



Deploying Generation 3 Wildfire Sensors

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Scope

The scope of this document is to provide comprehensive guidelines for deploying Silvanet Generation 3 Wildfire sensors.

Overview

This document describes the positioning, registration, mounting, charging, calibration, and stabilization of the Silvanet Generation 3 Wildfire sensors, as well as its compliance information.

Positioning and Registering

Using the **Silvanet Deployment App**, find the planned installation spot for the sensor within the site, marked with the '**Planned**' icon. Then walk to the designated location, you can see both your current location and the pre-planned location on the Silvanet Deployment App.

The easiest and most reliable way to register the Wildfire sensor with the Silvanet Cloud is via NFC. With NFC enabled on your phone, tap it near the gas sensor's opening on the enclosure. The Silvanet Deployment App must be open or running in the background for this to work.

Alternatively, you can scan the QR code on the back of the sensor through the Silvanet Deployment App to register it with the Silvanet Cloud.

Once registered, the sensor's location is updated in the Silvanet Cloud, and the icon changes to '**Deployed**'.

Then confirm that you have followed the mounting instructions as they appear on the Silvanet Deployment App by tapping the '**Confirm**' button.

The Silvanet Deployment App will confirm that the installation is successful.

Mounting Wildfire Sensors

Wildfire sensors can be mounted on trees using one of the following options:

- Treenails
- Garden wires

Treenails

We recommend using treenails to attach wildfire sensors to trees if you plan to use the tree as a long-term mounting location for the sensors. Treenails are not harmful to trees because they are made of wood.

The wildfire sensor has a loop at the top for inserting a treenail through it.



1. Find the direction where sunlight falls on the tree at 12:00 noon, as this ensures the sensor receives maximum sunlight throughout the day. Place the ladder securely against the tree in this direction, ensuring it is stable. If needed, get the help of an assistant. Climb the ladder to the desired position, approximately 3 meters above the ground.
2. Use an axe to carefully remove a small portion of the bark at the identified location. Avoid causing excessive damage to the tree. (This step is only necessary for certain types of trees.)



3. Mark the spot where you want to drill a hole. Use a 10mm drill bit to drill a hole approximately 6–7 cm deep into the tree trunk. For hardwood trees, start by drilling a pilot hole with a smaller drill bit, then switch to the 10mm drill bit to complete the hole. Make sure you are using a drill bit designed for wood.



4. Place the spacer over the drilled hole, then position the mounting loop of the wildfire sensor on top of the spacer.
5. Insert the treenail through the mounting loop and spacer, and into the drilled hole.
6. Hammer the treenail securely into the tree. Be careful not to damage the plastic mounting loop of the wildfire sensor while hammering.



7. Make sure the wildfire sensor is hand with the treenail with the same gap maintaining the spacer (in other words, parallel to the tree trunk).



8. Using the **Dryad Deployment App**, check that if the sensor is live and send data to the Silvanet Cloud.

Garden Wires

If you plan to attach the Wildfire Sensor to the tree for a short period of time (usually for testing), we recommend using garden wire instead of treenails. Garden wire is commonly used in agricultural and garden settings, such as greenhouses. This solution should only be used temporarily, as the wire will eventually interfere with the tree's growth in girth.

1. Take a piece of garden wire that is about twice the circumference of the tree.
2. Insert the garden wire through the spacer and the mounting loop of the wildfire sensor, as shown below.



3. At the desired position, place the wildfire sensor on the tree trunk. Tighten the garden wire around the trunk, then twist the remaining ends to secure the sensor. Ensure the sensor is securely attached and cannot slip or move.



4. Make sure the wildfire sensor is parallel to the tree trunk.

Charging and Calibrating

When a Wildfire Sensor has been deployed and is **charging**, the status icon on the Silvanet Deployment App is **Grey**. When it is fully-charged, the status icon changes to **Orange** to indicate the Sensor is **calibrating**. When calibration is complete (14-days), the status icon becomes **Green**.



Charging

After attaching the wildfire sensor to the tree, it requires 1 day to initially fully charge the sensor using solar and store the energy in its internal super capacitors.

Calibrating

After the wildfire sensor has been fully charged, the calibration period starts. The calibration takes 14 days to calibrate the sensor with the deployed environment allowing it to identify a real wildfire. During the calibration period also, the sensor provides data but not useful, also provides 'false fire alerts'.

Note: Even after 14 days, the sensor continually calibrates and trains to the environment. Even after 14 days also, it is possible to expect 'false fire alerts' from the sensor. The sensor provides more accurate results over time.

Sensor Stabilization

The internal '**gas sensor**' of the Wildfire Sensor will take a certain period of time to stabilize after it scans the air quality or detects a fire.

1. **After scanning the air quality:** 30-60 minutes to stabilize.
2. **After detecting a fire:** at least take 5 days to re-calibrate the sensor.

After the '**stabilization**' period, the '**gas sensor**' will return to its normal state.

Compliance

Antennas

	Brand	Model Name	Antenna Type	Gain (dBi)
LoRa (CE)	Dryad	Sensor01Gen-3	Wire Monopole Antenna	2.3
LoRa (FCC/ISED/RCM)	Dryad	Sensor01Gen-3	Wire Monopole Antenna	2.6

EU Compliance

CE Radiation Exposure Statement

This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

CE Operating Bands and Maximum Output Power

LoRa

Mode	Gain (dBi)	Power (dBm)	ERP (dBm)	ERP (W)	Distance (cm)	S (W/m ²)	S Limit (W/m ²)
M;F1D	2.30	12.89	13.04	0.02014	20	0.04007	4.34050
N;F1D	2.30	12.71	12.86	0.01932	20	0.03844	4.34550
P;F1D	2.30	12.46	12.61	0.01824	20	0.03629	4.34750

Referred to Article 10(9), [CE simplified EU declaration of conformity](#)

Hereby, **Dryad Networks GmbH** declares that the radio equipment **WF-3** is in compliance with **Directive 2014/53/EU**.

The full text of the EU declaration of conformity is available at the following address:
<https://docs.dryad.app/dryad-documentation/resources/declaration-conformity>

USA Compliance

FCC Statement

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.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC antenna

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance 20 cm between the radiator and your body.

FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

FCC Company contact details

Dryad Networks

Contact: +1 (855) 379 2387

Address: 7820B Wormans Mill Rd.

Suite 300

Frederick, MD 21701

Canada Compliance

This Class B digital apparatus complies with Canadian ICES-003

ISED Statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

ISED Radiation Exposure Statement

This equipment complies with ISED RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance **20 cm** between the radiator and your body.

Antennas

The transmitter module may not be co-located with any other transmitter or antenna.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de **20 cm** de distance entre la source de rayonnement et votre corps.

Le module émetteur peut ne pas être coïmplanté avec un autre émetteur ou antenne.