

Silvanet Wildfire Sensor

Solar-Powered Sensor for Ultra-Early Wildfire Detection



DRYAD



Deployed as a mesh network, the Silvanet Wildfire Sensor protects what matters, anywhere and anytime, detecting fires within minutes from ignition, beneath the canopy and across any terrain, while streaming forest microclimate data for proactive risk management.

The sensor combines ultra-low-power Air Quality and environmental data monitoring with precise gas sensing capabilities. With its built-in artificial intelligence, leveraging a fusion of data from its VOC, CO, and volatile particle sensors, it accurately distinguishes the unique signature of a smoldering fire from other environmental factors to ensure high-performance detection and eliminate false positives.

Sensors transmit wirelessly via LoRaWAN or onboard satellite, and operate maintenance-free for 10 years without batteries, eliminating the need for lithium and other toxic or fire-prone materials.

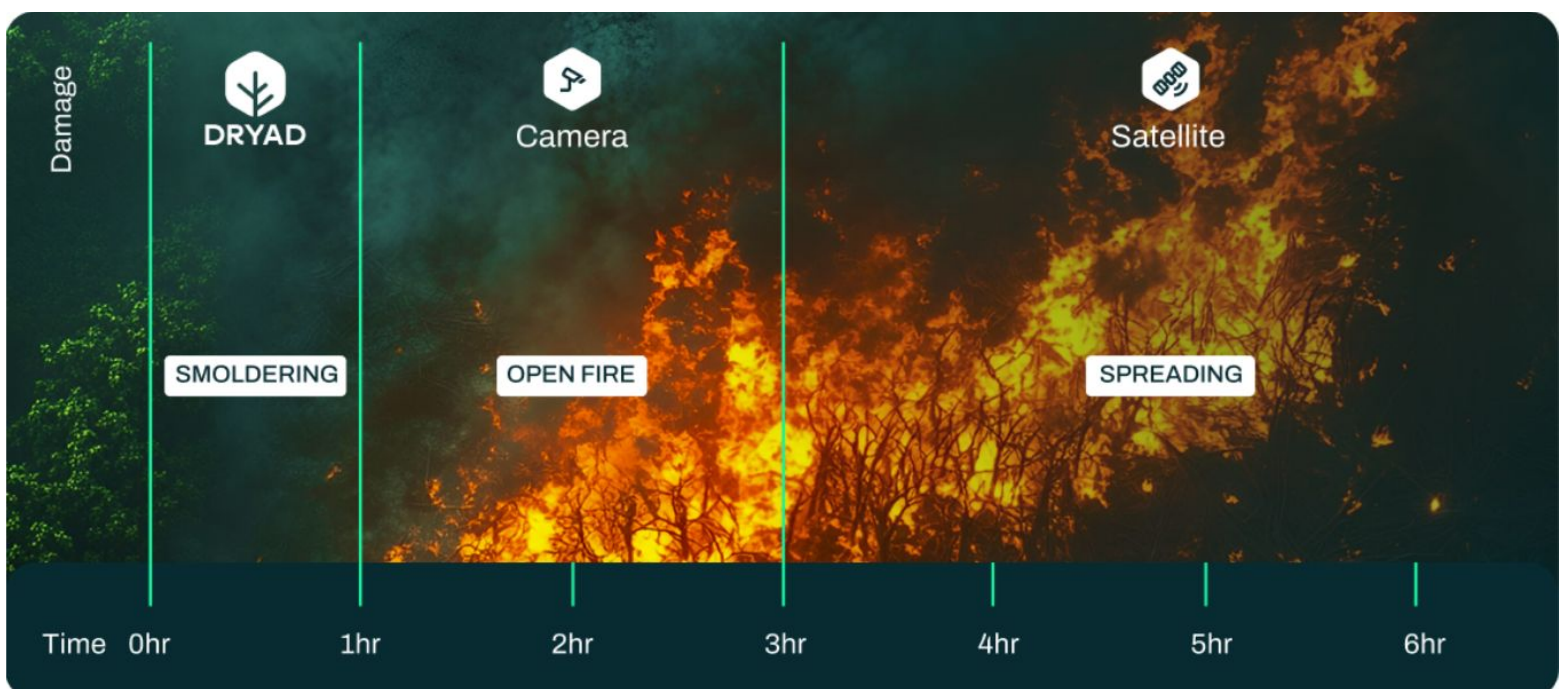
DIFFERENTIATORS

- Built-in satellite and LoRaWAN connectivity for global coverage.
- Battery-free, solar-powered
- Sustainable by design, no lithium or toxic materials

FEATURES

- Ultra-early wildfire detection
- Forest-canopy microclimate monitoring (Temperature, Humidity, Air Pressure, CO, VOCs, PM2.5, PM10)
- AI-enabled gas and Air-Quality sensing

TIME IS OF THE ESSENCE



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Model: WF-4P ^{pro}

Mechanical Specifications

Size	24 x 10 x 2 cm
Weight	265 g
Solar Panel	8 x 8 cm
Operational Temperature	-20°C to +65°C
Operational Humidity	15% to 95% Condensing
Ingress Protection	IP67
Material	Plastic (Weather, UV-proof)

Radio Parameters

LoRa ISM Bands	NA902-928, AU915, EU868, AS923 (+others)
LoRa Tx Power	22 dBm
Direct-to-Satellite Band	UHF (Ultra-High Frequency) 400MHz
Direct-to-Satellite Tx Power	27 dBm

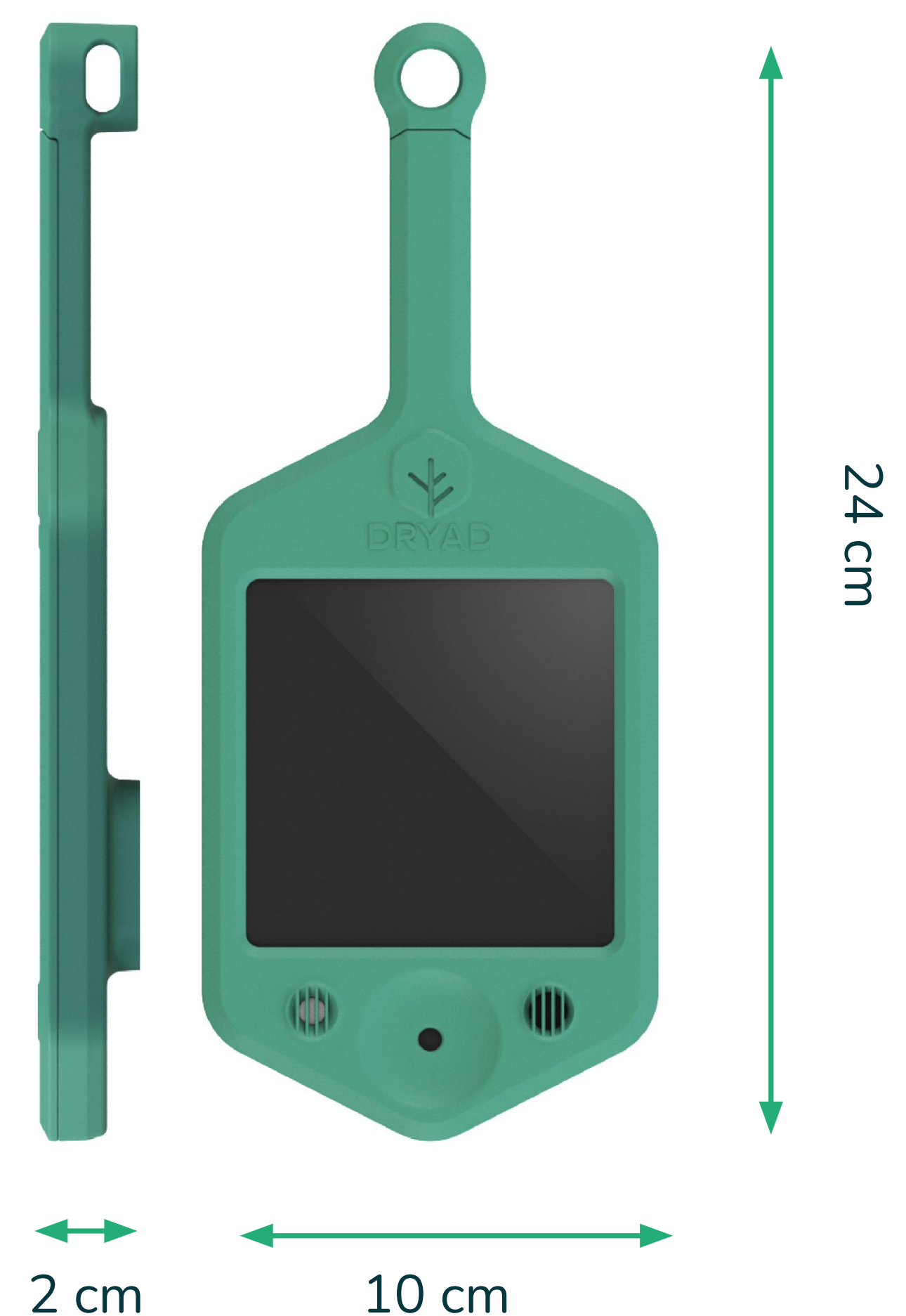
General Characteristics

Maintenance	Maintenance-free (10 years)
Fire Detection	Detection within minutes from ignition (100m, 2kg fuel)
Distance Between Sensors	Up to 300m (depending on risk) or more for larger fires
Wildfire Sensor to Mesh Gateway ratio	Up to 100 Wildfire Sensors per Gateway
Power Source	Solar powered
Energy Storage	Supercapacitors, battery-free
Installation	Tree or pole-mounted
Provisioning	NFC for local configuration
Monitoring	Silvanet Cloud Platform or API available

Collected Data

Data	Range	Accuracy
Temperature	-40 to 85°C	±0.5%
Humidity	0 to 100%	Between 10% to 90% : ±3% Below 10% and over 90%: ±5%
Pressure	30 to 1100 hPa	± 2 hPa
PM2.5 / PM10	0 to 1000 µg/m³	± 10 µg/m³ at 0 to 100 µg/m³ ± 10% at 101 to 1000 µg/m³
CO	0 to 10 ppm	0.2 ppm

Dimensions



Regulatory Compliance

USA (FCC)	Europe (CE RED)
Canada (IC)	(+others)