CHARM® Airborne Methane Detection

Technical Specification Sheet
March 2026

CHARM® provides aerial inspection services for methane and ethylene pipelines, site-level emission quantification for above-ground facilities, and precise localisation of emission sources.

Detection Performance

Parameter	Specification
Technology	Differential Absorption LIDAR (3.3 µm mid-infrared)
Geo-referencing	Active pipeline tracking for < 0.5 m deviation from pipeline centerline
Detection Limit	< 1 ppm*m per measurement point
Surface Sensitivity	300 ppm, verified by DVGW research centre (accord. to DVGW G501)
Sampling Rate	1,000 measurements per second
Measurement Spot	80–150 cm diameter (altitude dependent)

Operational Parameters

Parameter	Specification
Flight Altitude	100 – 180 m
Survey Speed	60 – 165 km/h
Scan Swath Width	Adjustable, typically 10 – 30 m
Daily Coverage	Up to 500 km inspected pipeline per day
Aircraft	MD 900 and MD 902 twin engine helicopter

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Certification & Compliance

Standard	Specification
EU Methane Regulation	Type-2 compliant (5 g/h / 1,000 ppm detection)
DVGW G501	Certified – verified by Engler-Bunte Institute
EASA STC	Approved for MD-900/902 integration (incl. laser eye-safety)
EUMR 2024/1787	Best Available Technology standard
GERG Benchmark	Top-tier performance in site-level quantification
OGMP 2.0	Supports Level 5 reporting requirements

Services and Reporting

Standard	Specification
Pipeline LDAR	Type-2 inspection for underground pipelines (3-year interval)
Reporting of critical emissions	Immediate reporting of critical emission sources
Report for pipeline inspection	Comprehensive Reporting of all findings within max. 10 days
Post-survey analysis included	For all reports: Non-relevant findings from other sources (waste water, bio-gas, etc.) marked in report
NVS Mapping	Documentation of non-valid sections (avg. < 4% of network)
Site-Level Quantification	Total emissions measurement for compressor/metering stations and storage sites
Source Localisation	GPS-tagged anomaly reports with aerial imagery

Report Contents: Map with leak position, GPS coordinates, date/time, aerial photo with measurement overlay, wind conditions, total flux (kg/h for site quantification).

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