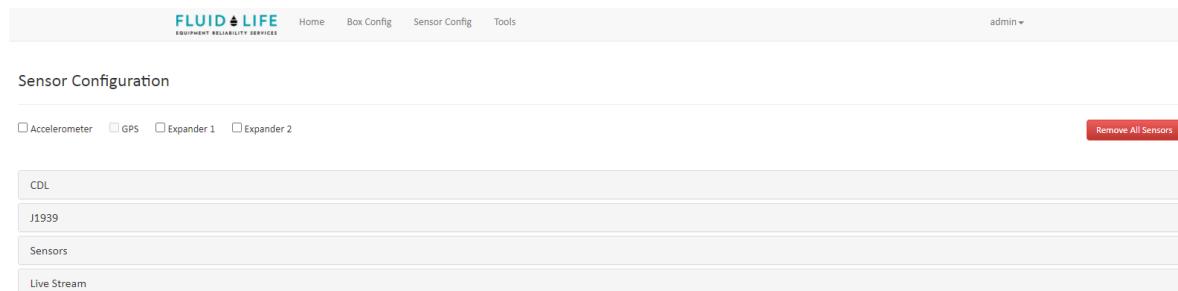
Access Point Net Mask: 255.255.255.0

Sensor Configuration Overview

1. Upon saving the box configuration settings, you will be able to see the “Sensor Config” tab on the top ribbon. This allows the user to configure sensors for data analysis.
2. Click “Sensor Config” to begin the sensor configuration process.



3. The following screen will appear in the “Sensor Config” section of configuration web page:



Sensor Configuration Procedure

General Configuration

The sensor configuration section is available on any box mode that directly collects data:

- Direct
- Collector
- Relay Collector

1. There are four options under Sensor Configuration for selection:

- **Accelerometer:** Enables the Telematics module's built-in accelerometer sensor data to be collected
- **GPS:** Enables the Telematics module's built-in GPS for location tracking
- **Expander 1 and 2:** Enables ten additional analog channels **per expander** for sensor communications.



1. Upon initial setup of the Telematics module, the only pre-configured sensors will be “Accelerometer” and “GPS”
2. The “Remove All Sensors” feature allows the user to remove the sensors that were added and/or configured if required.



CDL

Prior to adding CDL sensors, the Telematics module must determine what sensors are available on the CAT unit that it is installed on.

1. The scanning of available sensors can be done by selecting either the “Scan CDL” checkbox (for newer CAT models) or the “Scan CDL Using V2” checkbox (for older CAT models). By selecting “CDL Use V2,” the “CDL” checkbox will be automatically selected.



Scan CDL

The screen shown below will appear when scanning for CDL to display the scanning progress:



Scan CDL Using V2

The screen shown below will appear when scanning for CDL using V2 to display the scanning progress:



Note: Once scanning is complete, a new section under the “Sensors” section, labeled “Integrated Sensors” will appear where the scanned CDL sensors can be applied.

The “CDL Not Enabled” message will be displayed when neither of the two selections “Scan CDL” or “Scan CDL Using V2” are made

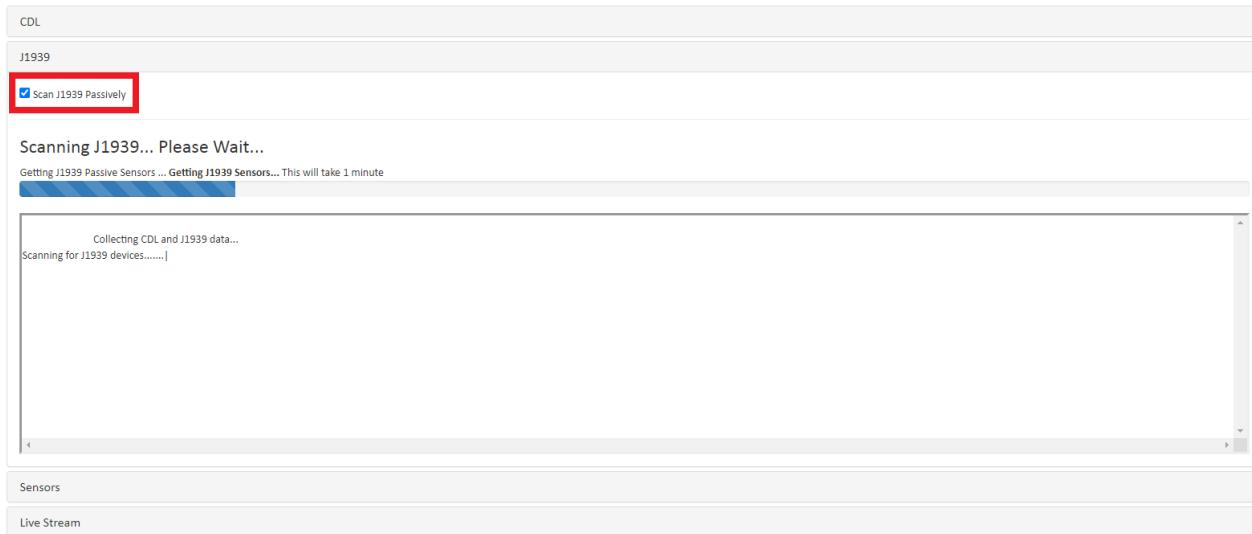


J1939

1. Select “Scan J1939 Passively” to scan for available J1939 sensors.



2. The screen shown below will appear when scanning for J1939 to display the scanning progress



Note: Once scanning is complete, a new section under the “Sensors” section, labeled “Integrated Sensors” will appear where scanned J1939 sensors can be applied.

The “J1939 Not Available” message will be displayed when “Scan J1939 Passively” selection is not made



CDL

J1939

Scan J1939 Passively

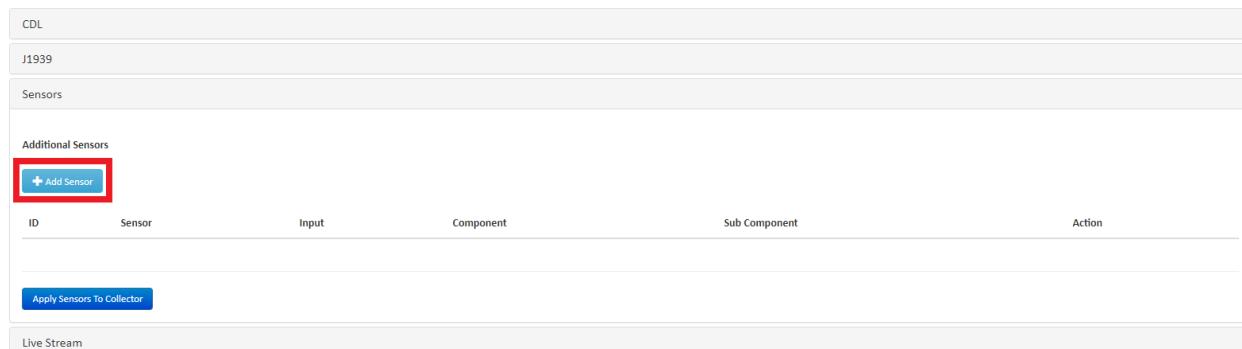
J1939 Not Enabled

Sensors

Live Stream

Sensors

1. Click the “Add Sensor” feature in the Additional Sensors section



CDL

J1939

Sensors

Additional Sensors

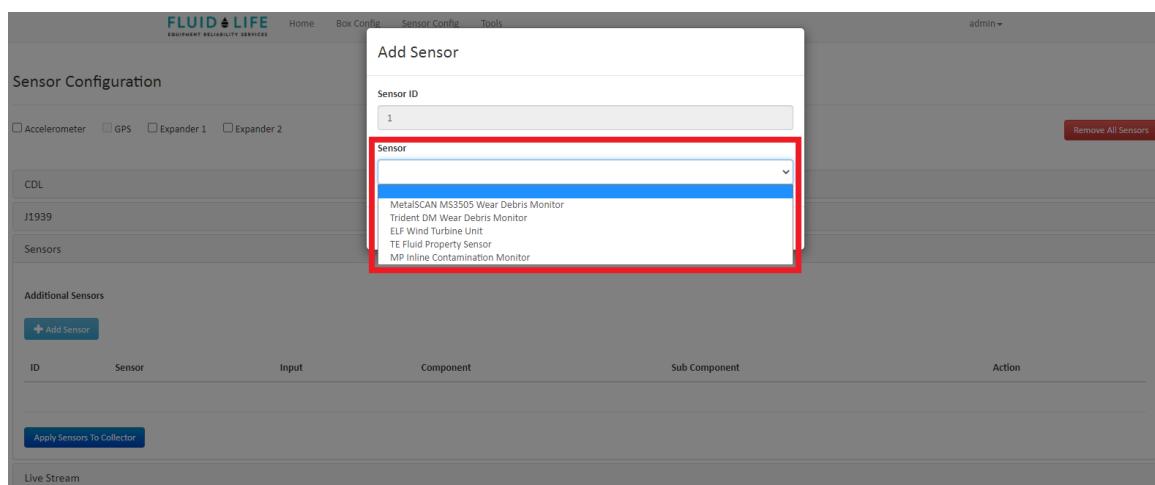
+ Add Sensor

ID	Sensor	Input	Component	Sub Component	Action

Apply Sensors To Collector

Live Stream

2. The following screen will appear to input the appropriate sensor from the dropdown menu:



FLUID LIFE EQUIPMENT RELIABILITY SERVICES

admin ▾

Sensor Configuration

Accelerometer GPS Expander 1 Expander 2

CDL

J1939

Sensors

Additional Sensors

+ Add Sensor

Add Sensor

Sensor ID: 1

Sensor

- MetalSCAN MS3505 Wear Debris Monitor
- Trident DM Wear Debris Monitor
- ELP Wind Turbine Unit
- TE Fluid Property Sensor
- MP Inline Contamination Monitor

Remove All Sensors

ID	Sensor	Input	Component	Sub Component	Action

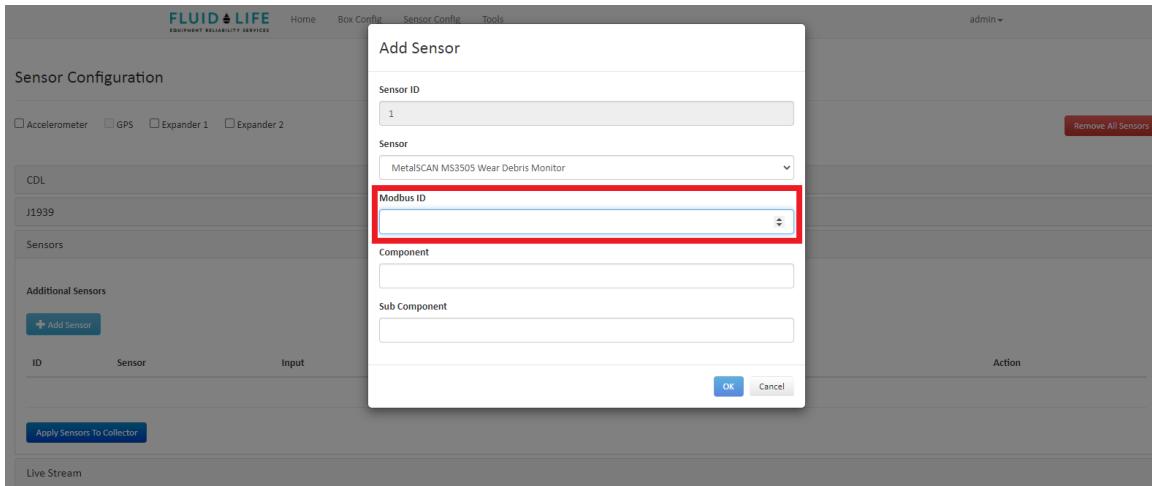
Apply Sensors To Collector

Live Stream

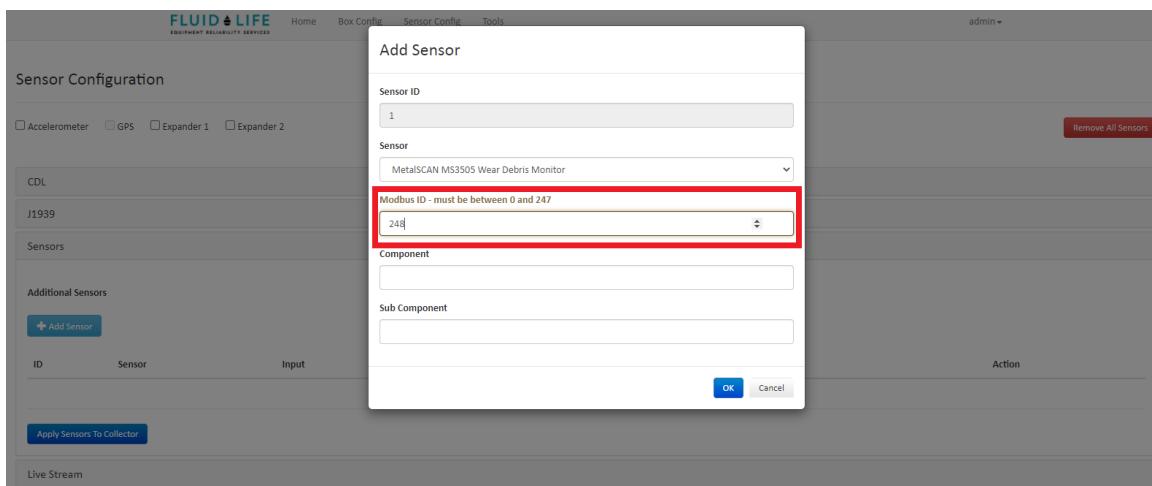
Modbus Sensors

1. For Modbus sensors (ie. MetalSCAN MS3505 Wear Debris Monitor) the Modbus ID is required to be assigned.

Note: A numerical ID between 0 and 247 can be assigned. If this requirement is not met, an error message will appear prompting for another input.

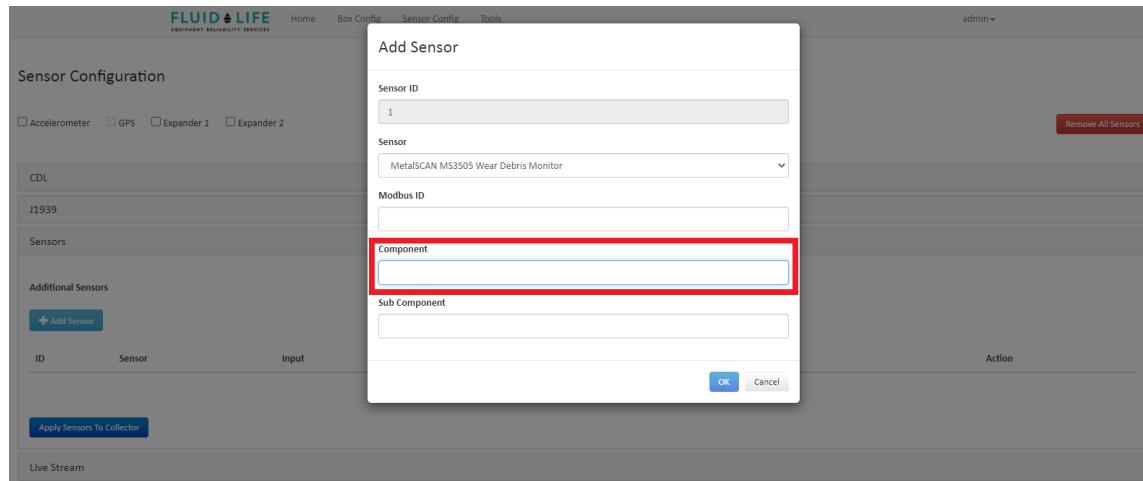


The screenshot shows the 'Add Sensor' dialog box. The 'Sensor ID' field contains '1'. The 'Sensor' dropdown is set to 'MetalSCAN MS3505 Wear Debris Monitor'. The 'Modbus ID' field is empty. The 'Component' and 'Sub Component' fields are empty. The 'OK' button is visible at the bottom right of the dialog.

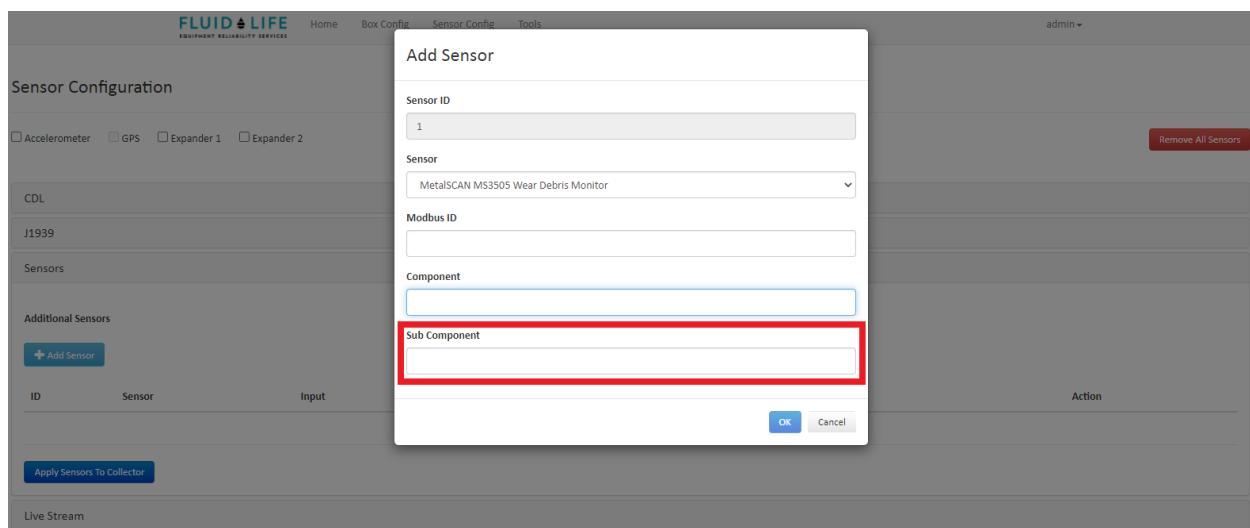


The screenshot shows the 'Add Sensor' dialog box. The 'Sensor ID' field contains '1'. The 'Sensor' dropdown is set to 'MetalSCAN MS3505 Wear Debris Monitor'. The 'Modbus ID' field contains '248'. A red border highlights the 'Modbus ID' field, and an error message 'Modbus ID - must be between 0 and 247' is displayed above it. The 'Component' and 'Sub Component' fields are empty. The 'OK' button is visible at the bottom right of the dialog.

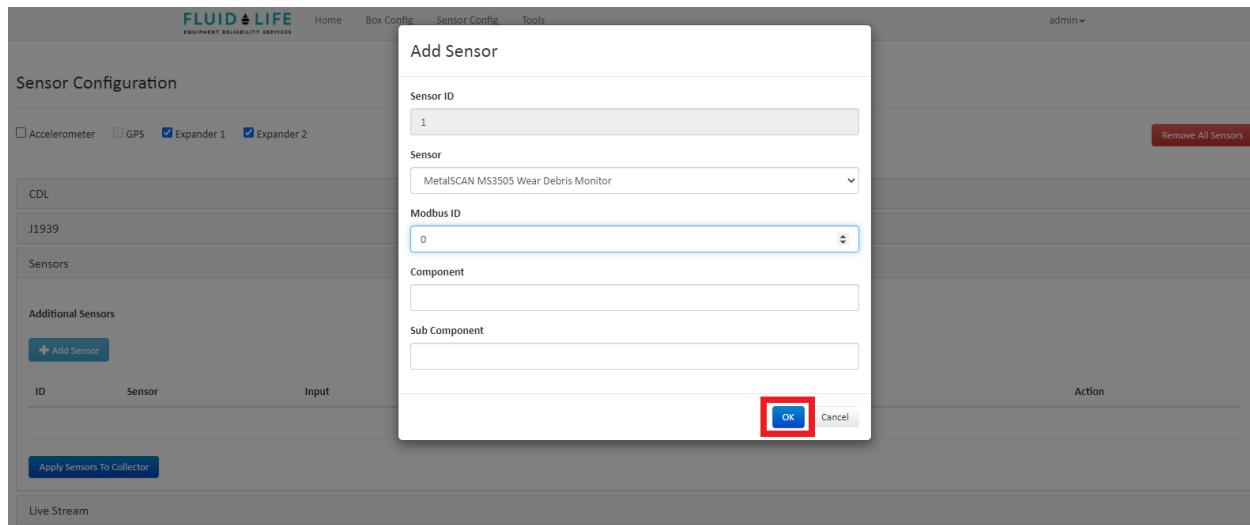
2. The “Component” field is the name assigned to the unit on which the Telematics module is being installed on. This is an **optional** field and can be inputted if required.



3. The “Sub Component” field is the name assigned to the specific sub component on the unit on which the Telematics module is being installed on. This is an **optional** field and can be inputted if required

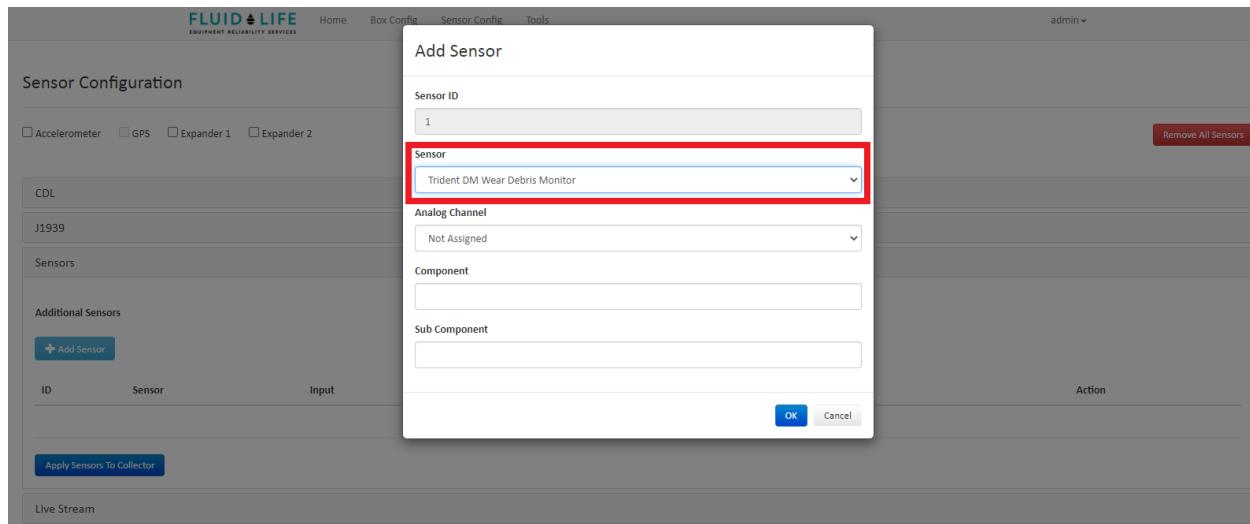


4. Click “OK” after applying all the configuration parameters

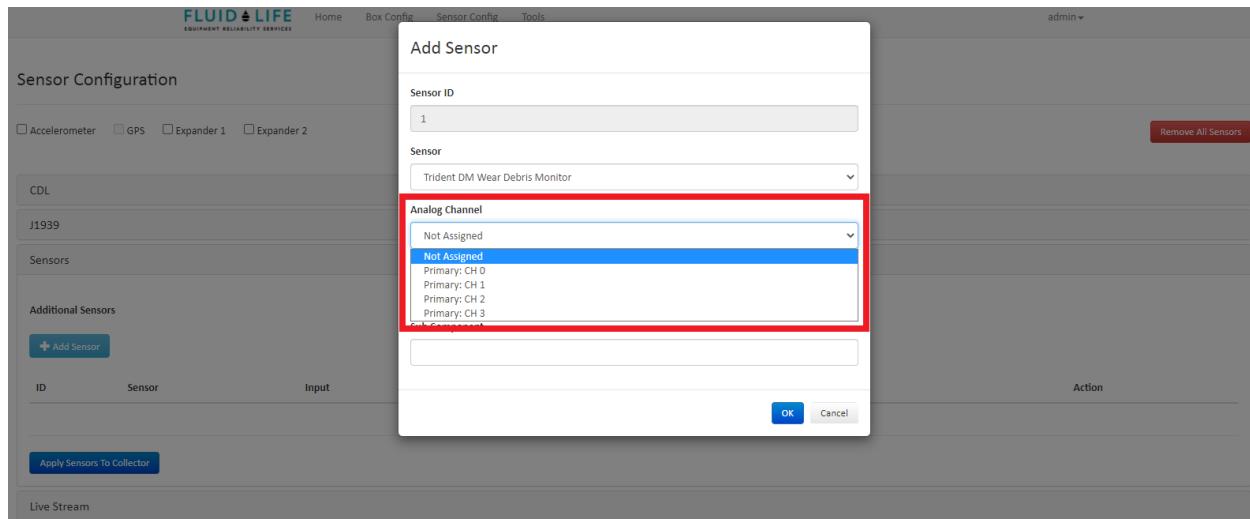


Analog Sensors

1. For Analog sensors chosen (ie. Trident DM Wear Debris Monitor), the following screen will appear:

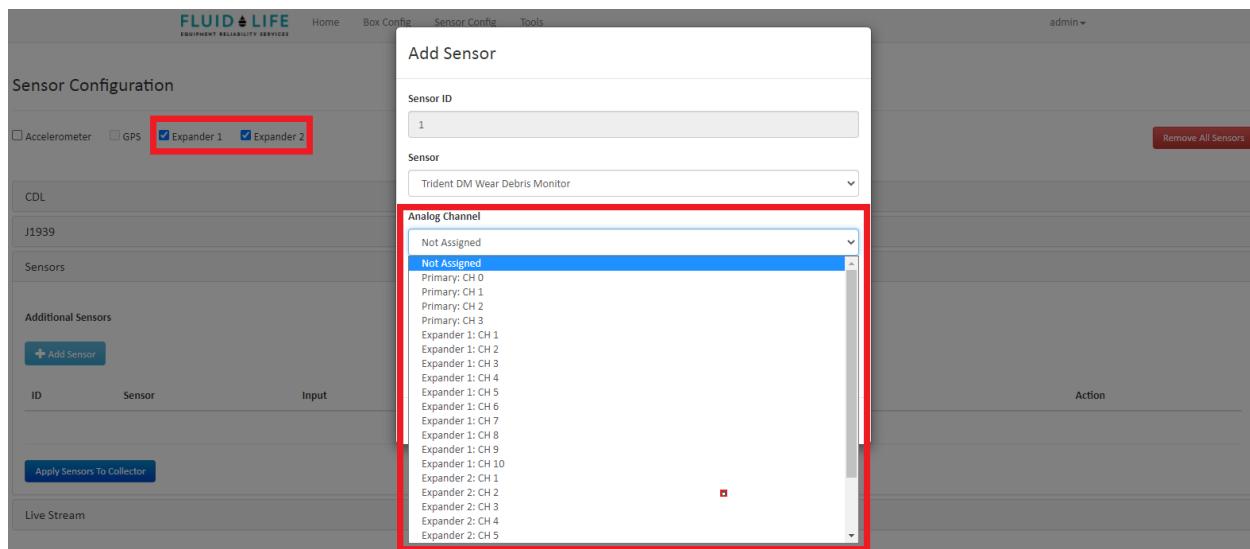


2. Choose the analog channel through which the sensor will communicate.

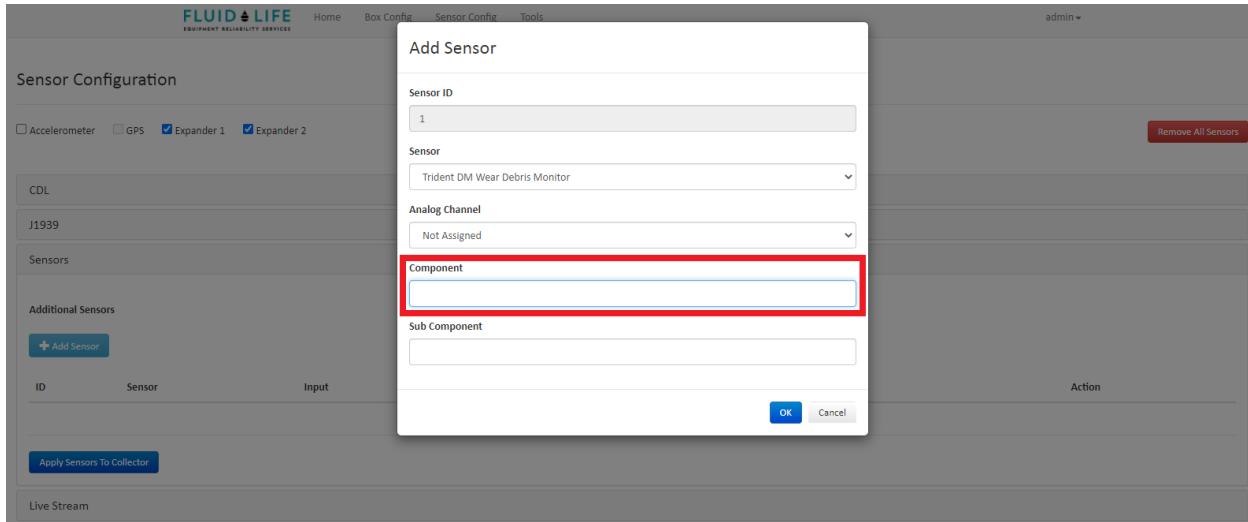


Note:

The “Expander 1 and Expander 2” selections highlighted in the box below will enable ten additional analog channels to be selected for communications

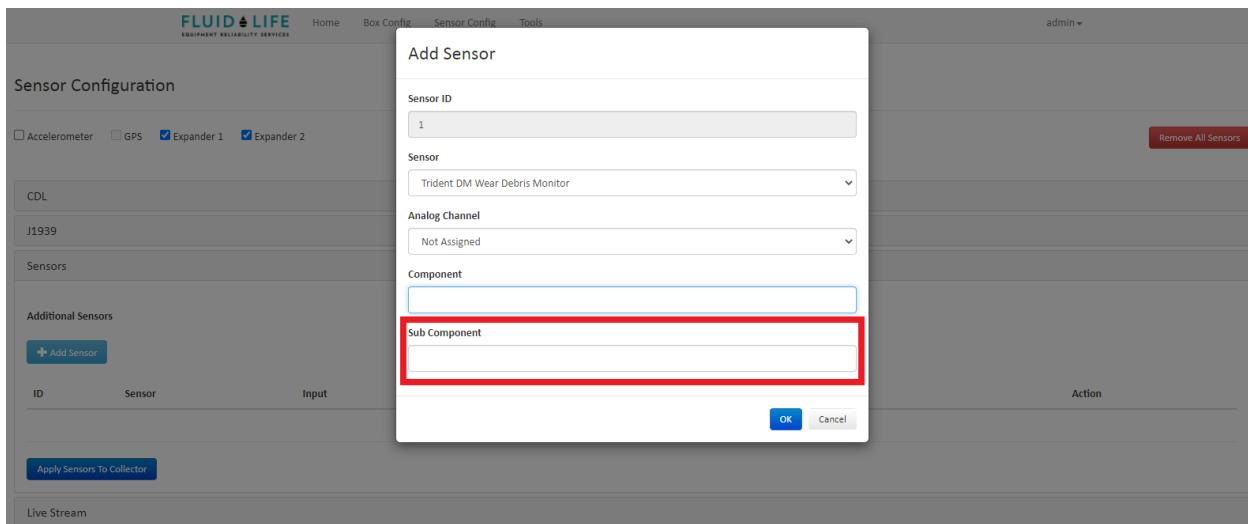


3. The “Component” field is the name assigned to the unit on which the Telematics module is being installed on. This is an **optional** field and can be inputted if required.



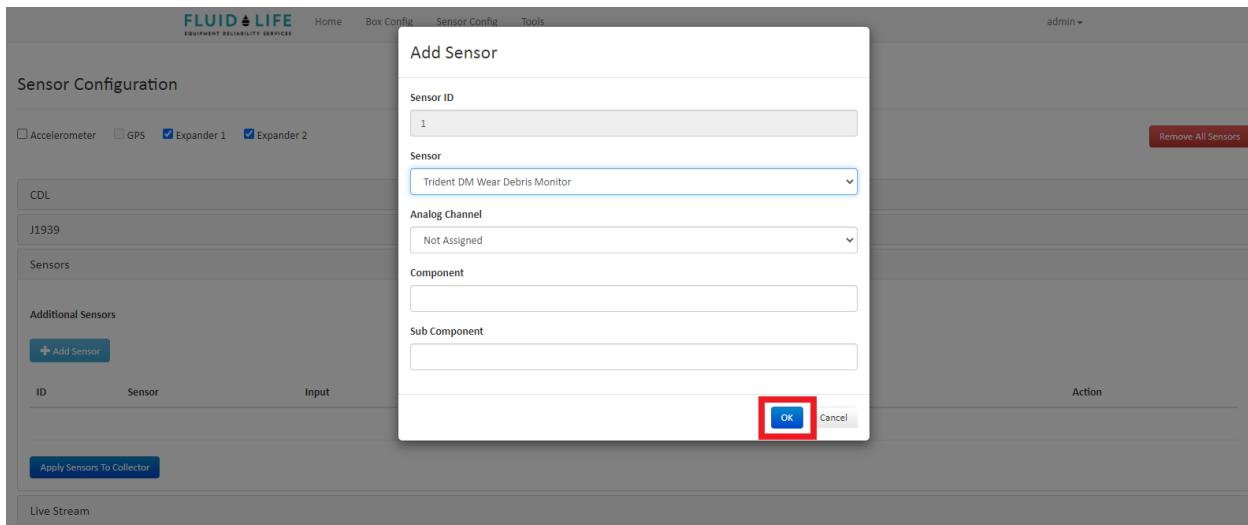
The screenshot shows the FLUID & LIFE Sensor Configuration interface. A modal dialog box titled 'Add Sensor' is open. Inside the dialog, the 'Sensor ID' field contains '1'. The 'Sensor' dropdown is set to 'Trident DM Wear Debris Monitor'. The 'Analog Channel' dropdown is set to 'Not Assigned'. The 'Component' field is empty and highlighted with a red box. The 'Sub Component' field is also empty. At the bottom of the dialog are 'OK' and 'Cancel' buttons. The background shows the main interface with sections for 'CDL', 'Sensors', and 'Additional Sensors', and a table with columns 'ID', 'Sensor', 'Input', and 'Action'.

4. The “Sub Component” field is the name assigned to the specific sub component on the unit on which the Telematics module is being installed on. This is an **optional** field and can be inputted if required



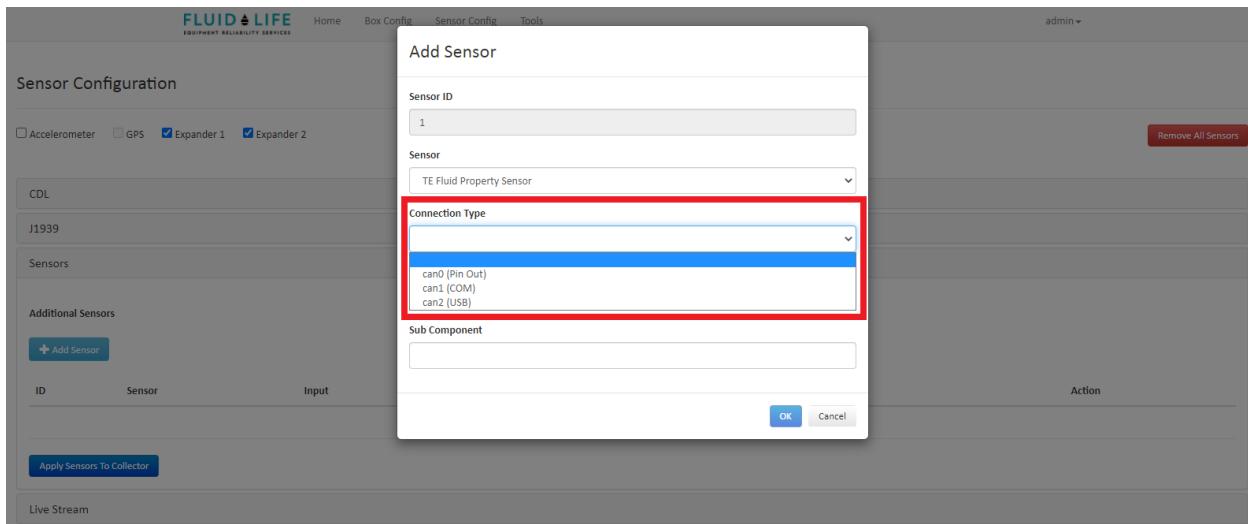
The screenshot shows the FLUID & LIFE Sensor Configuration interface. A modal dialog box titled 'Add Sensor' is open. Inside the dialog, the 'Sensor ID' field contains '1'. The 'Sensor' dropdown is set to 'Trident DM Wear Debris Monitor'. The 'Analog Channel' dropdown is set to 'Not Assigned'. The 'Component' field is empty. The 'Sub Component' field is empty and highlighted with a red box. At the bottom of the dialog are 'OK' and 'Cancel' buttons. The background shows the main interface with sections for 'CDL', 'Sensors', and 'Additional Sensors', and a table with columns 'ID', 'Sensor', 'Input', and 'Action'.

5. Click “OK” after the configuration parameters have been applied

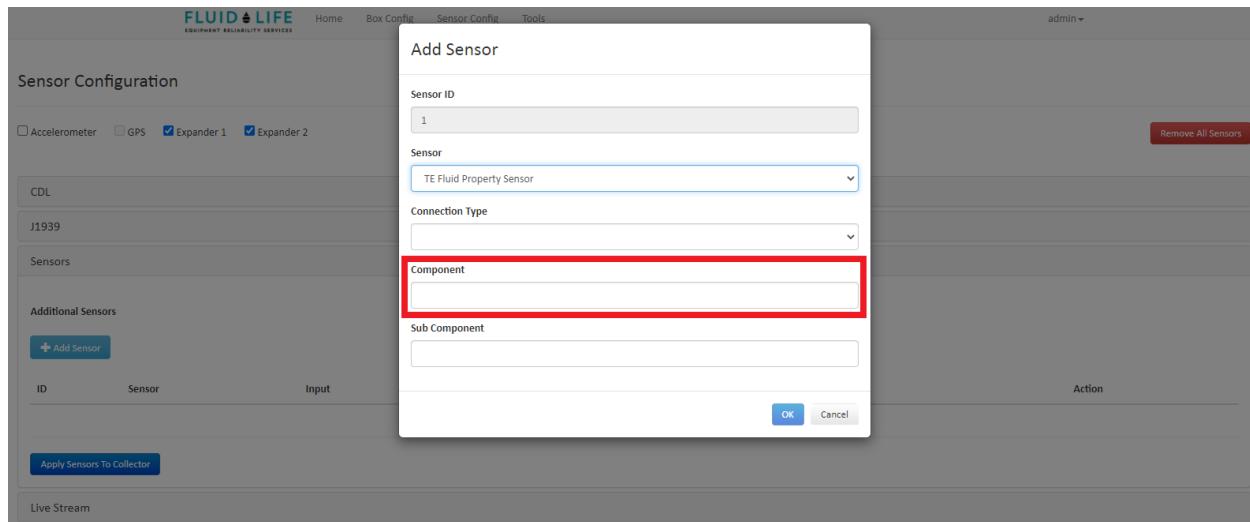


CANBUS Sensors

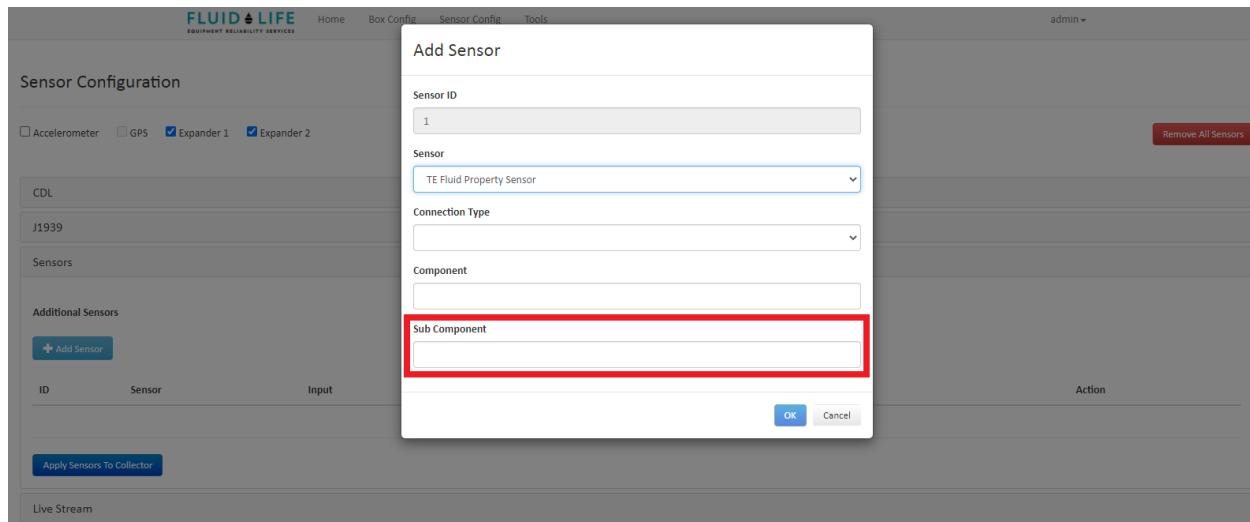
1. For Canbus sensors (ie.TE Fluid Property Sensor) the Connection Type is to be selected from the dropdown menu.
 - **Can0:** Pin Out is the CAN/CDL port on the Telematics module
 - **Can1:** COM port on the Telematics module used for Canbus sensor
 - **Can2:** USB port on the Telematics module used for communications for the Canbus sensor



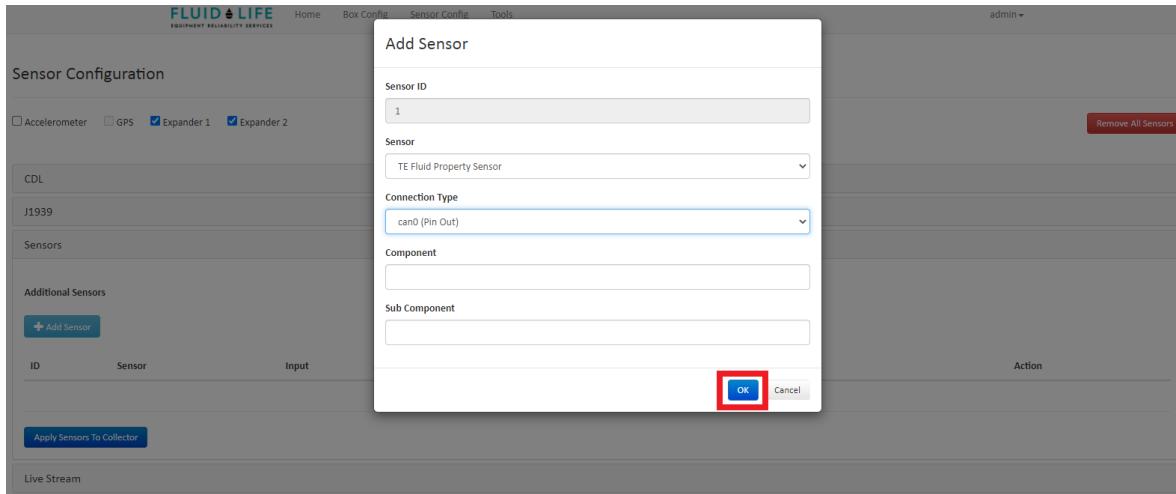
2. The “Component” field is the name assigned to the unit on which the Telematics module is being installed on. This is an **optional** field and can be inputted if required.



3. The “Sub Component” field is the name assigned to the specific sub component on the unit on which the Telematics module is being installed on. This is an **optional** field and can be inputted if required



- Click “OK” after applying all the configuration parameters.



Applying Sensors To Collectors

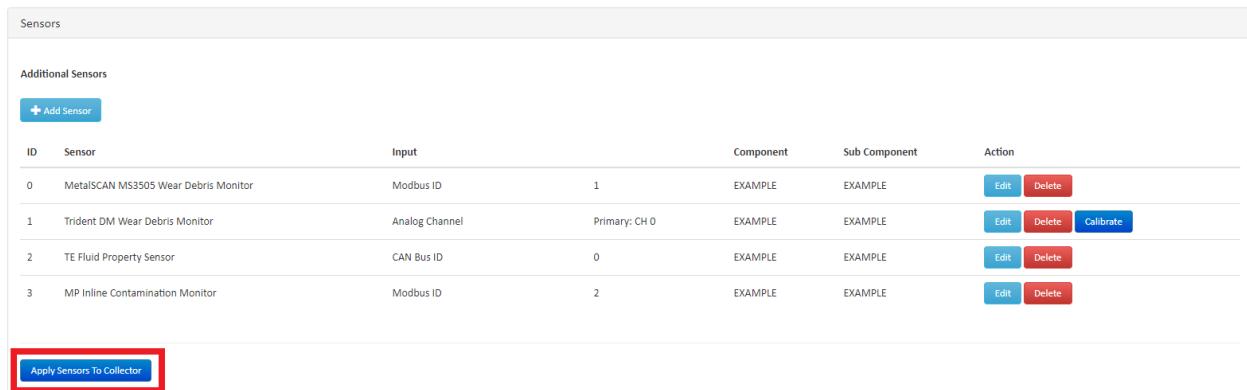
- Once all sensors have been added the following screen will be displayed:

ID	Sensor	Input	Component	Sub Component	Action
0	MetalSCAN MS3505 Wear Debris Monitor	Modbus ID	1	EXAMPLE	Edit Delete
1	Trident DM Wear Debris Monitor	Analog Channel	Primary: CH 0	EXAMPLE	Edit Delete Calibrate
2	TE Fluid Property Sensor	CAN Bus ID	0	EXAMPLE	Edit Delete
3	MP Inline Contamination Monitor	Modbus ID	2	EXAMPLE	Edit Delete

- The “Action” section of the web page enables how to edit the previous configurations (ie. deletions or additions of previously added sensors)

ID	Sensor	Input	Component	Sub Component	Action
0	MetalSCAN MS3505 Wear Debris Monitor	Modbus ID	1	EXAMPLE	Edit Delete
1	Trident DM Wear Debris Monitor	Analog Channel	Primary: CH 0	EXAMPLE	Edit Delete Calibrate
2	TE Fluid Property Sensor	CAN Bus ID	0	EXAMPLE	Edit Delete
3	MP Inline Contamination Monitor	Modbus ID	2	EXAMPLE	Edit Delete

3. In order for data collection to occur with the chosen and configured sensors, click on “Apply Sensors To Collector”



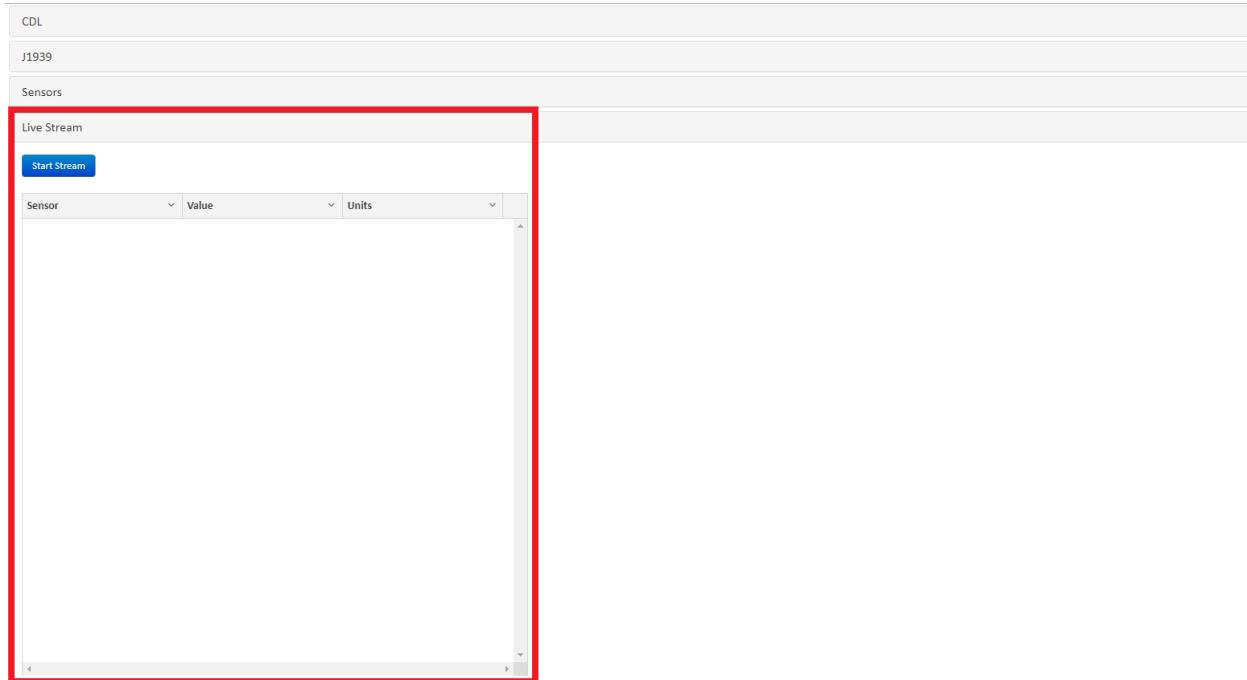
The screenshot shows a table of configured sensors. The columns are: ID, Sensor, Input, Component, Sub Component, and Action. The Action column contains buttons for 'Edit' and 'Delete'. A red box highlights the 'Apply Sensors To Collector' button at the bottom of the page.

ID	Sensor	Input	Component	Sub Component	Action
0	MetalSCAN MS3505 Wear Debris Monitor	Modbus ID	1	EXAMPLE	<button>Edit</button> <button>Delete</button>
1	Trident DM Wear Debris Monitor	Analog Channel	Primary: CH 0	EXAMPLE	<button>Edit</button> <button>Delete</button> <button>Calibrate</button>
2	TE Fluid Property Sensor	CAN Bus ID	0	EXAMPLE	<button>Edit</button> <button>Delete</button>
3	MP Inline Contamination Monitor	Modbus ID	2	EXAMPLE	<button>Edit</button> <button>Delete</button>

Note: Refer to the “Modbus Configuration” section below to complete the configuration process for Modbus sensors prior to proceeding to the next section.

Live Stream

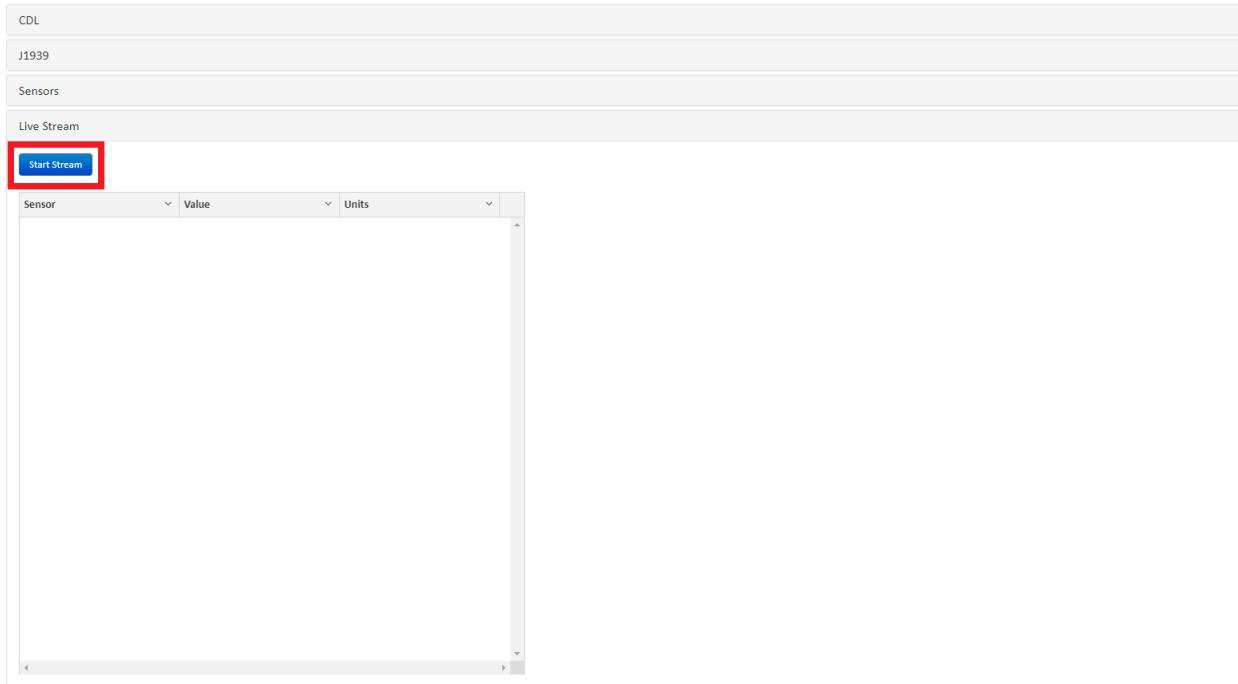
1. In order to check if sensors are collecting properly, click the “Live Stream” tab which will display the screen shown below



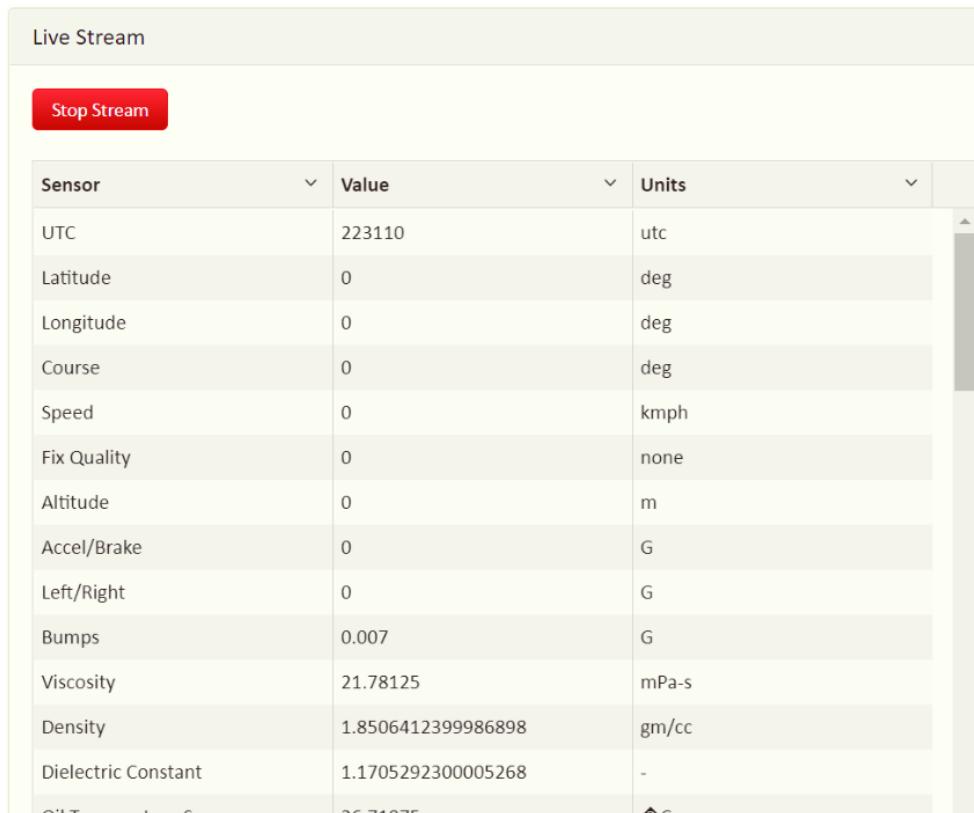
The screenshot shows a table for selecting sensors. The columns are: Sensor, Value, and Units. A red box highlights the 'Start Stream' button at the top of the table.

Sensor	Value	Units
--------	-------	-------

2. Click “Start Stream” to start streaming data through the added sensors.



3. During live stream, the following screen will be displayed



The screenshot shows the "Live Stream" data table with the following data:

Sensor	Value	Units
UTC	223110	utc
Latitude	0	deg
Longitude	0	deg
Course	0	deg
Speed	0	kmph
Fix Quality	0	none
Altitude	0	m
Accel/Brake	0	G
Left/Right	0	G
Bumps	0.007	G
Viscosity	21.78125	mPa-s
Density	1.8506412399986898	gm/cc
Dielectric Constant	1.1705292300005268	-

A red box highlights the "Stop Stream" button, which is located above the table.

Modbus Configuration

This section applies to Modbus sensors only.

1. Click on the “Tools” tab as highlighted in red:



Modbus Configuration

Please Ensure That Only One Modbus Sensor Is Installed When Changing Addresses
Sensor Desired ModBus ID

2. Select the sensor type that you wish to change the Modbus ID and enter the desired ID as shown below within the range of 1-247.

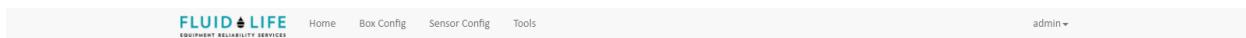


Modbus Configuration

Please Ensure That Only One Modbus Sensor Is Installed When Changing Addresses
Sensor Desired ModBus ID
MetalSCAN MS3505 Wear Debris Monitor
Trident DM Wear Debris Monitor
MP Inline Contamination Monitor

Note: When changing Modbus ID, ensure that **only one** Modbus sensor is connected to the Telematics module

3. Click “Submit” and wait for a success message to appear.



Modbus Configuration

Please Ensure That Only One Modbus Sensor Is Installed When Changing Addresses
Sensor Desired ModBus ID

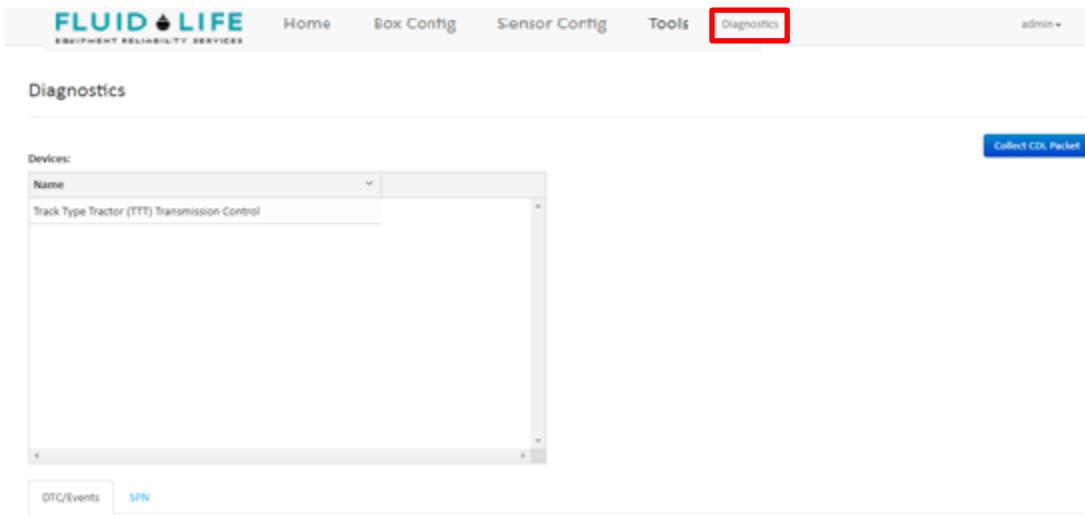
Modbus Configuration

Please Ensure That Only One Modbus Sensor Is Installed When Changing Addresses
Sensor Desired ModBus ID

Successfully Changed Sensor Address

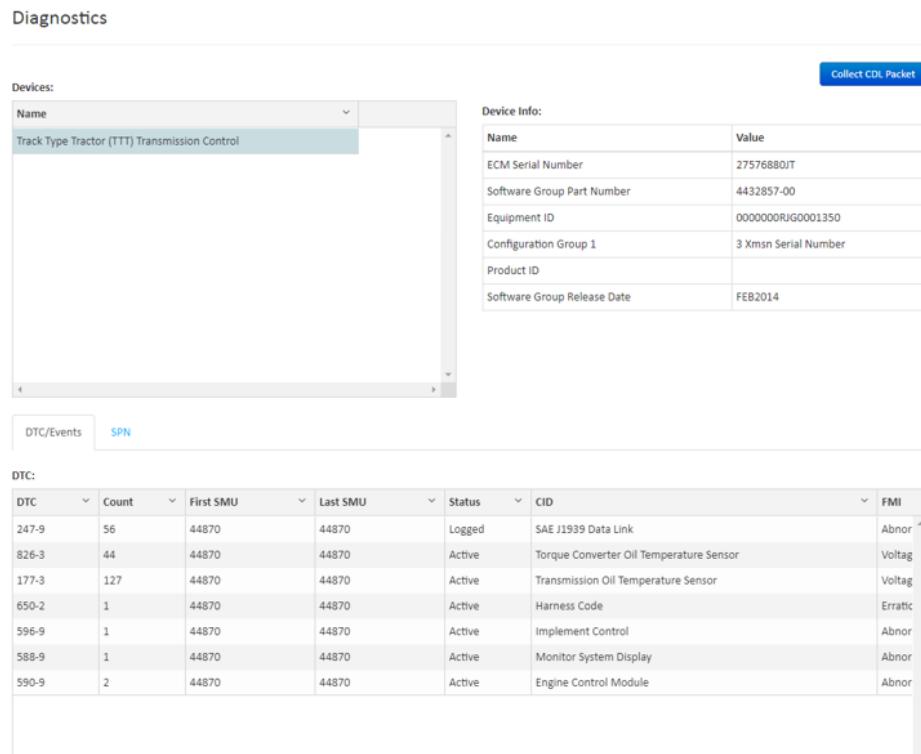
CDL Diagnostics

The diagnostics section (accessible from the “Diagnostics” header, circled in red) is available on any box mode that directly collects data (Direct, Collector, Relay Collector) **and** has already configured CDL.



The screenshot shows the Fluid Life Equipment Reliability Services web application. The top navigation bar includes links for Home, Box Config, Sensor Config, Tools, and Diagnostics. The 'Diagnostics' link is highlighted with a red box. The main content area is titled 'Diagnostics'. On the left, a 'Devices' section shows a dropdown menu set to 'Name' with an option for 'Track Type Tractor (TTT) Transmission Control'. On the right, a 'Collect CDL Packet' button is visible. Below the devices section are two tabs: 'DTC/Events' (selected) and 'SPN'. The 'DTC/Events' tab displays a table of diagnostic trouble codes (DTCs) with columns for DTC, Count, First SMU, Last SMU, Status, CID, and FMI.

1. Selecting a device will automatically pull up all of its current info, DTCs and Events



The screenshot shows the Fluid Life Diagnostics interface with a selected device. The 'Devices' section shows 'Track Type Tractor (TTT) Transmission Control' selected. To the right, a 'Device Info' table provides detailed information about the device, including its ECM Serial Number, Software Group Part Number, Equipment ID, Configuration Group, Product ID, and Software Group Release Date. Below the device info is a table of DTCs, identical to the one in the previous screenshot.

Device Info

1. Any number of DTCs may be cleared from the ECU by selecting the desired DTCs and then clicking “Clear Selected DTCs”

DTC:

DTC	Count	First SMU	Last SMU	Status	CID	FMI
247-9	56	44870	44870	Logged	SAE J1939 Data Link	Abnormal Update Rate
826-3	44	44870	44870	Active	Torque Converter Oil Temperature Sensor	Voltage Above Normal
177-3	127	44870	44870	Active	Transmission Oil Temperature Sensor	Voltage Above Normal
650-2	1	44870	44870	Active	Harness Code	Erratic, Intermittent, or Incorrect
596-9	1	44870	44870	Active	Implement Control	Abnormal Update Rate
588-9	1	44870	44870	Active	Monitor System Display	Abnormal Update Rate
590-9	2	44870	44870	Active	Engine Control Module	Abnormal Update Rate

Clear Selected DTCs

Streaming

1. You can view all SPNs for the selected device by clicking on the “SPN” tab (circled in red)

Devices:

Name
Track Type Tractor (TTT) Transmission Control

Device Info:

Name	Value
ECM Serial Number	27576880JT
Software Group Part Number	4432857-00
Equipment ID	0000000RG0001350
Configuration Group 1	3 Xmsn Serial Number
Product ID	
Software Group Release Date	FEB2014

SPN

SPN:

SPN	Name
64	Engine Speed
77	Transmission Oil Temperature
61442	Gear
61453	Gear Lever
61459	Battery Voltage
61726	Service Brake Position
62497	Torque Converter Outlet Temperature
62898	Track Speed/Direction
62937	Actual Gear
62978	Parking Brake

Get Stream

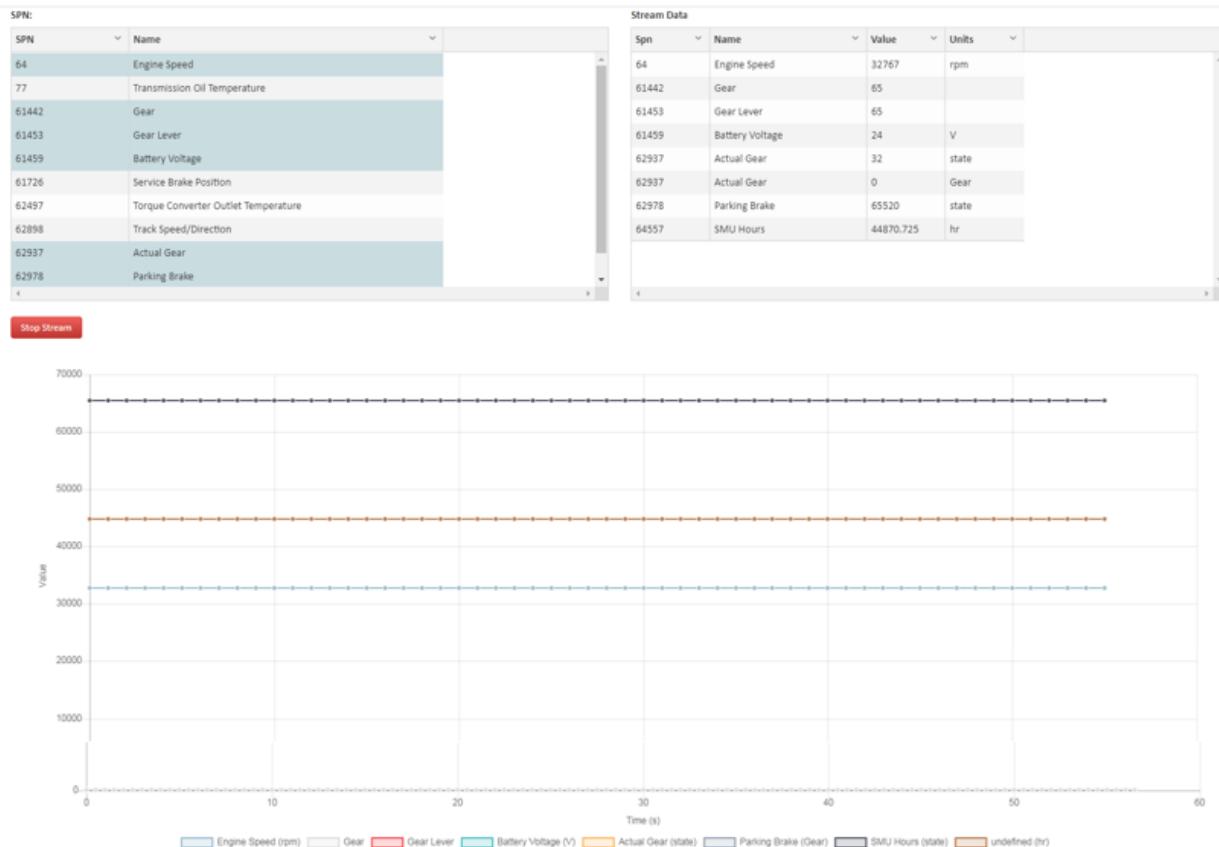
2. You can live stream any number of SPNs by selecting the ones you wish to stream and then clicking “Get Stream”

SPN:

SPN	Name
77	Transmission Oil Temperature
61442	Gear
61453	Gear Lever
61459	Battery Voltage
61726	Service Brake Position
62497	Torque Converter Outlet Temperature
62898	Track Speed/Direction
62937	Actual Gear
62978	Parking Brake
64557	SMU Hours

Get Stream

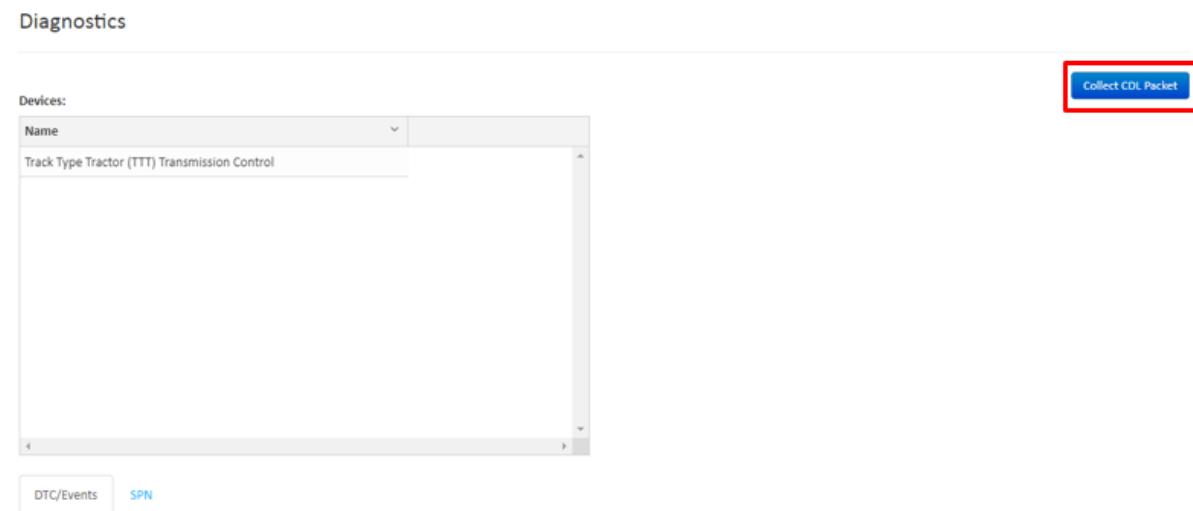
3. Once streaming has started, a table and a graph will appear. The graph will show the sensors value over time and the table will show its most recent reading for each streaming sensor



4. Streaming may be stopped at any time by clicking the “Stop Stream” button. The stream will also stop if the user selects a different device, leaves the page, or closes the browser

CDL Packet

If the user knows that there are additional sensors on a certain ECU that did not appear in the “Sensor Config” integrated sensor lists, the sensor has most likely not been yet mapped by Fluid Life. In order for Fluid Life to stay up to date on all available sensors, the user may collect raw data from the ECU and send it to Fluid Life for proper mapping. This can be done by selecting the “Collect CDL Packet” button (circled in red)



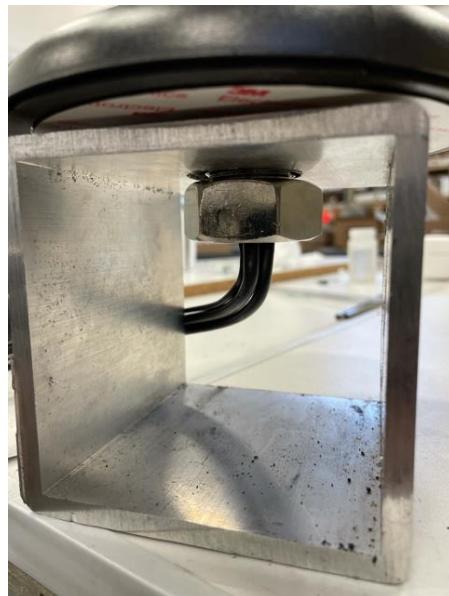
5. Once the CDL packet starts collecting, all other querying of this page will be disabled.
6. In order to stop collecting of CDL, the user will have to click the “Stop Collection” button. If this is not done within 30min, the packet will be zipped up on the box for access in a future time.
7. After stopping the CDL packet, the browser will automatically download the file called “cdlDump.txt.” The user may then email this file to Fluid Life for data mapping.

Antenna Mounting Guideline

Note: The antenna should be mounted at least 20cm (8in) from any nearby persons.

A typical antenna kit may come with:

- 1 Spartan Antenna (for Wifi, Gps and Cellular)
- 1 Antenna Mounting Cube Bracket
- 2 Mounting U-bolts
- 1 or more Wifi Antenna extension cable(s) and adapter(s)
- 1 or more GPS/Cell extension cable(s)



A general installation of the antenna using the item above would involve attaching the antenna to the Cube Bracket and using the U-bolts to attached the cube/antenna to pole. The antenna should be positioned so it has a clear view of the sky in order to get more reliable GPS information.

Extension cables can be used to extend the antenna cable length for longer runs.

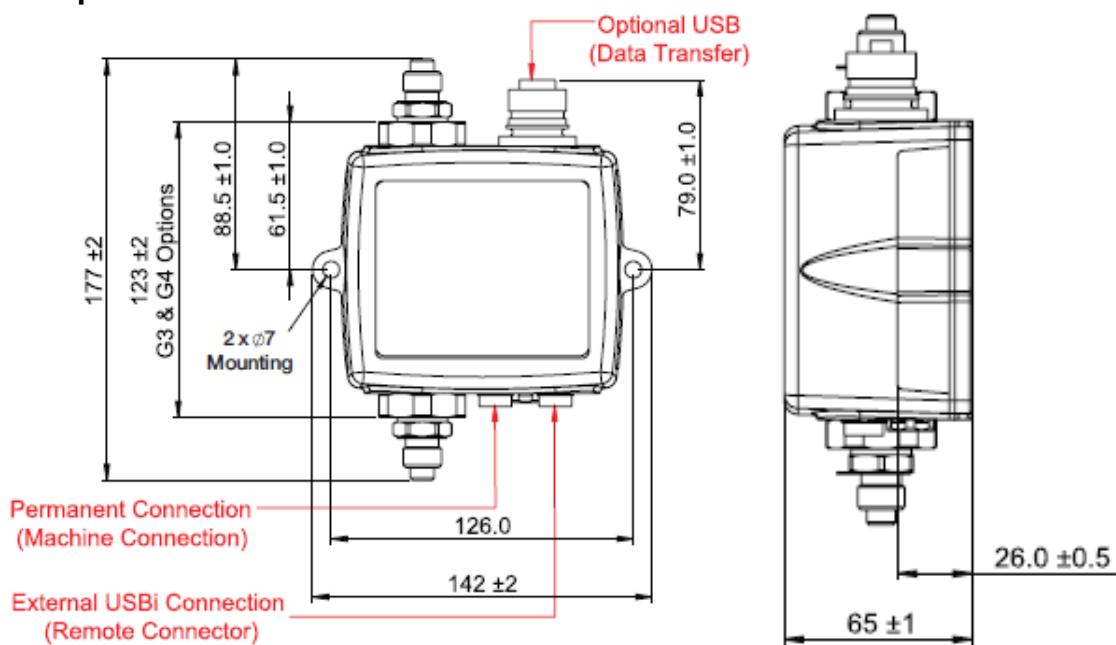
UCM Sensors Introduction

Note: Each of the sensor details are directly referenced and highlighted in depth in the OEM sensor manuals. For additional access or reference to the sensor manuals, contact a Fluid Life representative at 877.962.2400.

Oil Cleanliness Sensor



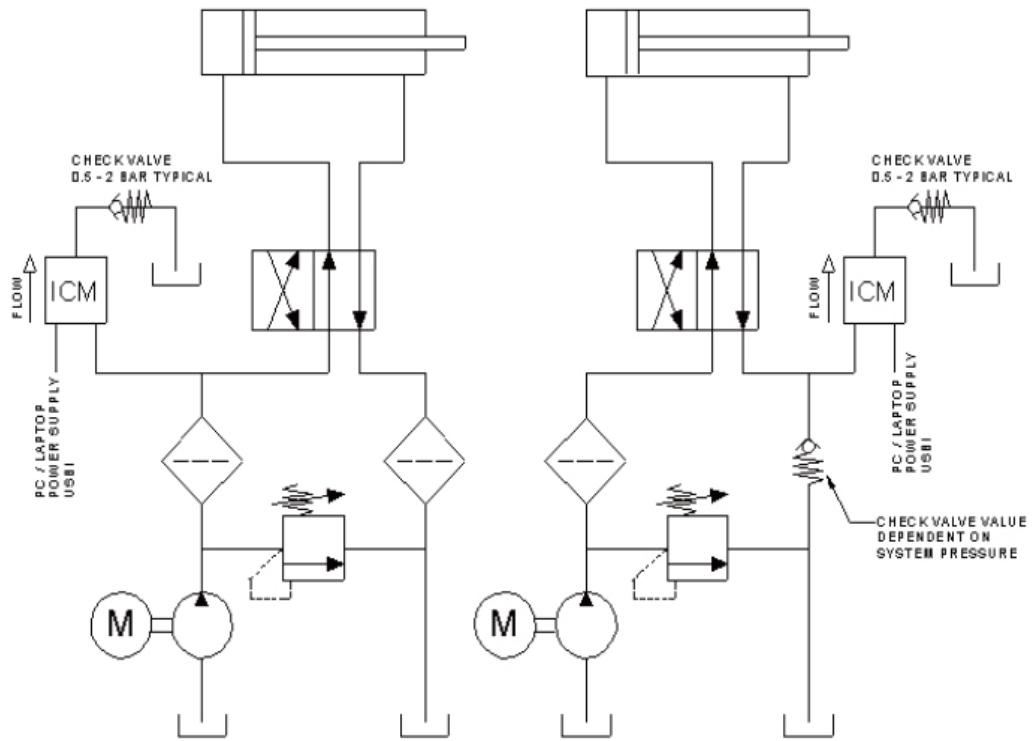
Sensor Specifications



Technical Data

Technology	LED Based Light Extinction Automatic Optical Contamination Monitor
Particle Sizing	>4,6,14,21,25,38,50,70 $\mu\text{m}(\text{c})$ to ISO 4406 1999 Standard
Analysis Range	ISO 4406: 1999 Code 0 to 25, NAS 1638 Class 00 to 12, AS4059 Rev.E. Table 1&2 Sizes A-F: 000 (Lower Limits are Test Time dependent)
Accuracy	$\pm \frac{1}{2}$ code for 4,6,14 $\mu\text{m}(\text{c})$ ± 1 code for larger sizes
Calibration	Each unit individually calibrated with ISO Medium Test Dust (MTD) based on ISO 11171, on equipment certified by I.F.T.S. ISO 11943
Operating Flow Rate	20 - 400 ml/minute
Viscosity Range	≤ 1000 cSt
Fluid Temperature	From -25°C to +80°C
Maximum Pressure	420Bar
Test Time	Adjustable 10 - 3600 seconds. Factory set to 120 seconds. Start delay & programmable test intervals available as standard.
Moisture Sensing	% RH (Relative Humidity) $\pm 3\%$
Temp Measurement	$\pm 3^\circ\text{C}$
Flow Rate Measurement	Indicator only
Data Storage	4000 test
Communication Options	RS485, RS232, MODBUS, CANBUS, 4-20mA time multiplex as standard
Ambient Temp Min/Max	From -25°C to 80°C non-K version - From -25°C to 55°C K version
Environment Protection	IP 65/67 versatile IK04 Impact Protection
Weight	1.6 kg
Electrical Supply	Voltage 9-36V DC
Power Consumption	<2.2 W
Outer Casing Finish	Polyurethane BS X34B. Colour BS381-638 (Dark Sea Grey) Approval: BS2X34A & BS2X34B, MM0114 & SP-J-513-083 T. II CI. A Performance: MIL-PRF-85285

General Installation Guidelines

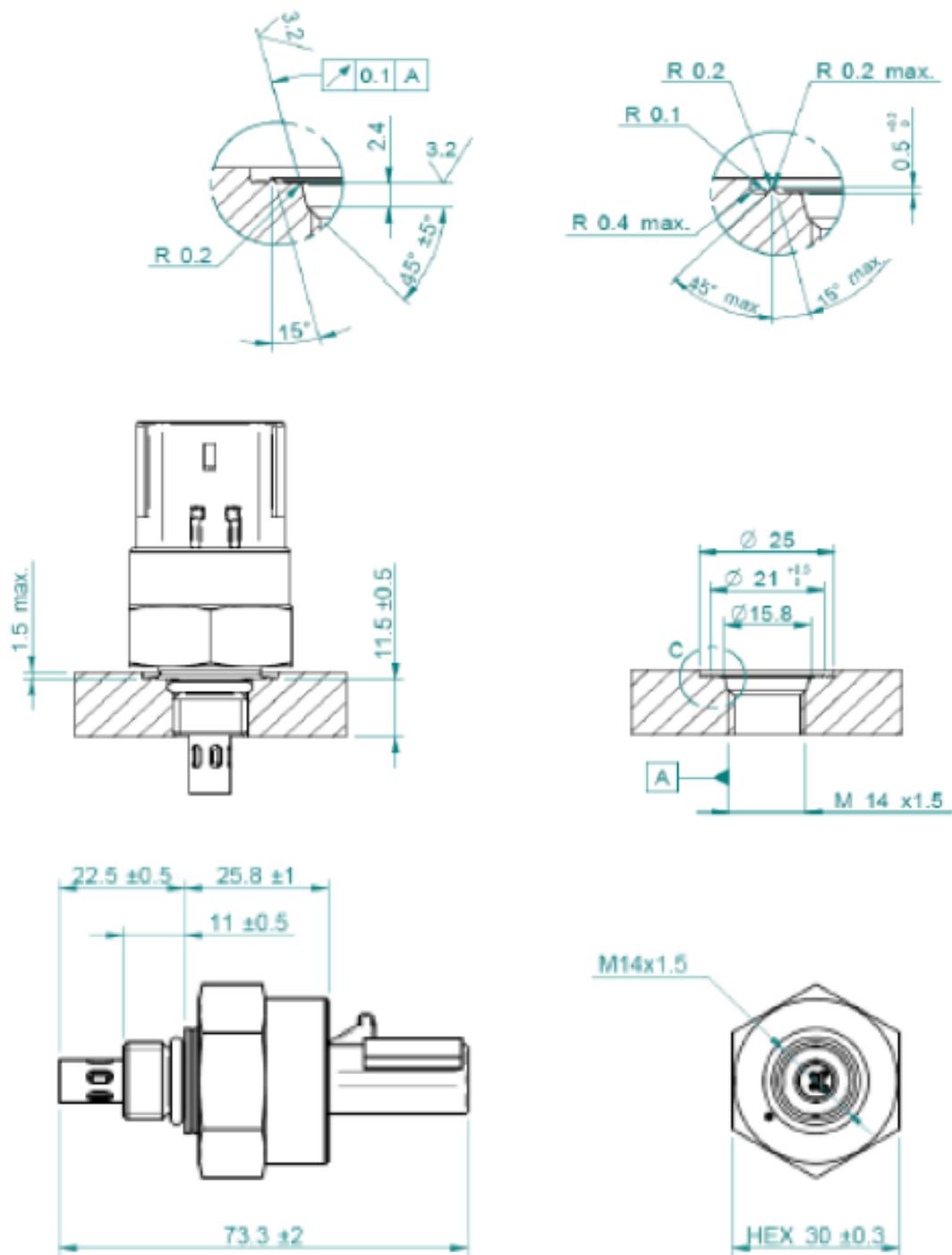


Note: This is a generalized OEM specific install recommendation and is subject to change based on factors such as process application and physical install locations.

Fluid Property Sensor



Sensor Specifications

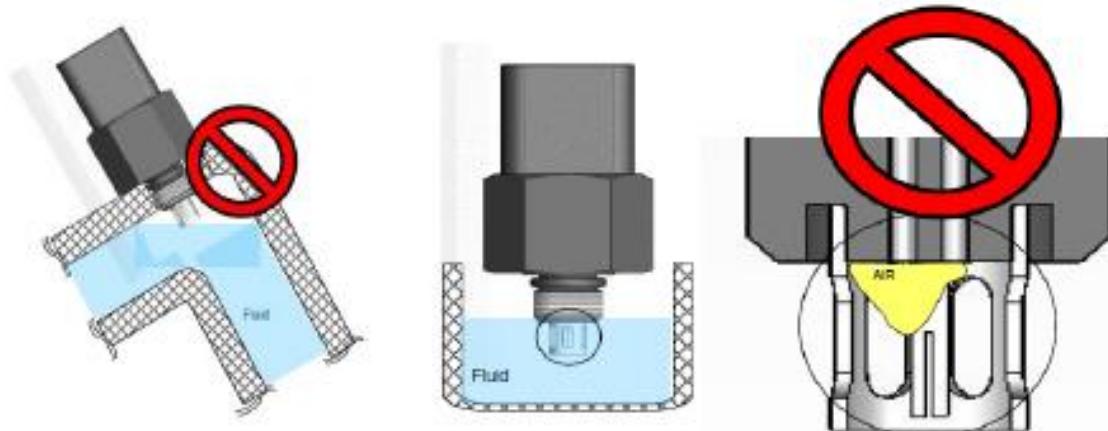


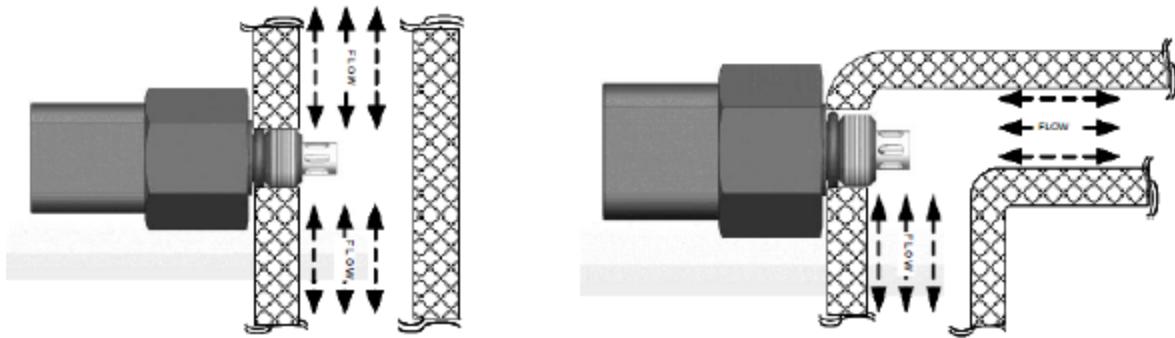
Dimensions outlined in millimeters

Technical Data

Technology	The FPS2800B12C4 is an oil property sensor that will directly and simultaneously measure the viscosity, density, dielectric constant and temperature of low conductivity fluids
Sensor Electronics Temperature	-40 to +125°C
Oil Temperature	-40 to +150°C
Pressure	0 bar ≤ P ≤ + 25 bars (375 psi)
Dynamic Viscosity	0.0 to 50.0 cP
Density	0.000 to 1.500 gm/cc
Dielectric Constant	1.00 to 6.00
Oil Temperature	-40°C to +150°C
Storage Temperature	-50 to + 150°C.
Vibration	0 to 20 Grms
Media Examples	Lubricants, Oils, Process fluids
Supply Voltage	Minimum 9 VDC; typically 12 or 24 VDC; maximum 36 VDC
Power Consumption	< 100mA, typical 70 mA for 12 VDC power supply
Mounting Torque	27Nm, +/- 5.4 Nm

General Installation Guidelines



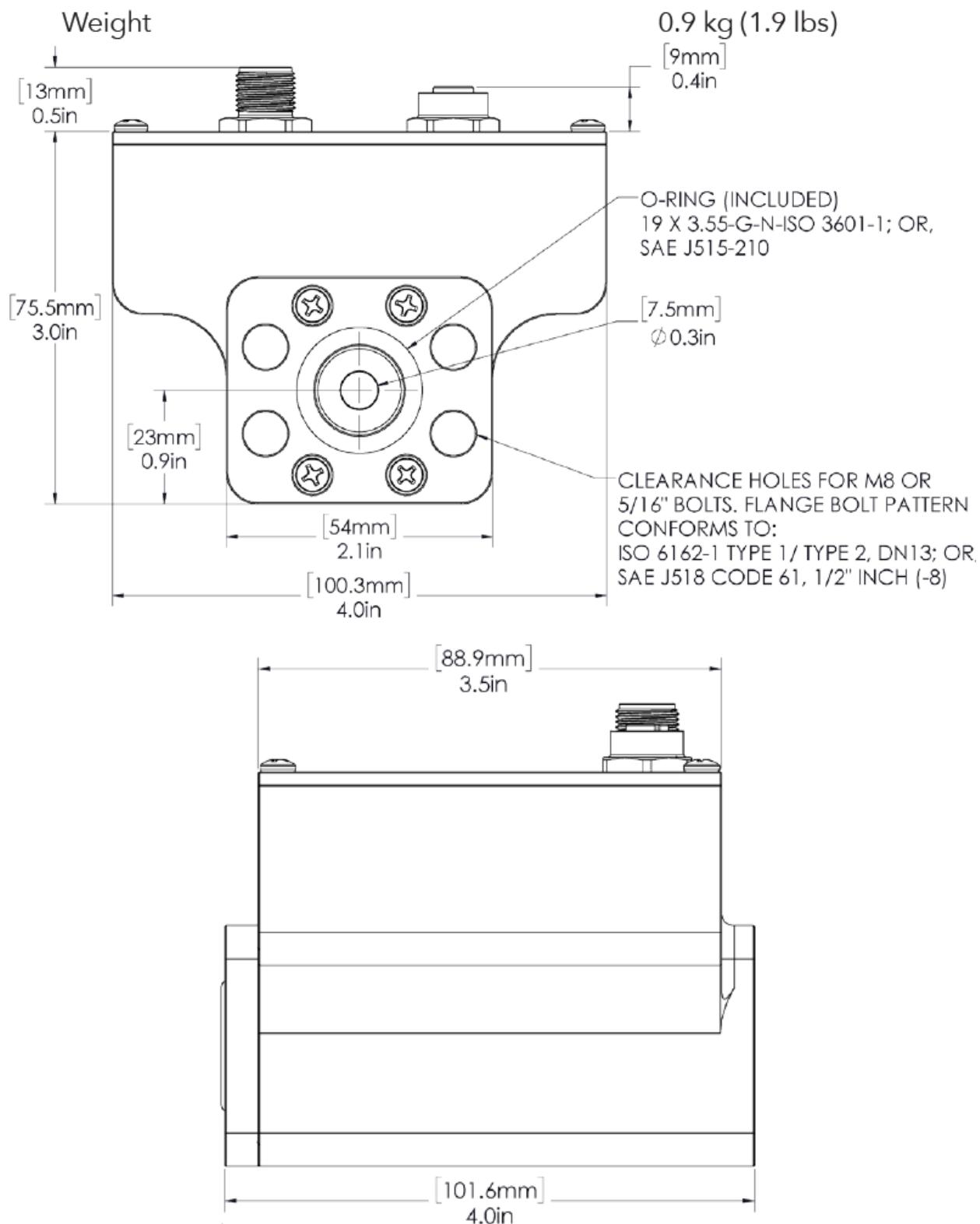


Note: The installation orientation determines optimal sensor performance. It is recommended to install the Fluid Property sensor inline within a steady flow stream (oil) and no introduction of air pockets/bubbles

Metallic Wear Debris Monitor



Sensor Specifications



Technical Data

Technology	Designed for in-line early detection of metal wear to determine severity and remaining useful life of critical equipment
Sensor Bore	8mm (3/8 inch)
Minimum Detectable Particle (sphere)	125µm Fe / 450µm NFe
Minimum Detectable Particle (ESD)	70µm Fe / 270µm NFe
Flow Rate	0.5 L/min - 12L/min (0.13 USGPM to 3.2 USGPM)
Flow Direction	Bi-directional
Maximum Particle Detection Rate	Configurable up to 100 particles/sec
Input Power Supply	18 to 30 VDC
Power Consumption	2.4W
Ethernet 10/100 Mbit/s	Modbus TCP
Serial RS-485 (Optional)	Modbus RTU
Particle Type Discrimination	Ferromagnetic (Fe) / Non-Ferromagnetic (NFe)
Particle Size Reporting	Configurable Fe / NFe size bins and Fe / NFe Rate
Particle Mass Reporting	Fe Mass and Fe Mass Rate
Equipment Condition Indication	Configurable Alarm and Warning Limits (Fe, NFe & Temperature)
Oil Pressure	Maximum 20 bar (300 psi)
Oil Temperature	-40°C to 85°C (-40°F to 185°F)
Ambient Temperature	-40°C to 70°C (-40°F to 158°F)
Vibration	10-50 Hz: 3mm (displacement) 50-300 Hz: 15g (acceleration)
Fluid Compatibility	Hydraulic & lubrication oils; synthetic & mineral based; solvents & cleaning agents

General Installation Guidelines

The MetalSCAN MS3505 sensor is a rugged design with enclosed electronics and ruggedized connectors. However, the sensor is sensitive to excessive external structural loads, and therefore should not be subjected to external loads (either static or cycling, vibratory, etc.).

Pay special attention to the location of the sensor to ensure the following conditions are met:

- Within the lubricating oil system, the sensor should be positioned in the lubricating oil return line from the equipment upstream of any filter elements.
- Ensure there is clearance for installation and maintenance access, and there are no interferences between the sensor and existing components.
- Verify the O-rings are properly seated in the O-ring grooves.
- Verify the correct sensor size and any flanges or fittings that are specified for the selected application.
- The sensor must be rigidly secured using the 4 mounting holes provided to support the sensor. The recommended bolt tightening torque is 24N·m for metric M8 bolts and 17ft-lb for imperial 5/16" bolts. Bolts should be torqued in a diagonal sequence in small increments to the appropriate torque level.
- The sensor should not be suspended from the attached lubricating oil piping or hoses.
- Ensure that there are no large bending forces being applied to the sensor once installed such as those that may be caused by unsupported pipes or hoses.
- The sensor should be kept away from large electromagnetic fields such as generators, motors, variable frequency drives, high voltage cables, cooling fans, strobe lights, yaw motors, and other similar equipment.
- Perform a leak check for all installed fluid system components including sensor, hoses, flanges or fittings, and adaptors.
- Perform a physical mounting integrity check to ensure the sensor and all installed lubrication system components will remain secure without leaking, becoming damaged, or suffer degraded service life or performance.
- Sensor must be installed in a location that will remain dry.