MetScan V1 UAV-Based Methane 3D Screening System – Basic Specs

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** This document outlines the basic specs of MetScan V1. For more detailed information, please contact us directly*

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1. General

- Dimensions: Approx. 192 x 129 x 172 mm (L x W x H, including the gimbal)
- Weight: Approx. 890 g (including the gimbal)
- Ingress Protection Rating: IP54
- Operating Temperature: -20°C～55°C

2. Special Features

- **DJI PSDK Support** - Enables control of the MetScan V1 and real-time data viewing directly within DJI Pilot 2 App for DJI Matrice 400 & 350 aircrafts
- **Platform-Agnostic Version for non-DJI Aircrafts** - A special stand-alone version with its own GNSS & IMU, control via AIRINS.ai cloud platform, 18~32V DC power input required

- **Intelligent Sweeping Modes** - Supports 1D and 2D sweeping patterns
- **Laser Spot Position Estimation** - Outputs the geographic coordinates (longitude, latitude), and relative altitude of the laser spot on the target surface

3. Remote Sensing Methane Sensor

> ❗ The specifications are **field-validated** and **conservatively stated** to help users determine whether the product suits their specific application.

- Method of Detection: Diffuse-reflection Open-Path Tunable Diode Laser Absorption Spectroscopy (OP-TDLAS)
- Laser Class: Class 3R for both CH4 measurement and green indication lasers, avoid direct eye exposure
- Effective Measurement Range: 100 ~ 99,999 ppm·m
- Measurement Error: ≤10% (1,000 ~ 50,000 ppm·m at 20 m)
- Measurement Frequency: Up to 50 Hz
- Maximum Detection Distance (MDD) & Lowest Detection Limit (LDL):
  - Influenced by several factors:
    - Size & concentration of the gas cloud
    - Surface reflection intensity (ideal at 90° incidence) and consistency
    - Sunlight interference
    - Laser movement speed
  - Typical results of the MDD and LDL:
    - 1,000 ppm·m gas cloud (PMMA cube) continuously detected at 75 m under sunny conditions (3:30pm, stationary, vertical test).
    - 2,500 ppm·m gas cloud (PMMA cube) continuously detected at 100 m under cloudy conditions (2:30pm, stationary, vertical test).

4. Imaging System

- Wide-Angle Camera: approx. 35 mm equivalent focal length
- Telephoto Camera: approx. 300 mm equivalent focal length
- Display & Recording: simultaneous dual-camera display in DJI Pilot 2 App and mission-synchronized video recording

5. Stabilized Gimbal

- Three-Axis Stabilization: Yaw, Pitch, Roll
- Compatible with DJI Matrice 400/350

6. Laser Rangefinder

- Maximum Detection Distance: 800 m (nighttime)/500 m (daytime)
- Laser Class: Class 1

7. Data Analytical Software

- Software Platform – AIRINS.ai (AAI)
- Provides advanced real-time & historical mission analysis, visualization, hotspot identification and reporting
- Isolated EU (GDPR-compliant), US, SG, CN servers

8. Methane Quantification (Not Included in Default)

- Requires additional wind measurements
- Offline conversion from ppm·m to ppm and kg/h using AIRINS's proprietary algorithm
- Contact us for more information



