

Technical Datasheet

Hardware Specifications and Platform Requirements

Sensor Hardware Specifications

Parameter	Specification
Sensor Type	ESP32-based environmental monitor
Temperature Range	-40°C to +85°C (±0.3°C accuracy)
Humidity Range	0-100% RH (±2% accuracy)
Air Quality	CO2, TVOC, particulate matter (optional)
Connectivity	Primary: GSM cellular Fallback: Wi-Fi 802.11 b/g/n
Power Supply	USB-C 5V / Battery backup (18650 Li-ion)
Battery Life	5+ years (reporting every 15 min)
Dimensions	80mm x 60mm x 25mm
Operating Temp	-20°C to +60°C
IP Rating	IP44 (splash resistant)
Certifications	CE, UKCA (to be obtained prior to trading)

Platform Infrastructure Requirements

Component	Minimum	Recommended
Server OS	Ubuntu 22.04 LTS	Ubuntu 24.04 LTS
CPU	2 vCPU	4+ vCPU
RAM	4 GB	8+ GB
Storage	50 GB SSD	100+ GB NVMe SSD
PHP Version	8.2	8.3

Database	MySQL 8.0	MySQL 8.0 / MariaDB 10.6
Cache	Redis 6.0	Redis 7.0
Web Server	Nginx 1.18	Nginx 1.24
SSL/TLS	TLS 1.2	TLS 1.3

API and Integration

Endpoint Type	Description	Authentication
Sensor Data API	Ingestion of sensor readings	API Key + Device ID
Property API	CRUD operations for properties	OAuth 2.0 / Sanctum
Alert API	Alert management and notifications	OAuth 2.0 / Sanctum
Insurer API	Third-party data access	OAuth 2.0 + Consent
Webhook Events	Real-time event notifications	HMAC Signature

Data Rates and Capacity

Metric	Standard	Enterprise
Sensors per Property	Up to 20	Unlimited
Reading Frequency	5-60 minutes	1-60 minutes
Data Retention	24 months	60 months
API Rate Limit	1,000 req/hour	10,000 req/hour
Concurrent Users	100	1,000+
Properties	Up to 500	Unlimited

Technical Support

For technical support and integration assistance: office@dmsmonitor.uk