Fleximodo
Digital Parking

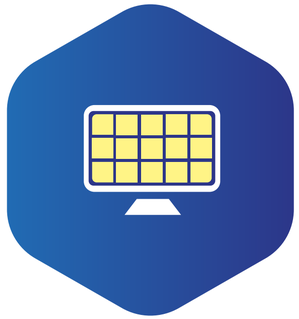
IoT Parking Sensor 2.0

MANAGEMENT SYSTEM CERTIFICATION DNV ISO 9001
MANAGEMENT SYSTEM CERTIFICATION DNV ISO 14001
MANAGEMENT SYSTEM CERTIFICATION DNV ISO 27001
MANAGEMENT SYSTEM CERTIFICATION DNV ISO 45001

Key Differentiators

Electronic permitting

IoT Parking Sensors can be paired with IoT Permit Cards to provide an ID of each parker (authentication).



Monitoring & control

Precise monitoring (with AI) of deployed devices, notifications, and seamless remote OTA control (logs, FW updates).

Data consistency

IoT infrastructure resistant to network outages - metrics are preserved after reconnection (no data loss).

Detection resistance

Detection is accurate and reliable despite local interferences or frequent changes (noticing every status change).

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The IoT Parking Sensor detects and reports the presence or absence of a vehicle on a parking slot and enables parking management.

Detection method	3-axis magnetic field & nanoradar
Weight	300 g
Dimensions	Φ 90 mm ↕ 52 mm
Casing	Ultrasonically welded into one piece
Ingress protection	IP68
Impact resistance	IK10
Operating temperature	-40 to +75 °C
Power	3.6V, 19 Ah
Battery life	see calculation on clientzone.fleximodo.com
Network	LoRaWAN*, Sigfox, NB-IoT**, LTE-M, BLE
Manufacturer certification	ISO 9001, ISO 14001, ISO 45001

* v. 1.0.2 with APB/OTAA device activation

** 3GPP v.13, v.14 and v.15 with IP traffic over Control Plane (UDP protocol), including DTLS end-to-end encryption

LoRa sigfox NB-IoT LTE-M

Technical specs and features

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FOTA

Over-the-air firmware updates.

Onboard data logger

“Black box” for ex-post sensor diagnostics.

Combined two-way sensing

Magnetometric and nanoradar with enhanced detection reliability - up to 99 %.

Autocalibration

Based on a robust algorithm for the magnetometer.

Certification validation

Approved by Deutsche Telekom AG & Vodafone.

Own antenna design

Optimized for all global IoT networks (Sigfox, LoRa, NB-IoT, LTE-M).

Private APN

Secured connection between the sensor and the cloud by private APN.

Data consistency

Resistance to connectivity outage. Data is not lost and will be transmitted after connectivity recovery.

Embedded coulombmeter

Reliable online and onboard battery consumption and health monitoring.

Privacy

No personal data is recorded with IoT Parking Sensors.

Deutsche Telekom

vodafone

Casing, quality and installation

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Ultrasonically welded

100% hermetic sealing with IP68 ingress protection.

Minimalistic form factor

Flush-mount and on-surface installation options. Straightforward processes for both installation and maintenance due to on-surface and under-surface adapters.

AOI and RTG inspection

Electronic assembly inspected by AOI (automatic optical inspection), and RTG.

Tested and inspected

Operational lifetime of 6 years established through thermal cycling chamber (-30 to +60 °C).

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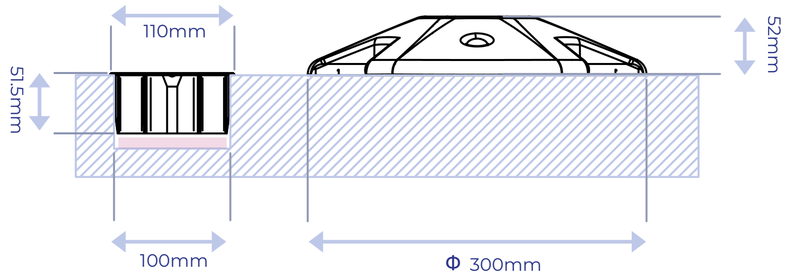
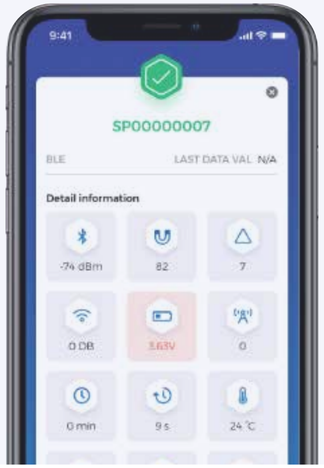
Under surface

On surface



iOS and Android App



DiSPO

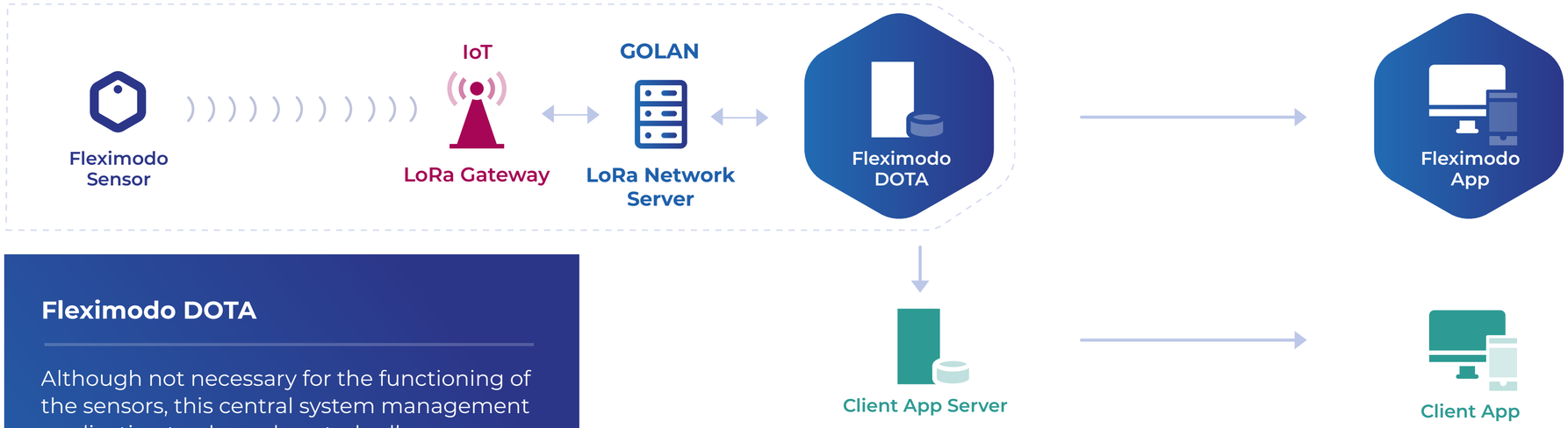
Monitoring and diagnostic app in real-time by approaching the sensor with a mobile phone

ANDROID APP ON Google play

Available on the App Store

Architecture and security

Private APN secures IoT connection (sensor - cloud)



Fleximodo DOTA

Although not necessary for the functioning of the sensors, this central system management application tracks and controls all sensors deployed.

Advantages of using DOTA

- GIS-based tracking of deployment localities. Monitoring of sensor health and quality of network connectivity
- Integrated with SHMA Monitoring for transparent overview
- Firmware and OnBoard Logs transfer capability
- Analytics, statistics, and future predictions of parking traffic.

SHMA Monitoring - sensors overview

Fleximodo DOTA - sensor detail

Release date: 30-03-2023

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