

Silvanet Mesh Gateway

Distributed LoRaWAN® Gateway for Large-Scale Outdoor Networks

The Silvanet Mesh Gateway extends the Silvanet Network to large deployments beyond the reach of the standard single-hop direct connection between sensors and gateways in standard LoRaWAN networks. The patent-pending architecture uses a multi-hop mesh network of Gateways interconnected with LoRa and each serving as a standard LoRaWAN gateway to Silvanet Wildfire Sensors and 3rd party sensors. The solar-powered Mesh Gateways are placed in the forest itself, forming a mesh network with a typical distance of 2-6 km depending on topology and physical placement of the Mesh Gateways. The Mesh Gateway only uses the LoRa radio to communicate with other Mesh Gateways or a Border Gateway. It does not require direct 4G/LTE radio or Ethernet connectivity which ensures low power consumption supported by the built-in solar panel.



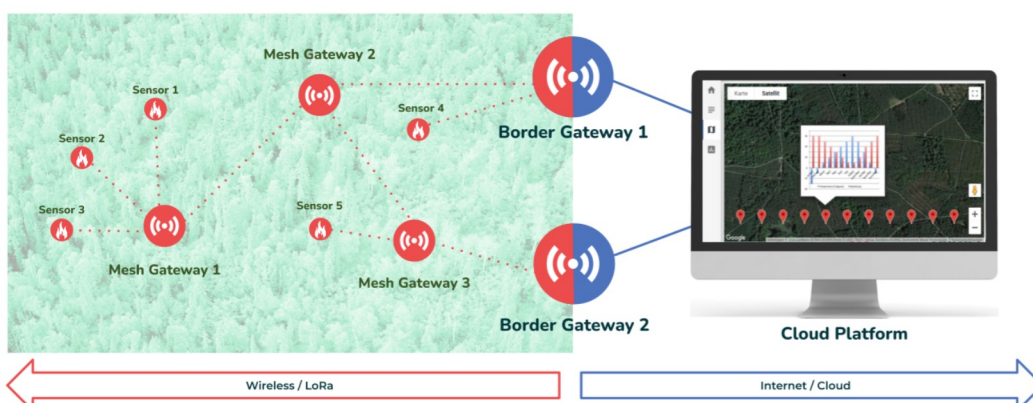
Differentiators

- Extend LoRaWAN networks to large areas
- Solar-powered, maintenance-free
- Supports any LoRaWAN compliant sensors

Features

- Automatic network configuration
- Self-healing, auto fail-over mesh network
- Firmware Update Over-the-Air (FUOTA)

Silvanet Mesh Network Architecture



Silvanet Mesh Gateway

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Mechanical Specification

Size	56 x 30 x 4 cm
Weight	2,8 kg
Solar Panel	50 x 25 cm
Operational Temperature	-40°C to +85°C
Operational Humidity	0% to 100% Condensing
Ingress Protection	IP64
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)
Mesh Gateway to Border Gateway (Ratio)	Typically 20 Mesh Gateways per 1 Border Gateway
Mesh Gateway to Sensor (Ratio)	Typically 100 sensors per Gateway, depending on topology
Max distance between Mesh Gateways	2-6 km, depending on topology and placement of Gateways
Power source	Solar-powered, battery-free
Energy Storage	Supercapacitors
Installation	Mounted on pole or attached to a tree

LoRa Radio Parameters

ISM Bands	NA902-928, AU915
ISM Bands	EU868, AS923
Tx Power	22dBm

Receive Channels	4
Transmit Channels	1
Antenna connection	N-Type

