

FLUID LIFE UCM TELEMATICS

Software Configuration Guide

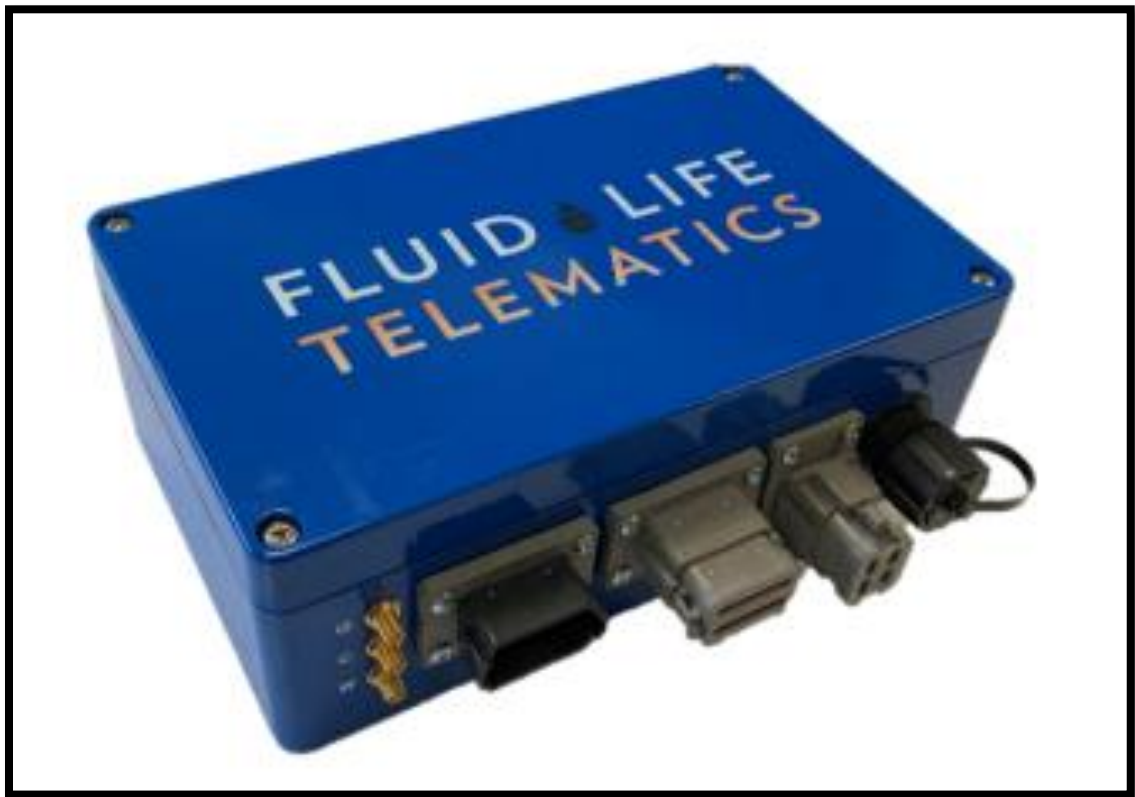


Table of Contents

Telematics Module Overview	4
Safety.....	4
Federal Communications Commission (FCC) Compliance.....	4
Telematics Module Communications Overview.....	5
Direct	5
Mobile Assets.....	5
Telematics Module Connection.....	6
Connecting to the Module.....	6
Telematics Module Web Page Access.....	7
Admin Feature.....	10
Telematics Module Configuration Overview	11
Box Modes	12
Telematics Module Configuration Procedure	13
Direct Mode.....	13
Internet Configuration.....	14
Sim Card Installation.....	17
Box Orientation.....	18
Web Interface Configuration	19
Collector Mode.....	20
Wi-Fi Client Configuration	20
Box Orientation.....	21
Web Interface Configuration	22
Relay Mode	23
Wi-Fi Access Point Configuration	23
Data Collection	24
Uploader Mode.....	26
Wi-Fi Client Configuration	26
Internet Configuration.....	27
Web Interface Configuration	29
Saving Configuration Settings	30
Sensor Configuration Overview.....	31
Sensor Configuration Procedure	31

General Configuration	31
CDL	32
Scan CDL.....	33
Scan CDL Using V2	33
J1939	34
Sensors.....	35
Modbus Sensors	36
Analog Sensors	38
CANBUS Sensors.....	41
Applying Sensors To Collectors	43
Live Stream	44
Modbus Configuration.....	46
CDL Diagnostics	47
Device Info.....	48
Streaming	48
CDL Packet.....	50
Antenna Mounting Guideline	51
UCM Sensors Introduction	52
Oil Cleanliness Sensor	52
Sensor Specifications.....	52
Technical Data	53
General Installation Guidelines	54
Fluid Property Sensor.....	54
Sensor Specifications.....	55
Technical Data	56
General Installation Guidelines	56
Metallic Wear Debris Monitor.....	57
Sensor Specifications.....	58
Technical Data	59
General Installation Guidelines	60

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.

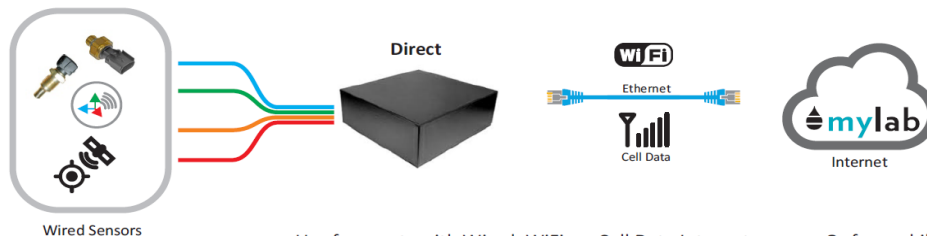
Federal Communications Commission (FCC) Compliance

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. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

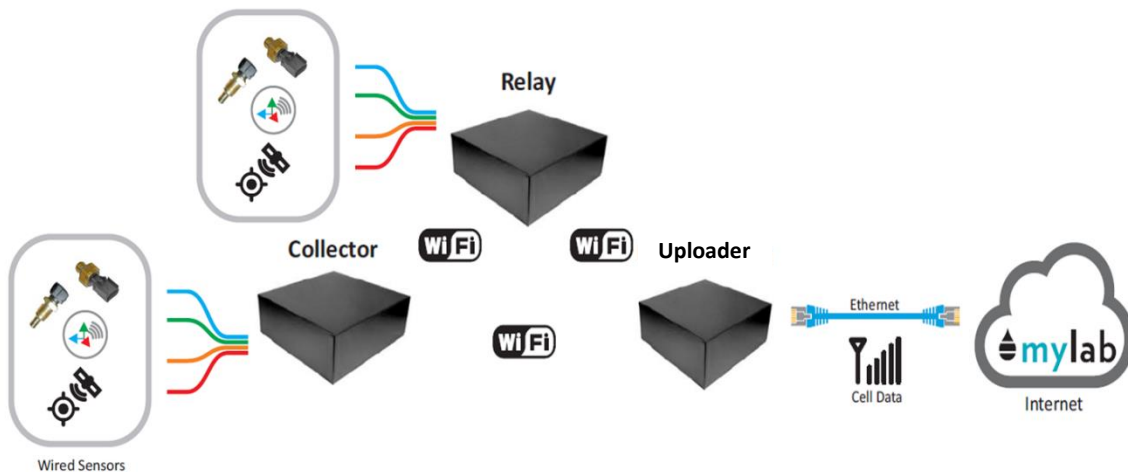
Telematics Module Communications Overview

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

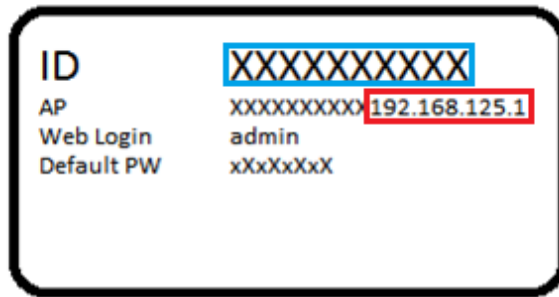


- Telematics modules used for mobile assets that do not come into range of a home base frequently. Relays are fitted to other mobile assets such as maintenance or fueling/lube truck that migrate between remote assets and a home base. Home base relay uploaders need Ethernet or Cell Data Internet access 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.

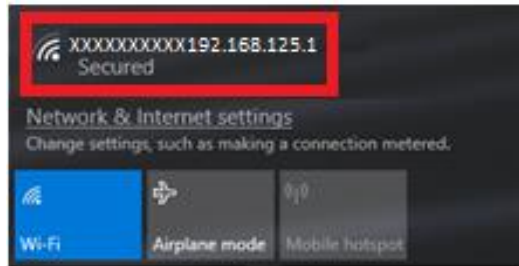
Telematics Module Connection

Connecting to the Module

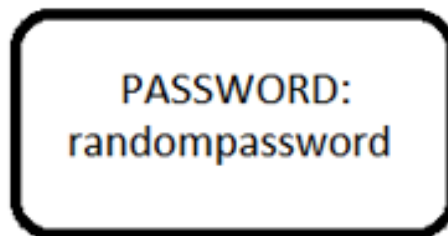
1. Identify the IP address (outlined in **red**) and SSID (outlined in **blue**) from the label on the Telematics module that you wish to connect.



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 “XXXXXXXXXX192.168.125.1”.



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



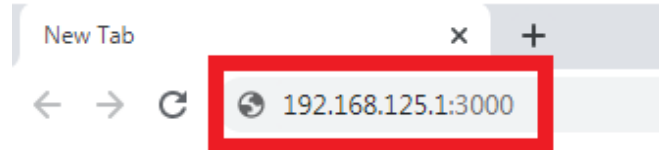
Note: Due to this being a wireless access to the device, the connection status may appear as follows and is acceptable.



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**").

A screenshot of the login page for the FLUID & LIFE system. The page has a light gray header with the logo "FLUID & LIFE" and the text "ENVIRONMENTAL INTELLIGENCE SERVICES" below it. The main content area is white and contains the word "Login" at the top. Below "Login" are two input fields: "Username" and "Password". At the bottom left of the form is a blue "Log In" button.

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.

Change Password

New Password

Confirm Password

Change Password

New Wifi Password

Confirm Wifi Password

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

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

Check For Update

Factory Reset

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:ca:6a:02
Enabled	true ▾

wlan0

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

Enable Editing

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	WWQZKL3FGM
Box Mode	Factory Setup (Select a mode on the box config screen)
OS Version	1.0
Software Version	1.30.1

[Check For Update](#)[Factory Reset](#)

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	0cae:7d:ca:fa:02
Enabled	true

wlan0

IPv4 Address	
IPv4 Subnet Mask	
MAC Address	0cae:7d:ca:fa:01
Enabled	true

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.

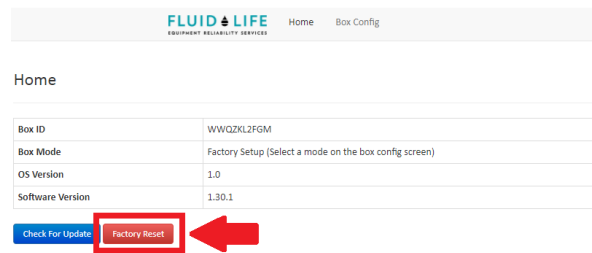
IPv4 Subnet Mask	255.255.252.0
MAC Address	0cae:7d:ca:fa:02
Enabled	true

wlan0

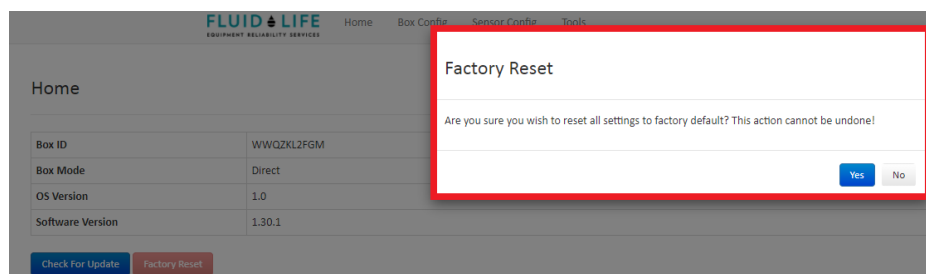
IPv4 Address	
IPv4 Subnet Mask	
MAC Address	0cae:7d:ca:fa:01
Enabled	true

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).

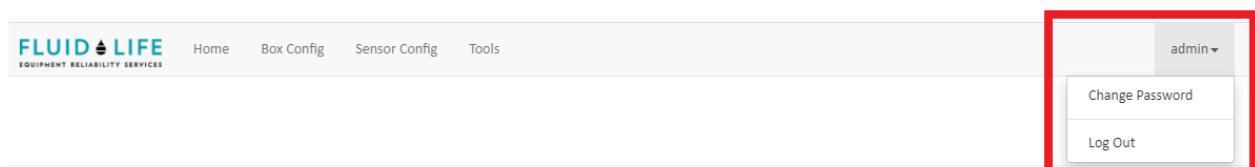


8. When clicking “Factory Reset”, the following message will be prompted on the screen to confirm system reset. Click “Yes” if you wish to proceed if required, otherwise click “No”.



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

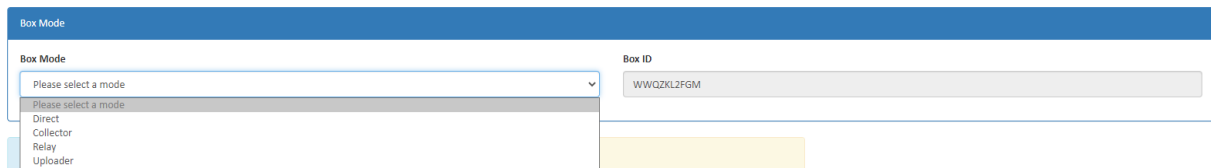
The image shows the 'Box Configuration' page. At the top, there's a blue header with 'Box Mode' highlighted in red. Below the header, there's a 'Box Mode' dropdown menu and a 'Box ID' field containing 'WWQZKL2FGM'. Below this, there are two main configuration sections: 'Internet Configuration' (highlighted in red) and 'Web Interface Configuration' (highlighted in red). The 'Internet Configuration' section has a 'Type' dropdown set to 'Ethernet' and radio buttons for 'Use DHCP' (selected) and 'Use Static IP'. The 'Web Interface Configuration' section has fields for 'Web Interface Access Point SSID Prefix' (WWQZKL2FGM), 'Web Interface Access Point Password' (masked with dots), 'Access Point IP Address' (192.168.125.1), and 'Access Point Net Mask' (255.255.255.0). A 'Save' button is at the bottom left.

Box Modes

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

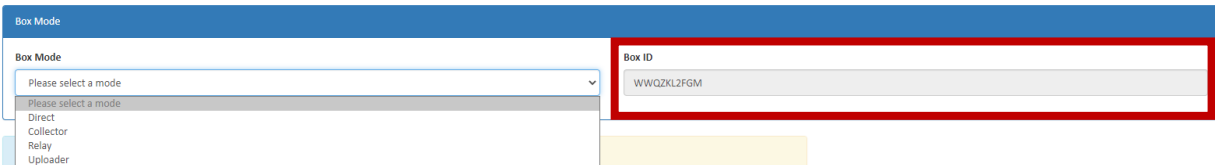
1. Select the appropriate box mode for the chosen Telematics module. The configuration steps for the module rely on the selected box mode. Refer to the appropriate box mode configuration in the four sections outlined below:

- Direct
- Collector
- Relay
- Uploader



The screenshot shows a web interface for configuring a box mode. At the top is a blue header bar labeled 'Box Mode'. Below it, on the left, is a dropdown menu labeled 'Box Mode' with the text 'Please select a mode'. The dropdown is open, showing four options: 'Direct', 'Collector', 'Relay', and 'Uploader'. To the right of the dropdown is a text input field labeled 'Box ID' containing the text 'WWQZKL2FGM'.

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



This screenshot is similar to the previous one, but the 'Box ID' field, which contains 'WWQZKL2FGM', is highlighted with a red rectangular border. The 'Box Mode' dropdown menu is also open, showing the same four options: 'Direct', 'Collector', 'Relay', and 'Uploader'.

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.

The image displays two screenshots of a configuration interface for 'Box Mode'. The top screenshot shows the 'Box Mode' dropdown menu set to 'Direct' and the 'File Length' dropdown menu set to '1 hr'. These two dropdowns are enclosed in a red rectangular box. To the right, the 'Box ID' field contains the text 'WWQZKL2FGM'. The bottom screenshot shows the 'Box Mode' dropdown menu set to 'Relay', while the 'Box ID' field remains 'WWQZKL2FGM'.

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*.

Box Configuration

Box Mode

Direct ▾

File Length

1 hr ▾

Box ID

WWQZKL2FGM

Internet Configuration

Type

Ethernet ▾

☒ Use DHCP
 ☐ Use Static IP

Preferred DNS

Box Orientation

Front of Vehicle



0

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

Save

Internet Configuration

- 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

WWQZKL2FGM

WiFi Password

👁

☒ Use DHCP
 ☐ Use Static IP

Preferred DNS

Box Orientation

Front of Vehicle



0

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

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 displays a configuration interface with three main sections: Internet Configuration, Box Orientation, and Web Interface Configuration.

Internet Configuration (highlighted with a red box):

- Type:** A dropdown menu set to "WiFi".
- WiFi SSID Prefix to Scan:** A text input field with a "Hidden Network" checkbox.
- WiFi Password:** A text input field with a visibility toggle (eye icon).
- Network Protocol:** Radio buttons for "Use DHCP" (selected), "Use Static IP", and "Preferred DNS".
- Preferred DNS:** A text input field.
- Save:** A blue button at the bottom left.

Box Orientation:

- Box Mode:** A dropdown menu set to "Direct".
- Box ID:** A text input field containing "WWQZKL2FGM".
- File Length:** A dropdown menu set to "1 hr".
- Box Orientation:** A diagram showing the front of the vehicle with a compass rose. The angle is set to 0 degrees.

Web Interface Configuration:

- Web Interface Access Point SSID Prefix:** A text input field containing "WWQZKL2FGM".
- Web Interface Access Point Password:** A text input field with a visibility toggle (eye icon).
- Access Point IP Address:** A text input field containing "192.168.125.1".
- Access Point Net Mask:** A text input field containing "255.255.255.0".

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

Direct

Box ID

WWQZKL2FGM

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

WWQZKL2FGM

Web Interface Access Point Password

Access Point IP Address

192.168.125.1

Access Point Net Mask

255.255.255.0

Save

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

Direct

Box ID

WWQZKL2FGM

File Length

1 hr

Internet Configuration

Type

Cell Data

Country

Canada

Canada

The United States

Cellular APN

Set APN Manually

Box Orientation

Front of Vehicle

0

180

0

Degrees

Web Interface Configuration

Web Interface Access Point SSID Prefix

WWQZKL2FGM

Web Interface Access Point Password

Access Point IP Address

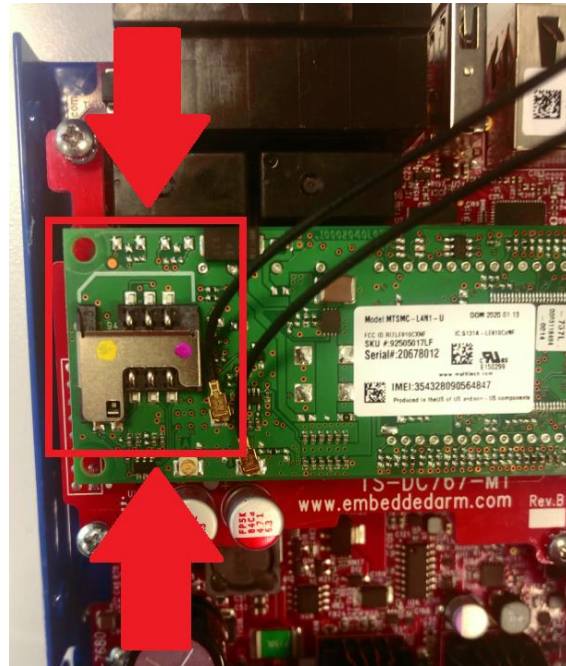
192.168.125.1

Access Point Net Mask

255.255.255.0

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

The screenshot displays three configuration panels. The central panel, titled 'Box Orientation', features a circular diagram with a vertical line and a horizontal line intersecting at the center. The top of the circle is labeled '0' and the bottom is labeled '180'. The Fluid Life logo is positioned on the left side of the circle. Below the diagram is a text input field containing the value '0' followed by the label 'Degrees'. This input field is highlighted with a red rectangular border. To the left is the 'Internet Configuration' panel, and to the right is the 'Web Interface Configuration' panel. A 'Save' button is located at the bottom left of the Internet Configuration panel.

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.

This screenshot is identical to the one above, but the value in the highlighted 'Degrees' input field has been changed to '90'. Consequently, the Fluid Life logo in the circular diagram is now oriented vertically, facing the top of the circle (0 degrees).

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 displays three configuration panels. The 'Internet Configuration' panel on the left has a 'Type' dropdown set to 'Ethernet', radio buttons for 'Use DHCP' (selected) and 'Use Static IP', and a 'Preferred DNS' text field. The 'Box Orientation' panel in the middle shows a circular diagram with '0' and '180' degree markers and a 'Degrees' input field. The 'Web Interface Configuration' panel on the right is highlighted with a red border and contains fields for 'Web Interface Access Point SSID Prefix' (populated with 'WWQZKL2FGM'), 'Web Interface Access Point Password' (masked with asterisks), 'Access Point IP Address' (192.168.111.1), and 'Access Point Net Mask' (255.255.255.0). A 'Save' button is located at the bottom left of the interface.

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

This close-up view shows the 'WiFi Password' field (masked), the 'Box Orientation' panel with the 'Degrees' field set to '0', and the 'Access Point IP Address' (192.168.125.1) and 'Access Point Net Mask' (255.255.255.0) fields. The 'Save' button at the bottom left is highlighted with a red box.

Collector Mode

The Collector box mode consists of three configuration parameters:

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

The screenshot displays the 'Box Mode' configuration page. At the top, the 'Box Mode' dropdown is set to 'Collector' and the 'Box ID' is 'WWQZKL2FGM'. Below this, the 'File Length' is set to '1 hr'. The page is divided into three main configuration sections, each with a red box highlighting its title: 'WiFi Client Configuration', 'Box Orientation', and 'Web Interface Configuration'. The 'WiFi Client Configuration' section includes fields for 'WiFi SSID Prefix to Scan' (WWQZKL2FGM), 'WiFi Password' (masked), and radio buttons for 'Use DHCP' (selected) and 'Use Static IP'. The 'Box Orientation' section features a circular diagram with '0' at the top and '180' at the bottom, a 'Front of Vehicle' label, and a '0' degree input field. The 'Web Interface Configuration' section includes fields for 'Web Interface Access Point SSID Prefix' (WWQZKL2FGM), 'Web Interface Access Point Password' (masked), 'Access Point IP Address' (192.168.111.1), and 'Access Point Net Mask' (255.255.255.0). A 'Save' button is located at the bottom left.

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.

This block provides a detailed view of the three configuration sections. The 'WiFi Client Configuration' section (highlighted with a red box) shows the 'WiFi SSID Prefix to Scan' field, the 'WiFi Password' field, and the 'Use DHCP' radio button selected. The 'Box Orientation' section shows the circular diagram with '0' and '180' markings, the 'Front of Vehicle' label, and the '0' degree input. The 'Web Interface Configuration' section shows the 'Web Interface Access Point SSID Prefix' field, the 'Web Interface Access Point Password' field, the 'Access Point IP Address' field, and the 'Access Point Net Mask' field.

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.

The screenshot displays three configuration panels. The 'Internet Configuration' panel on the left has 'Type' set to 'Ethernet', 'Use DHCP' selected, and 'Preferred DNS' empty. The central 'Box Orientation' panel, highlighted with a red border, shows a circular diagram with '0' at the top and '180' at the bottom. The 'Fluid Life' logo is positioned at the 0-degree mark. Below the diagram, the 'Degrees' input field contains the value '0'. The 'Web Interface Configuration' panel on the right shows fields for 'Web Interface Access Point SSID Prefix' (WWQZKL2FGM), 'Web Interface Access Point Password' (masked), 'Access Point IP Address' (192.168.111.1), and 'Access Point Net Mask' (255.255.255.0). A 'Save' button is located at the bottom left.

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

This screenshot shows the same configuration interface as above, but with the 'Box Orientation' panel set to 90 degrees. The circular diagram now has '90' at the right and '270' at the left. The 'Fluid Life' logo is rotated 90 degrees counter-clockwise and is now positioned at the 90-degree mark. The 'Degrees' input field now contains the value '90'. All other configuration settings remain identical to the previous screenshot.

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 image shows three panels from a configuration interface. The first panel, 'WiFi Client Configuration', has a yellow header and contains fields for 'WiFi SSID Prefix to Scan' (filled with 'WWQZKL2FGM') and 'WiFi Password' (masked with dots). It also has radio buttons for 'Use DHCP' (selected) and 'Use Static IP'. The second panel, 'Box Orientation', has a blue header and shows a circular diagram with '0' and '180' degree markers and a text input field for 'Degrees'. The third panel, 'Web Interface Configuration', has a yellow header and contains fields for 'Web Interface Access Point SSID Prefix' (filled with 'WWQZKL2FGM'), 'Web Interface Access Point Password' (masked with dots), 'Access Point IP Address' (filled with '192.168.111.1'), and 'Access Point Net Mask' (filled with '255.255.255.0'). This third panel is highlighted with a red border.

2. Click “Save” to save configuration parameters.

This image is identical to the one above, showing the same three configuration panels. At the bottom left, there is a small blue button with the text 'Save' inside, which is highlighted with a red rectangular border.

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 a web interface for configuring a device in Relay Mode. At the top, there's a 'Box Mode' dropdown menu set to 'Relay' and a 'Box ID' field containing 'WWQZKL2FGM'. Below this, the 'WiFi Access Point Configuration' section is highlighted with a red border. It contains four input fields: 'WiFi Access Point SSID Prefix' with the value 'WWQZKL2FGM', 'WiFi Password' with masked characters and a toggle icon, 'WiFi IP Address' with the value '192.168.231.1', and 'WiFi Net Mask' with the value '255.255.255.0'. To the right of this section is a checkbox labeled 'Collect Data For Relay'. A 'Save' button is located at the bottom left of the configuration area.

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)

Box Mode

Box Mode: Relay

Box ID: WWQZKL2FGM

WiFi Access Point Configuration

WiFi Access Point SSID Prefix: WWQZKL2FGM

WiFi Password: [masked]

WiFi IP Address: 192.168.231.1

WiFi Net Mask: 255.255.255.0

☐ Collect Data For Relay

Save

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**.

Box Mode

Box Mode: Relay

Box ID: WWQZKL2FGM

WiFi Access Point Configuration

WiFi Access Point SSID Prefix: WWQZKL2FGM

WiFi Password: [masked]

WiFi IP Address: 192.168.231.1

WiFi Net Mask: 255.255.255.0

☒ Collect Data For Relay

Save

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

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 90 180 270

90 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

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

Save

Uploader Mode

The uploader mode consists of three configuration parameters:

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

The screenshot displays the 'Box Mode' configuration page. At the top, a blue header bar contains the title 'Box Mode'. Below it, a 'Box Mode' dropdown menu is set to 'Uploader', and a 'Box ID' field contains 'WWQZKL2FGM'. The main content area is divided into three sections: 'WiFi Client Configuration' (yellow background), 'Internet Configuration' (blue background), and 'Web Interface Configuration' (yellow background). Each section is highlighted with a red box. The 'WiFi Client Configuration' section includes fields for 'WiFi SSID Prefix to Scan' (WWQZKL2FGM), 'WiFi Password' (masked), and radio buttons for 'Use DHCP' (selected) and 'Use Static IP'. The 'Internet Configuration' section includes a 'Type' dropdown (Ethernet), radio buttons for 'Use DHCP' (selected) and 'Use Static IP', and a 'Preferred DNS' field. The 'Web Interface Configuration' section includes fields for 'Web Interface Access Point SSID Prefix' (WWQZKL2FGM), 'Web Interface Access Point Password' (masked), 'Access Point IP Address' (192.168.125.1), and 'Access Point Net Mask' (255.255.255.0). A 'Save' button is located at the bottom left.

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.

This screenshot is identical to the one above, showing the 'Box Mode' configuration page. The 'WiFi Client Configuration' section is highlighted with a red box, emphasizing the 'WiFi SSID Prefix to Scan' field (WWQZKL2FGM), the 'WiFi Password' field (masked), and the 'Use DHCP' radio button.

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 module web interface. The 'Type' dropdown menu is highlighted with a red box, showing three options: 'Ethernet', 'Ethernet', and 'Cell Data'. The 'Preferred DNS' field is empty. The 'Web Interface Configuration' section on the right shows the 'Web Interface Access Point SSID Prefix' as 'WWQZKL2FGM', the 'Web Interface Access Point Password' as '*****', the 'Access Point IP Address' as '192.168.125.1', and the 'Access Point Net Mask' as '255.255.255.0'. A 'Save' button is visible at the bottom left.

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 module web interface. The 'Type' dropdown menu is set to 'Ethernet'. The 'Use DHCP' radio button is selected, and the 'Use Static IP' radio button is unselected. The 'Preferred DNS' field is empty. The 'Web Interface Configuration' section on the right shows the 'Web Interface Access Point SSID Prefix' as 'WWQZKL2FGM', the 'Web Interface Access Point Password' as '*****', the 'Access Point IP Address' as '192.168.125.1', and the 'Access Point Net Mask' as '255.255.255.0'.

Box Mode

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 'Web Interface Configuration' section of a device's settings. At the top, there's a 'Box Mode' header with a dropdown menu set to 'Uploader' and a 'Box ID' field containing 'WWQZKL2FGM'. Below this are three configuration panels. The 'Web Interface Configuration' panel on the right is highlighted with a red border. It includes the following fields: 'Web Interface Access Point SSID Prefix' (filled with 'WWQZKL2FGM'), 'Web Interface Access Point Password' (filled with '*****'), 'Access Point IP Address' (filled with '192.168.125.1'), and 'Access Point Net Mask' (filled with '255.255.255.0'). The other panels show 'WiFi Client Configuration' and 'Internet Configuration' options.

2. Click “Save” to save the configuration parameters

The image shows three panels of configuration settings. The first panel (left) contains a text field with 'WWQZKL2FGM', a 'Wifi Password' field with masked characters, and radio buttons for 'Use DHCP' (selected) and 'Use Static IP'. The second panel (middle) contains a dropdown menu for 'Ethernet', radio buttons for 'Use DHCP' (selected) and 'Use Static IP', and a 'Preferred DNS' text field. The third panel (right) contains a text field with 'WWQZKL2FGM', a 'Web Interface Access Point Password' field with masked characters, an 'Access Point IP Address' field with '192.168.125.1', and an 'Access Point Net Mask' field with '255.255.255.0'. Below these panels is a blue 'Save' button highlighted with a red square.

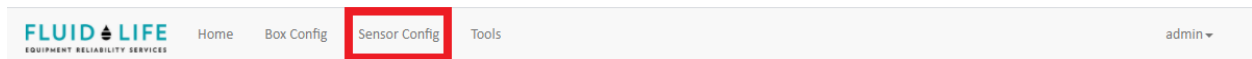
Saving Configuration Settings

1. 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”.

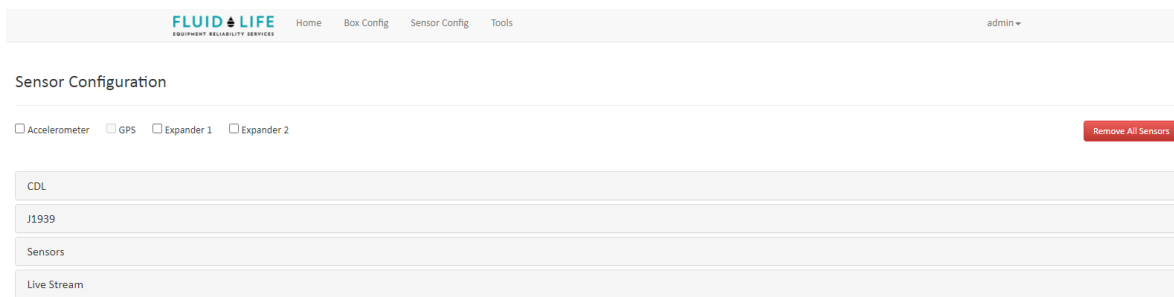
The screenshot shows the 'Box Configuration' page in the Fluid Life web interface. At the top, there is a navigation bar with the Fluid Life logo, 'Home', 'Box Config', and a user profile 'admin'. A red box highlights a success message: '192.168.3.147:3000 says Settings saved successfully.' with an 'OK' button. Below the message, the 'Box Configuration' section is visible, showing 'Box Mode' set to 'Direct', 'Box ID' as 'WWQZKL2FGM', and 'File Length' as '1 hr'. The page is divided into three main configuration panels: 'Internet Configuration' (Type: Ethernet, Use DHCP selected), 'Box Orientation' (Front of Vehicle, 0 Degrees), and 'Web Interface Configuration' (Web Interface Access Point SSID Prefix: WWQZKL2FGM, Web Interface Access Point Password: masked, Access Point IP Address: 192.168.125.1, Access Point Net Mask: 255.255.255.0). A 'Save' button is located at the bottom left.

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.

Sensor Configuration

☐ Accelerometer
 ☐ GPS
 ☐ Expander 1
 ☐ Expander 2
 Remove All Sensors

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.

Sensor Configuration

☐ Accelerometer
 ☐ GPS
 ☐ Expander 1
 ☐ Expander 2
 Remove All Sensors

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.

CDL

☐ Scan CDL
 ☐ Scan CDL Using V2

CDL Not Enabled

J1939

Sensors

Live Stream

Scan CDL

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

CDL

☒ Scan CDL ☐ Scan CDL Using V2

Scanning CDL... Please Wait...

Getting Devices...

Restarting Data Collector ...
Waiting For Data Collector... 1/30
Getting Devices...
Waiting For Data Collector... 2/30

J1939

Sensors

Live Stream

Scan CDL Using V2

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

CDL

☒ Scan CDL ☒ Scan CDL Using V2

Scanning CDL... Please Wait...

Getting Devices...

Restarting Data Collector ...
Waiting For Data Collector... 1/30
Getting Devices...
Waiting For Data Collector... 2/30

J1939

Sensors

Live Stream

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

CDL
☐ Scan CDL ☐ Scan CDL Using V2
CDL Not Enabled
J1939
Sensors
Live Stream

J1939

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

CDL
J1939
☐ Scan J1939 Passively
J1939 Not Enabled
Sensors
Live Stream

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

CDL
J1939
☒ Scan J1939 Passively
Scanning J1939... Please Wait... Getting J1939 Passive Sensors ... Getting J1939 Sensors... This will take 1 minute
Collecting CDL and J1939 data... Scanning for J1939 devices.....
Sensors
Live Stream

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												
<table><tr><th>ID</th><th>Sensor</th><th>Input</th><th>Component</th><th>Sub Component</th><th>Action</th></tr><tr><td colspan="6"></td></tr></table>	ID	Sensor	Input	Component	Sub Component	Action						
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

HomeBox ConfigSensor ConfigTools

admin

Sensor Configuration

☐ Accelerometer☐ GPS☐ Expander 1☐ Expander 2

CDL

J1939

Sensors

Additional Sensors

+ Add Sensor

ID	Sensor	Input	Component	Sub Component	Action

Apply Sensors To Collector

Live Stream

Add Sensor

Sensor ID

1

Sensor

MetalSCAN M33505 Wear Debris Monitor

Trident DMA Wear Debris Monitor

ELF Wind Turbine Unit

TE Fluid Property Sensor

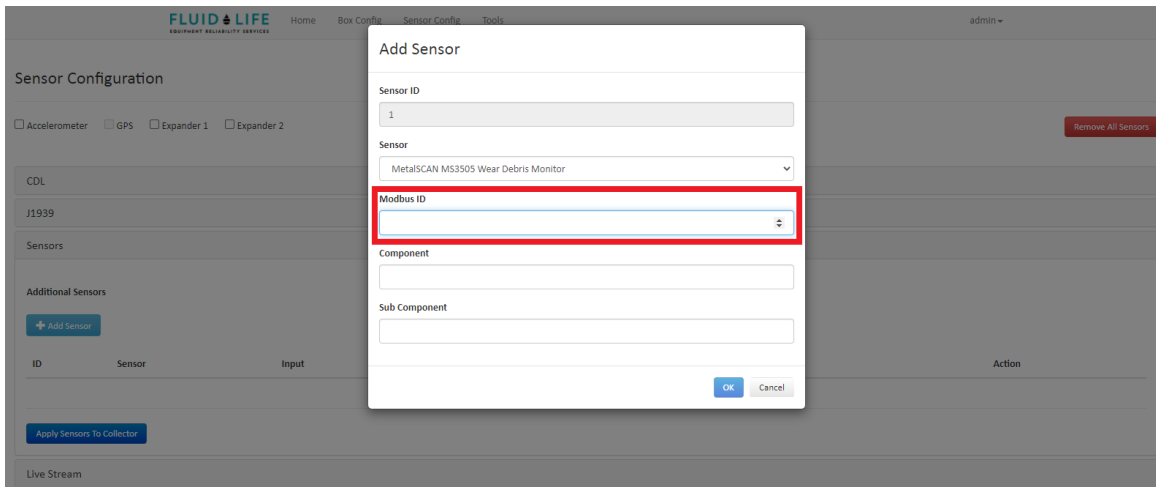
MP Inline Contamination Monitor

Remove All Sensors

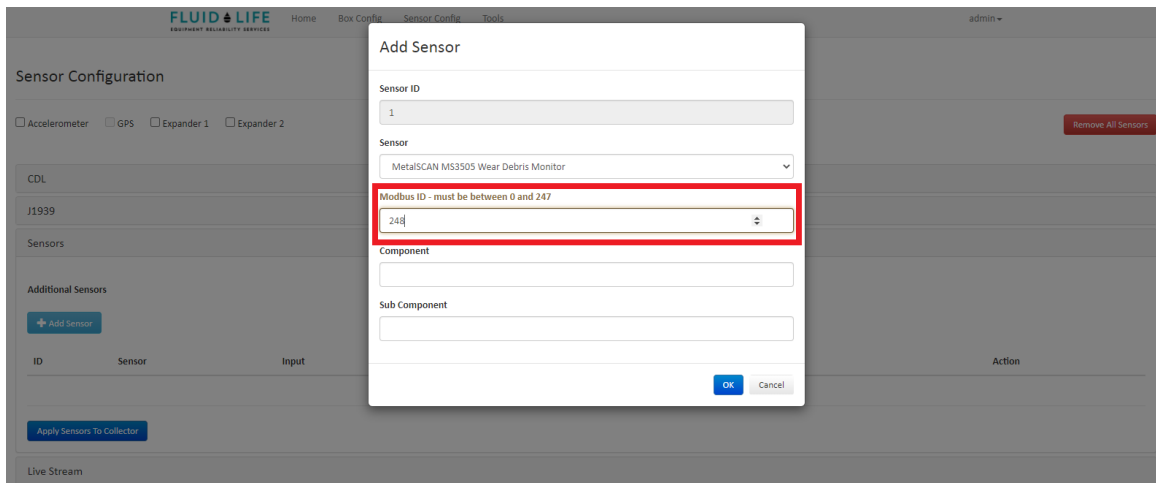
Modbus Sensors

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 in the FLUID & LIFE interface. The 'Sensor ID' field is set to '1'. The 'Sensor' dropdown is set to 'MetalSCAN MS3505 Wear Debris Monitor'. The 'Modbus ID' field is highlighted with a red box, indicating it is required for configuration. The 'Component' and 'Sub Component' fields are empty. The 'OK' and 'Cancel' buttons are at the bottom right of the dialog box.



The screenshot shows the 'Add Sensor' dialog box in the FLUID & LIFE interface. The 'Sensor ID' field is set to '1'. The 'Sensor' dropdown is set to 'MetalSCAN MS3505 Wear Debris Monitor'. The 'Modbus ID' field is highlighted with a red box, and an error message 'Modbus ID - must be between 0 and 247' is displayed above the field. The 'Component' and 'Sub Component' fields are empty. The 'OK' and 'Cancel' buttons are at the bottom right of the dialog box.

- 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 'Add Sensor' dialog box in the FLUID & LIFE interface. The dialog box contains the following fields: Sensor ID (1), Sensor (MetalSCAN MS3505 Wear Debris Monitor), Modbus ID, Component (highlighted with a red border), and Sub Component. The background shows the 'Sensor Configuration' page with various sensor options and a table for sensor configuration.

- 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 'Add Sensor' dialog box in the FLUID & LIFE interface. The dialog box contains the following fields: Sensor ID (1), Sensor (MetalSCAN MS3505 Wear Debris Monitor), Modbus ID, Component, and Sub Component (highlighted with a red border). The background shows the 'Sensor Configuration' page with various sensor options and a table for sensor configuration.

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

The screenshot shows the 'Add Sensor' dialog box in the FLUID+LIFE Sensor Configuration interface. The dialog box has the following fields:

- Sensor ID: 1
- Sensor: MetalSCAN MS3505 Wear Debris Monitor
- Modbus ID: 0
- Component: (empty)
- Sub Component: (empty)

The OK button is highlighted with a red box. The background shows the 'Sensor Configuration' page with various tabs and a table of sensors.

Analog Sensors

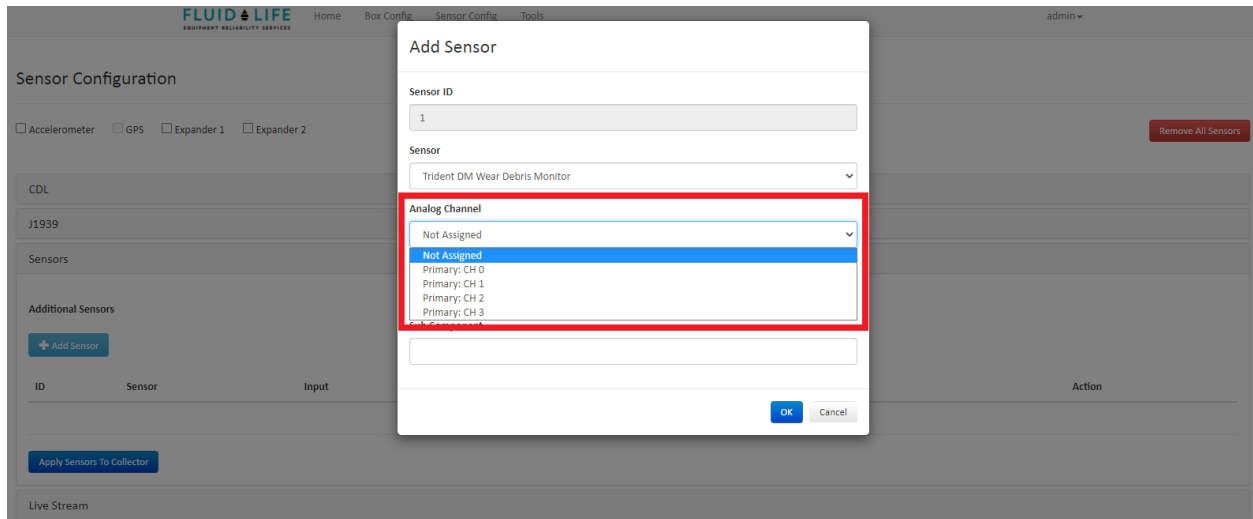
1. For Analog sensors chosen (ie. Trident DM Wear Debris Monitor), the following screen will appear:

The screenshot shows the 'Add Sensor' dialog box in the FLUID+LIFE Sensor Configuration interface. The dialog box has the following fields:

- Sensor ID: 1
- Sensor: Trident DM Wear Debris Monitor
- Analog Channel: Not Assigned
- Component: (empty)
- Sub Component: (empty)

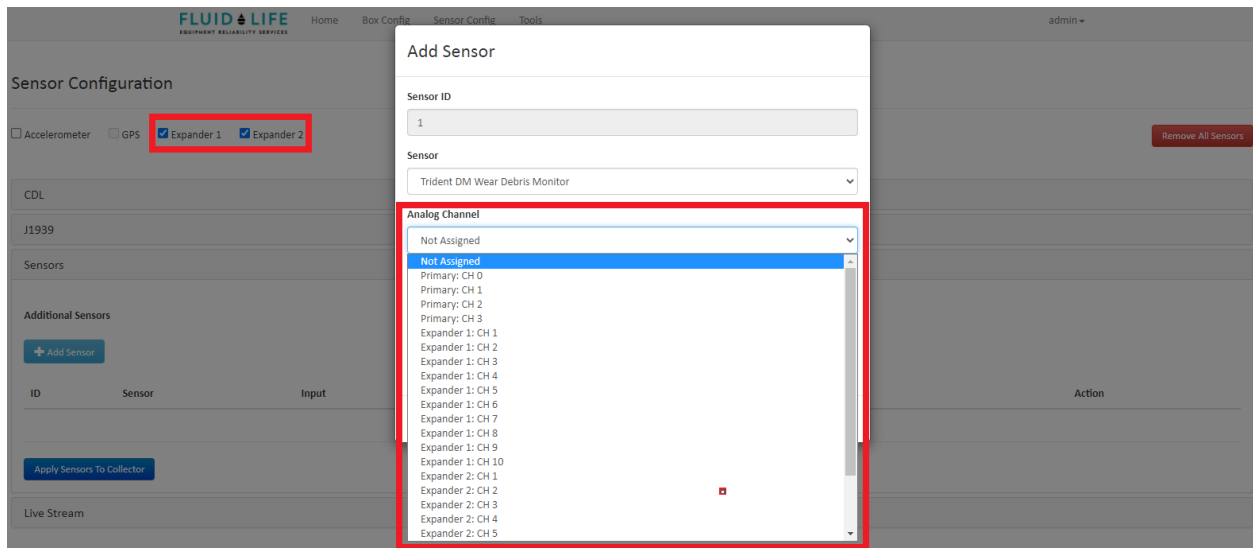
The Sensor field is highlighted with a red box. The background shows the 'Sensor Configuration' page with various tabs and a table of sensors.

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



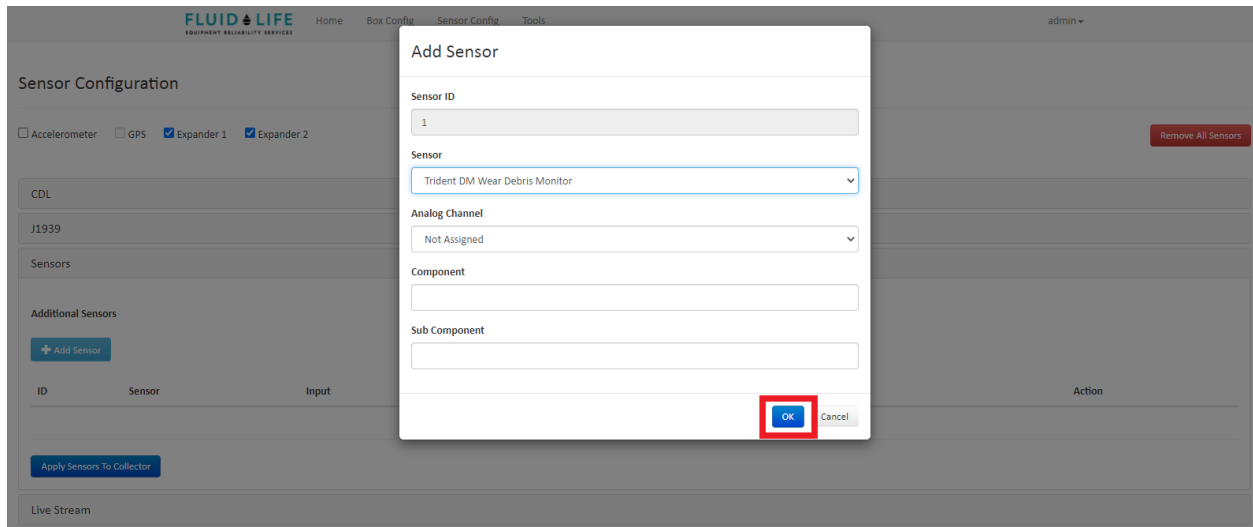
3. The “Component” field is the name assigned to the unit on which the Telematics module is being installed on. This is an **optional** field and can be inputted if required.

The screenshot shows the 'Add Sensor' dialog box in the FLUID & LIFE Sensor Configuration interface. The dialog box contains the following fields: Sensor ID (text input with value '1'), Sensor (dropdown menu with 'Trident DM Wear Debris Monitor' selected), Analog Channel (dropdown menu with 'Not Assigned' selected), Component (text input field, highlighted with a red border), and Sub Component (text input field). At the bottom right of the dialog are 'OK' and 'Cancel' buttons. The background shows the 'Sensor Configuration' page with various sensor options and a table of sensors.

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

This screenshot is identical to the one above, showing the 'Add Sensor' dialog box. In this instance, the 'Sub Component' text input field is highlighted with a red border, while the 'Component' field is not. All other elements, including the 'OK' and 'Cancel' buttons and the background interface, remain the same.

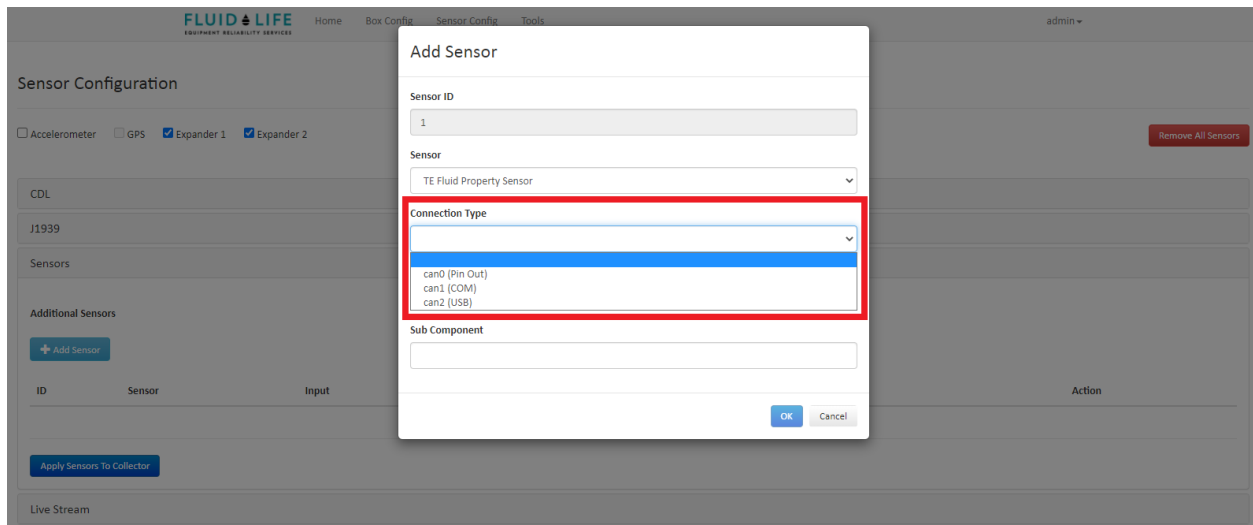
5. Click “OK” after the configuration parameters have been applied



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



- 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 'Add Sensor' dialog box in the FLUID & LIFE Equipment Reliability Services interface. The dialog box contains the following fields: Sensor ID (text input with value '1'), Sensor (dropdown menu with 'TE Fluid Property Sensor' selected), Connection Type (dropdown menu), Component (text input field highlighted with a red border), and Sub Component (text input field). At the bottom right of the dialog are 'OK' and 'Cancel' buttons. The background shows the 'Sensor Configuration' page with various sensor options and a table of sensors.

- 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

This screenshot is identical to the one above, showing the 'Add Sensor' dialog box. In this instance, the 'Sub Component' text input field is highlighted with a red border, while the 'Component' field is not. All other elements, including the background interface and the 'OK'/'Cancel' buttons, remain the same.

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

The screenshot shows the 'Add Sensor' dialog box in the FLUID & LIFE web interface. The dialog box is open over the 'Sensor Configuration' page. It contains the following fields:

- Sensor ID: 1
- Sensor: TE Fluid Property Sensor
- Connection Type: can0 (Pin Out)
- Component: (empty)
- Sub Component: (empty)

The 'OK' button is highlighted with a red box. The background page shows the 'Sensor Configuration' section with checkboxes for Accelerometer, GPS, Expander 1, and Expander 2. There is also a 'Remove All Sensors' button in the top right corner.

Applying Sensors To Collectors

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

CDL

11939

Sensors

Additional Sensors

✚ Add Sensor

ID	Sensor	Input		Component	Sub Component	Action
0	MetalSCAN M33505 Wear Debris Monitor	Modbus ID	1	EXAMPLE	EXAMPLE	Edit Delete
1	Trident DM Wear Debris Monitor	Analog Channel	Primary: CH 0	EXAMPLE	EXAMPLE	Edit Delete Calibrate
2	TE Fluid Property Sensor	CAN Bus ID	0	EXAMPLE	EXAMPLE	Edit Delete
3	MP Inline Contamination Monitor	Modbus ID	2	EXAMPLE	EXAMPLE	Edit Delete

Apply Sensors To Collector

Live Stream

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

Sensors

Additional Sensors

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

Sensors

Additional Sensors

+ Add Sensor

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

Apply Sensors To Collector

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

CDL

J1939

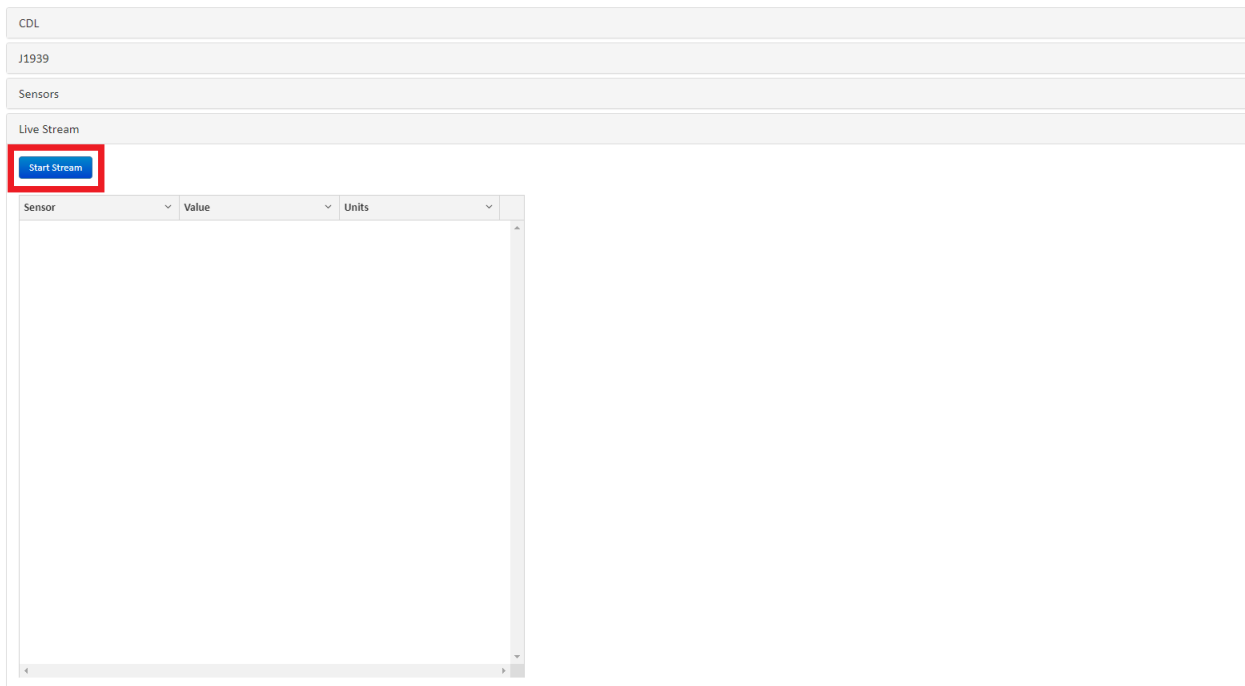
Sensors

Live Stream

Start Stream

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

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



- During live stream, the following screen will be displayed

Live Stream			
Stop Stream			
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	-	
Oil Temp	26.71075	°C	

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.



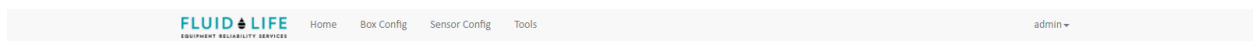
Modbus Configuration

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

Submit

Modbus Configuration

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

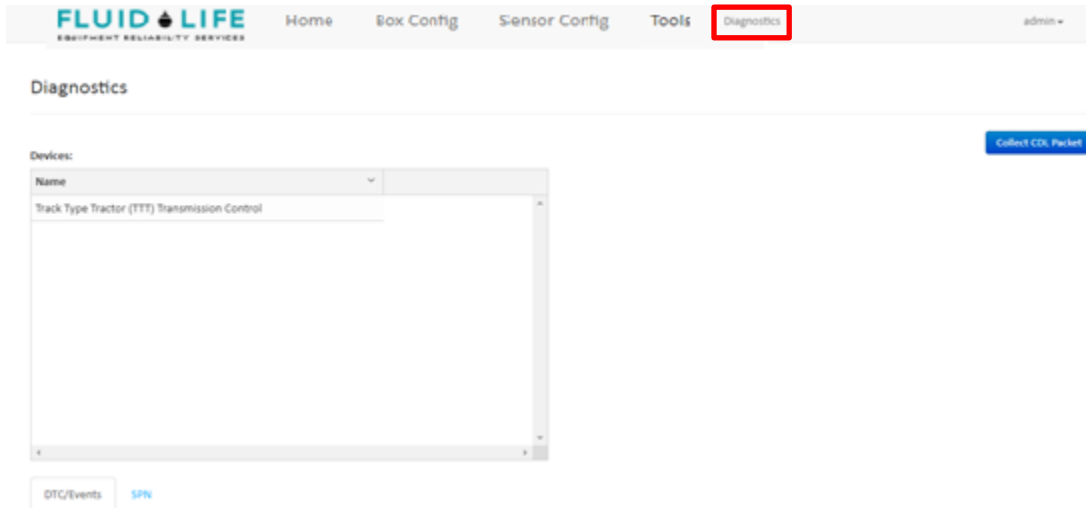
Sensor Desired ModBus ID

Submit

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.



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

Diagnostics

Collect CDL Packet

Devices:

Name

Track Type Tractor (TTT) Transmission Control

Device Info:

Name	Value
ECM Serial Number	27576880JT
Software Group Part Number	4432857-00
Equipment ID	0000000RUG0001350
Configuration Group 1	3 Xmsn Serial Number
Product ID	
Software Group Release Date	FEB2014

DTC/Events

SPN

DTC:

DTC	Count	First SMU	Last SMU	Status	CID	FMI
247-9	56	44870	44870	Logged	SAE J1939 Data Link	Abnor
826-3	44	44870	44870	Active	Torque Converter Oil Temperature Sensor	Voltag
177-3	127	44870	44870	Active	Transmission Oil Temperature Sensor	Voltag
650-2	1	44870	44870	Active	Harness Code	Erratic
596-9	1	44870	44870	Active	Implement Control	Abnor
588-9	1	44870	44870	Active	Monitor System Display	Abnor
590-9	2	44870	44870	Active	Engine Control Module	Abnor

Device Info

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

DTC/Events **SPN**

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

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

Collect CDL Packet

Devices:

Name

Track Type Tractor (TTT) Transmission Control

Device Info:

Name	Value
ECM Serial Number	27576880JT
Software Group Part Number	4432857-00
Equipment ID	0000000RJG0001350
Configuration Group 1	3 Xmsn Serial Number
Product ID	
Software Group Release Date	FEB2014

DTC/Events **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

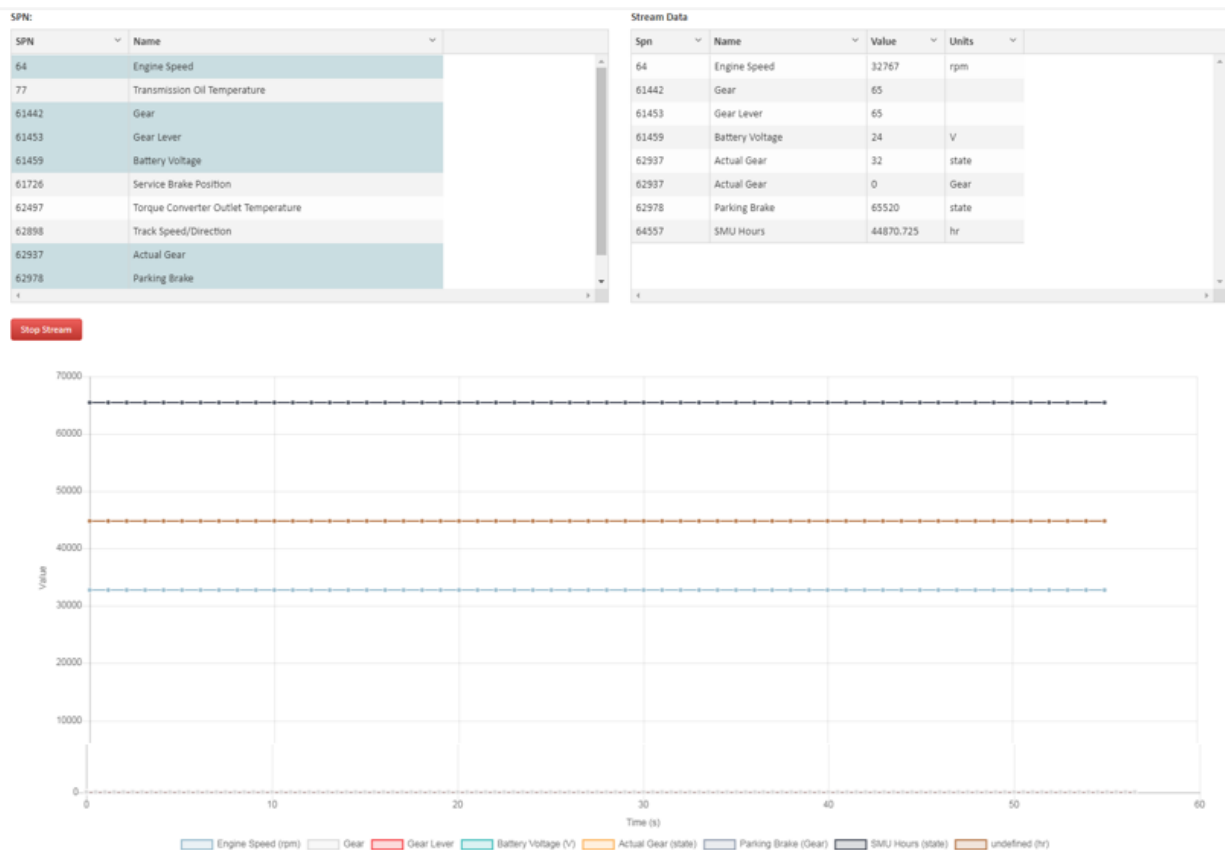
2. You can live stream any number of SPNs by selecting the ones you wish to stream and then clicking “Get Stream”

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](#)

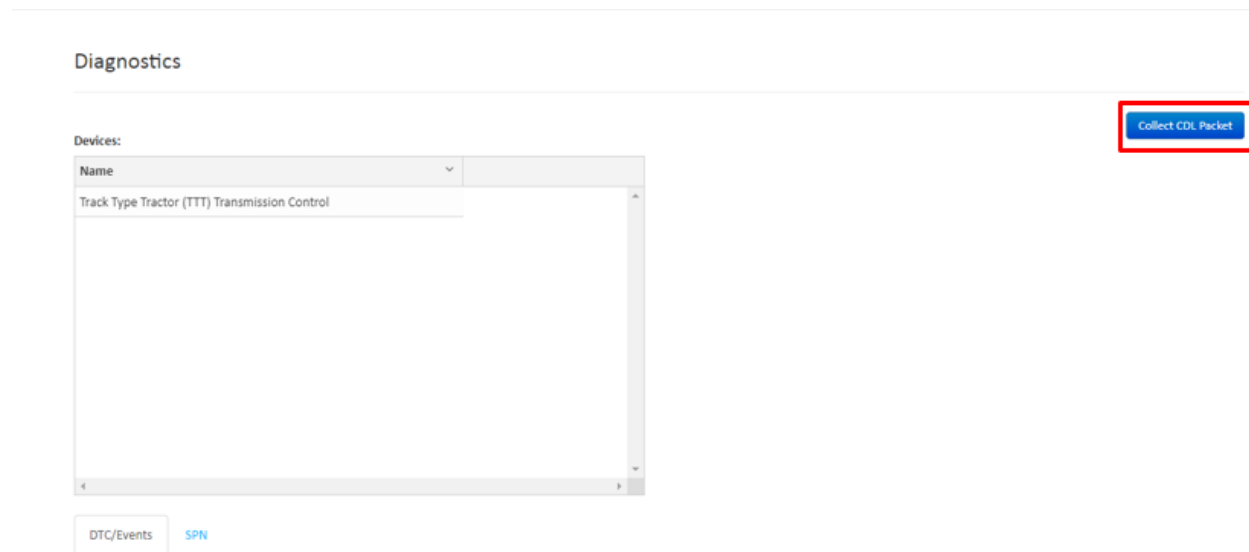
3. Once streaming has started, a table and a graph will appear. The graph will show the sensors value over time and the table will show its most recent reading for each streaming sensor



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)



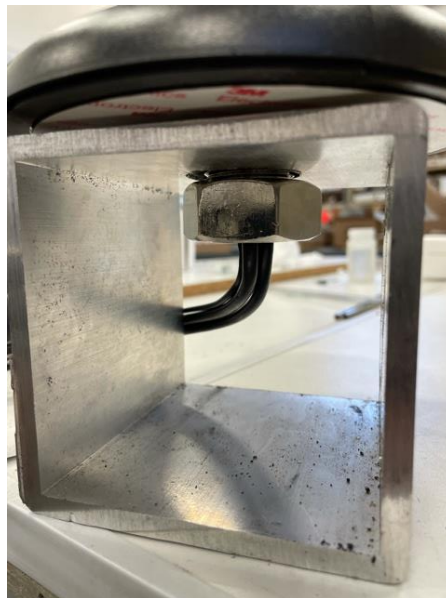
5. Once the CDL packet starts collecting, all other querying of this page will be disabled.
6. In order to stop collecting of CDL, the user will have to click the “Stop Collection” button. If this is not done within 30min, the packet will be zipped up on the box for access in a future time.
7. After 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.

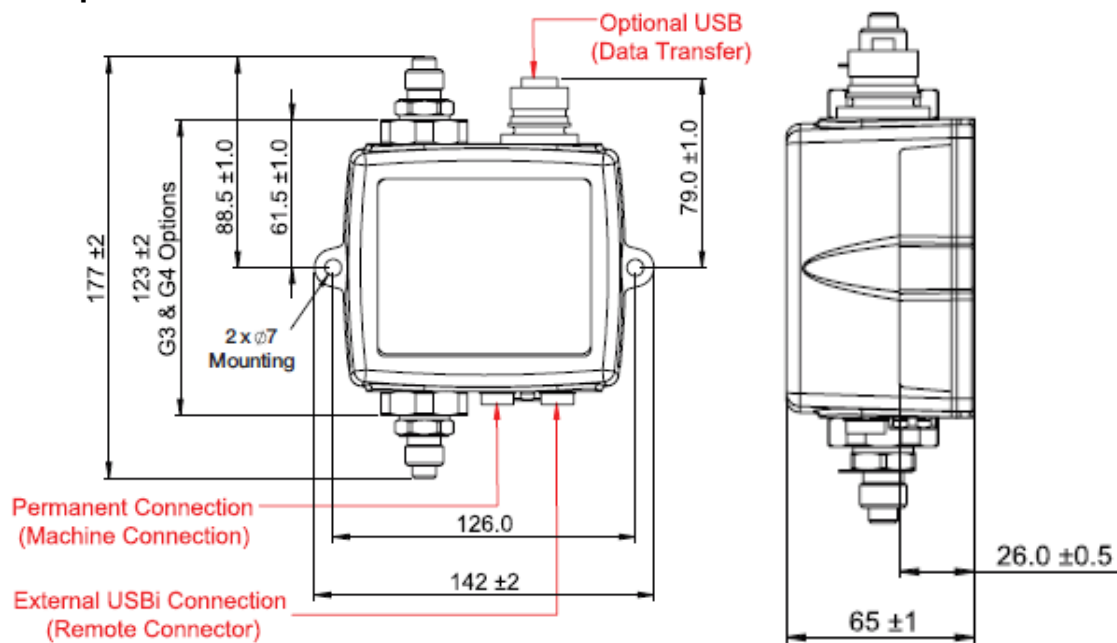
UCM Sensors Introduction

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



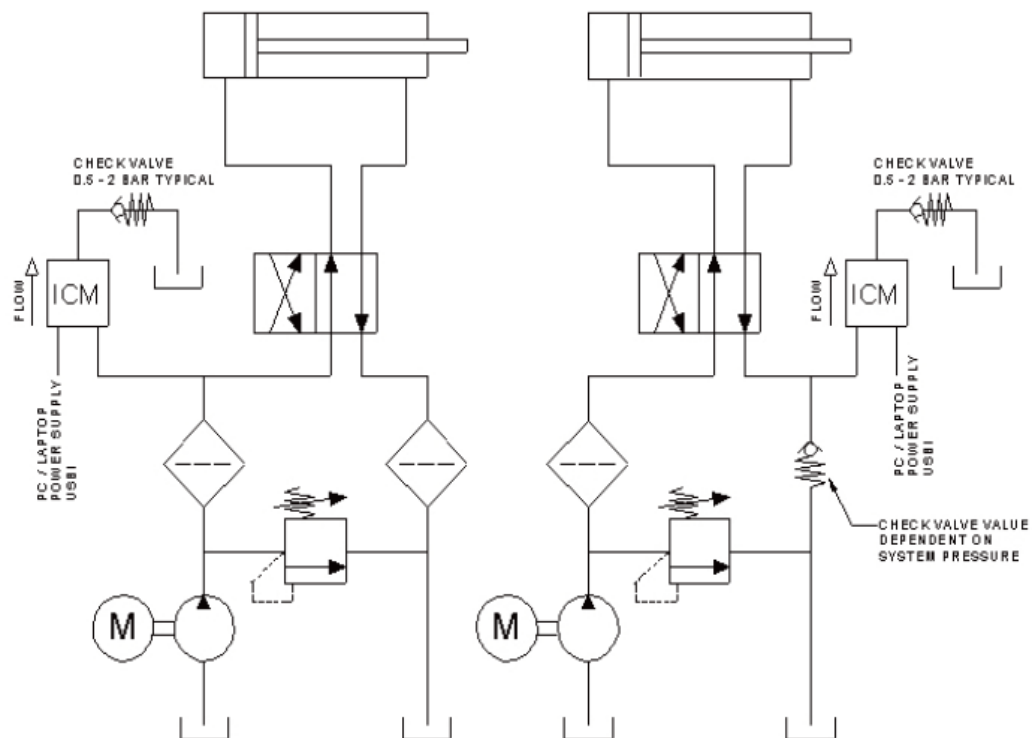
Sensor Specifications



Technical Data

Technology	LED Based Light Extinction Automatic Optical Contamination Monitor
Particle Sizing	>4,6,14,21,25,38,50,70 µm(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	± ½ code for 4,6,14µm(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) ±3%
Temp Measurement	±3°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 Cl. A Performance: MIL-PRF-85285

General Installation Guidelines

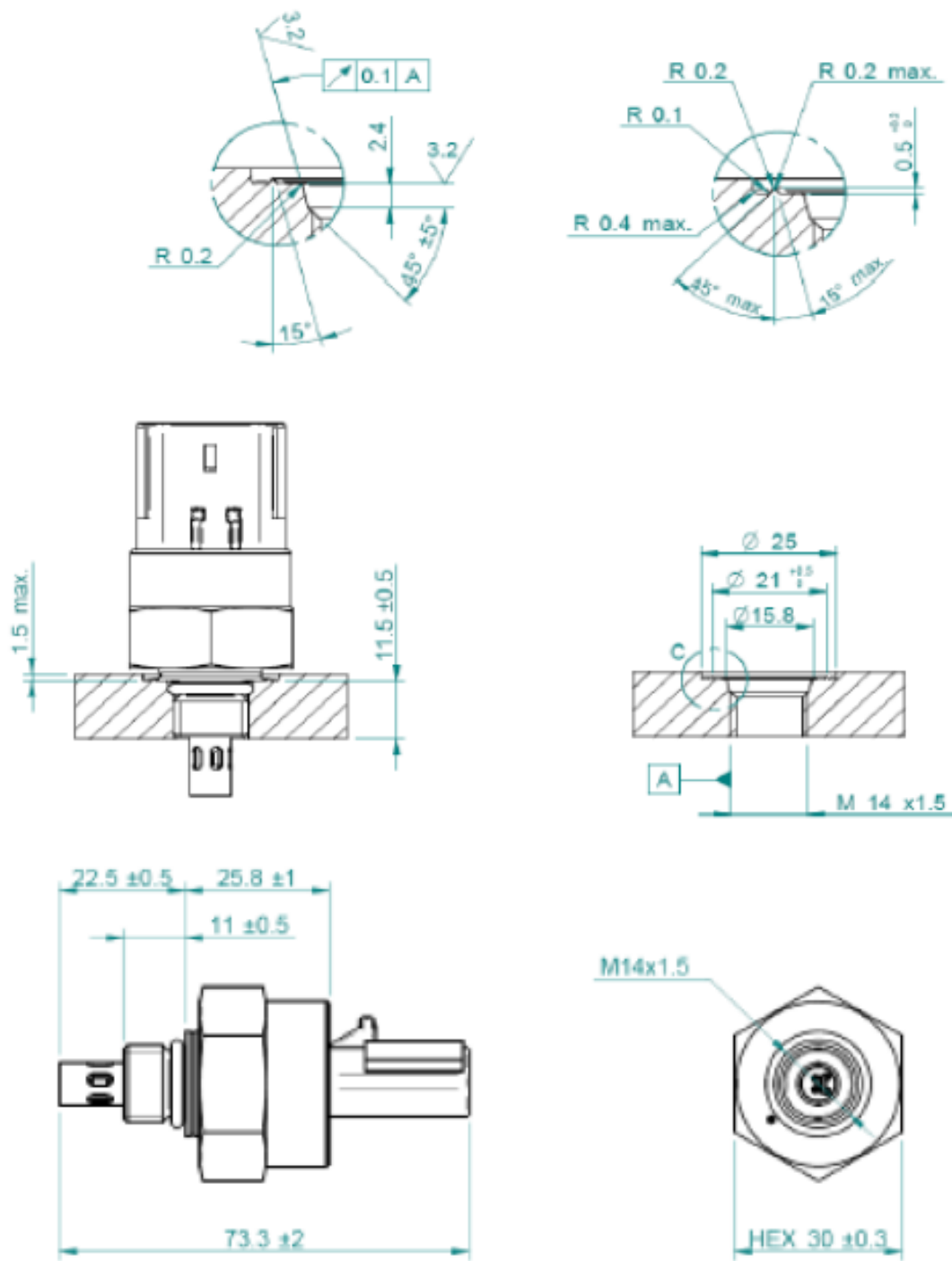


Note: This is a generalized OEM specific install recommendation and is subject to change based on factors such as process application and physical install locations.

Fluid Property Sensor



Sensor Specifications

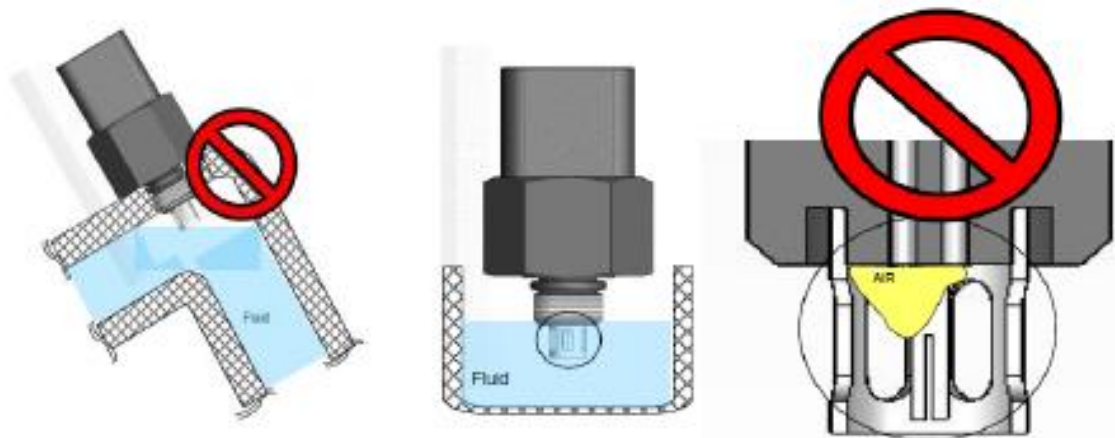


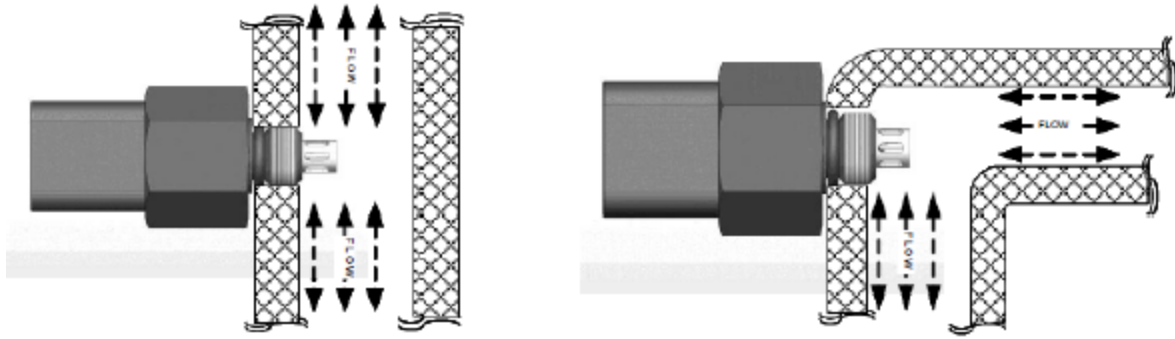
Dimensions outlined in millimeters

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



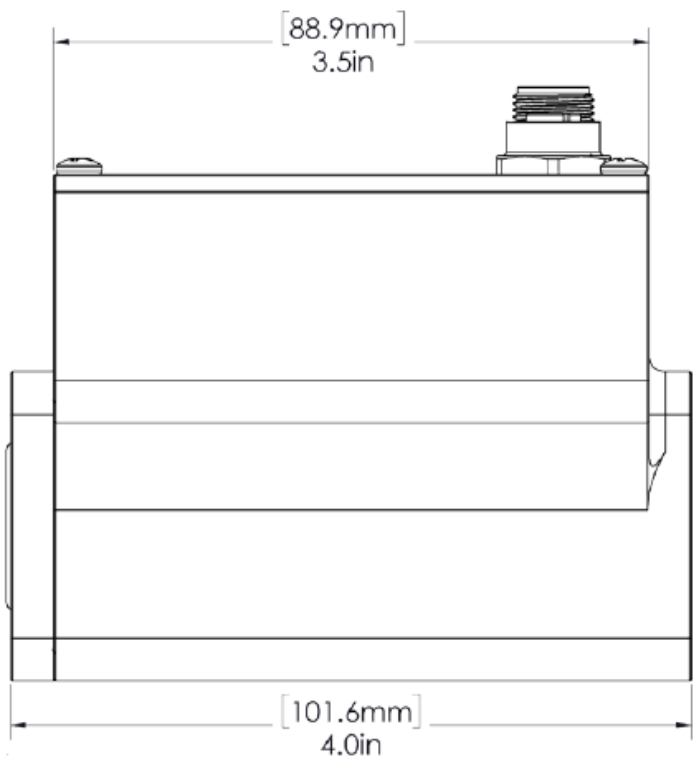
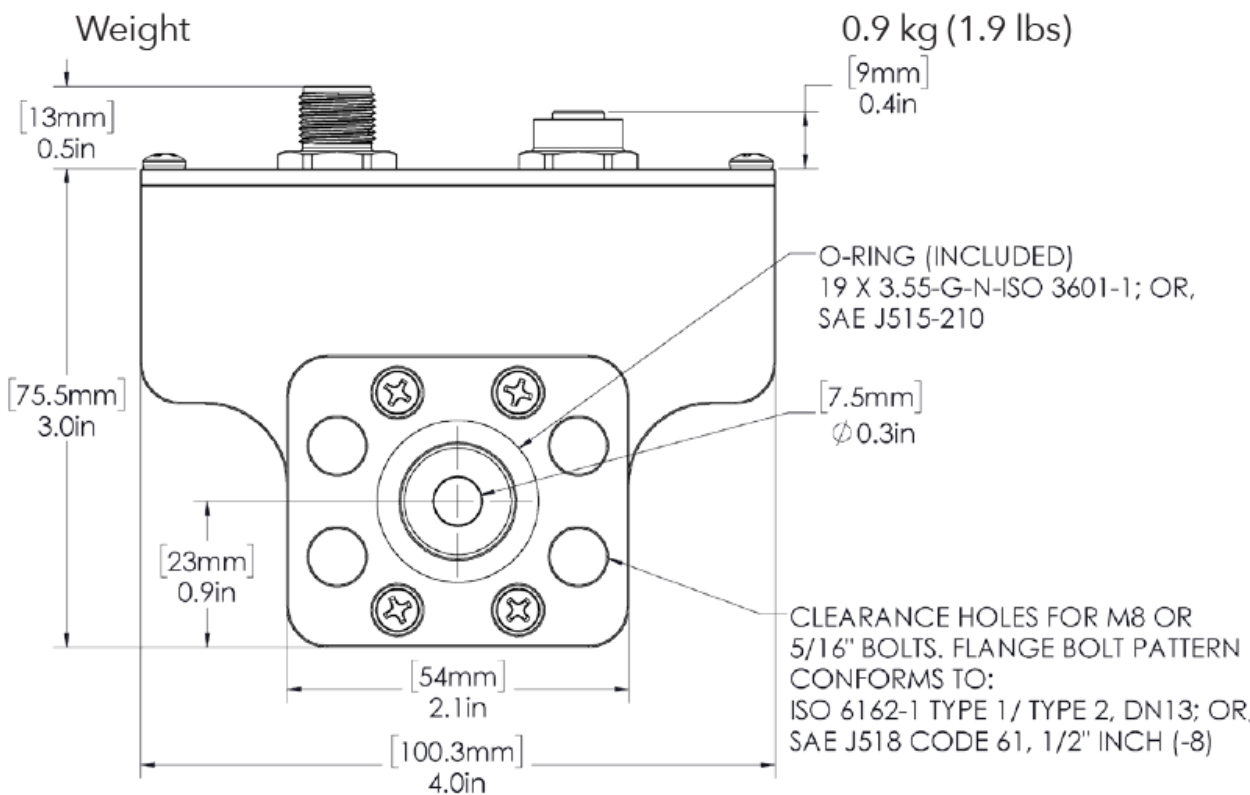


Note: The installation orientation determines optimal sensor performance. It is recommended to install the Fluid Property sensor inline within a steady flow stream (oil) and no introduction of air pockets/bubbles

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 or 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.