Silvanet Wildfire Sensor

Solar-powered sensor for ultra-early detection of wildfires

The Silvanet Wildfire Sensor is designed to detect forest fires during the early stages (even during the smoldering phase, within the first 60 minutes) and to monitor the microclimate, measuring temperature, humidity and air pressure. The sensor combines ultra-low-power Air Quality sensing with a precise gas sensing mode. It detects Hydrogen, Carbon Monoxide and Carbon Dioxide and other gases at the ppm level with built-in artificial intelligence in order to reliably detect a fire and avoid false positives. The sensor uses LoRaWAN communications for wireless data transmission and can run maintenance-free for 10-15 years without the need of batteries, avoiding the use of lithium and other toxic materials.

Ultra-early fire detection

- Dramatically cuts firefighting
- Prevents economical damage
- Reduces risk and insurance
- Saves human life and wildlife

Health & Growth Monitoring

- Reliable, repeatable data collection
- More effective forest planning
- Prevent diseases and fight droughts
- Optimize tree growth and ROI

damage

| Dryad | Camera | Satellite |

1-60min   1-3h   days/weeks

Smoldering   Open Fire   Spreading   time

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www.dryad.net

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Mechanical Specification

Size	19 x 8,2 x 1,2 cm
Weight	136g
Solar Panel	6x6cm
Operational Temperature	-40℃ to +85℃
Operational Humidity	0% to 100% Condensing
Ingress Protection	IP67
Material	Plastic (Weather, UV-proof)

Regulatory Compliance

Regulatory (US)	FCC Part 15.247, 109, 209,
Environmental	ETSI EN 300 019
EMC	ETSI EN 55024
	ETSI EN 300 489

General Characteristics

Maintenance	Maintenance-free (10-15 yr)
Distance between Sensors (Radius)	100m radius for 60min detection of 2x2m fire
Sensor to Mesh Gateway (Ratio)	Typically 100 sensors per Gateway, depending on topology
Power source	Solar-powered, battery-free
Energy storage	Supercapacitors
Installation	Mounted tree (3m height recommended)

LoRa Radio Parameters

ISM Bands	NA902-928, AU915
ISM Bands	EU868, AS923
Tx Power	14 dBm

Gas Sensor Bosch BME688

Size	3.0 x 3.0 x 0.93 mm
Operation range	Pressure: 300 to 1100 hPa Humidity: 0 to 100% Temperature: -40 to 85°C
Sensors	CO, CO_2, H_2, VOC, Temperature, Humidity, Air Pressure

19 cm

9,2 cm

1,2 cm