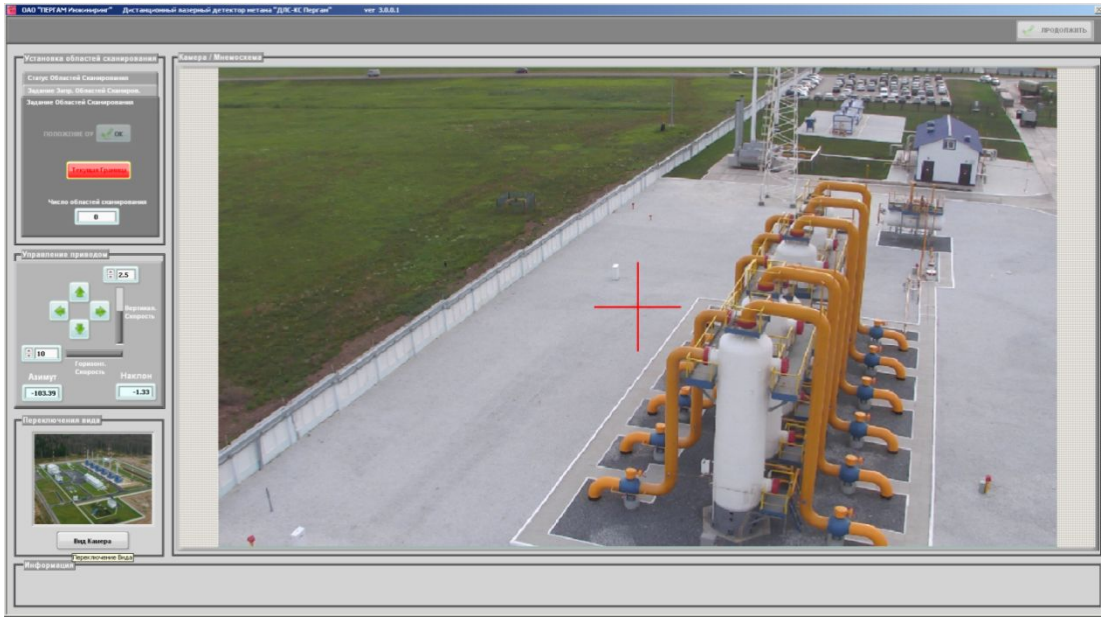
LMS – Remote Aerial Survey System

Manufactured,
Developed,
Distributed by
Pergam-Suisse AG

System Description

- LMS-Remote is a stationary natural gas leak detection system for remote monitoring of elevated methane gas concentrations in ambient air and is specifically designed for the constant scanning of mission-critical areas such as compressor stations, LNG terminals, pipeline network areas, etc...
- A camera installed in the Optical Unit aids the operator to determine the gas cloud location.
- The system can be programmed to scan specific areas.



Identity of the technology

First response and sensitivity

Can detect faster than conventional method
(Detection speed: 0.1sec)

Detection at

By simply pointing the laser beam towards the suspected leak or along the survey line

Detection 24h/7 days

The LMS-Remote System operates 24 hours a day, 7 days a week to ensure the permanent safety of your facility

Excellent Selectivity for methane gas

Reaction only for methane gas. No false reports.

The uniqueness of the system

Range of movement

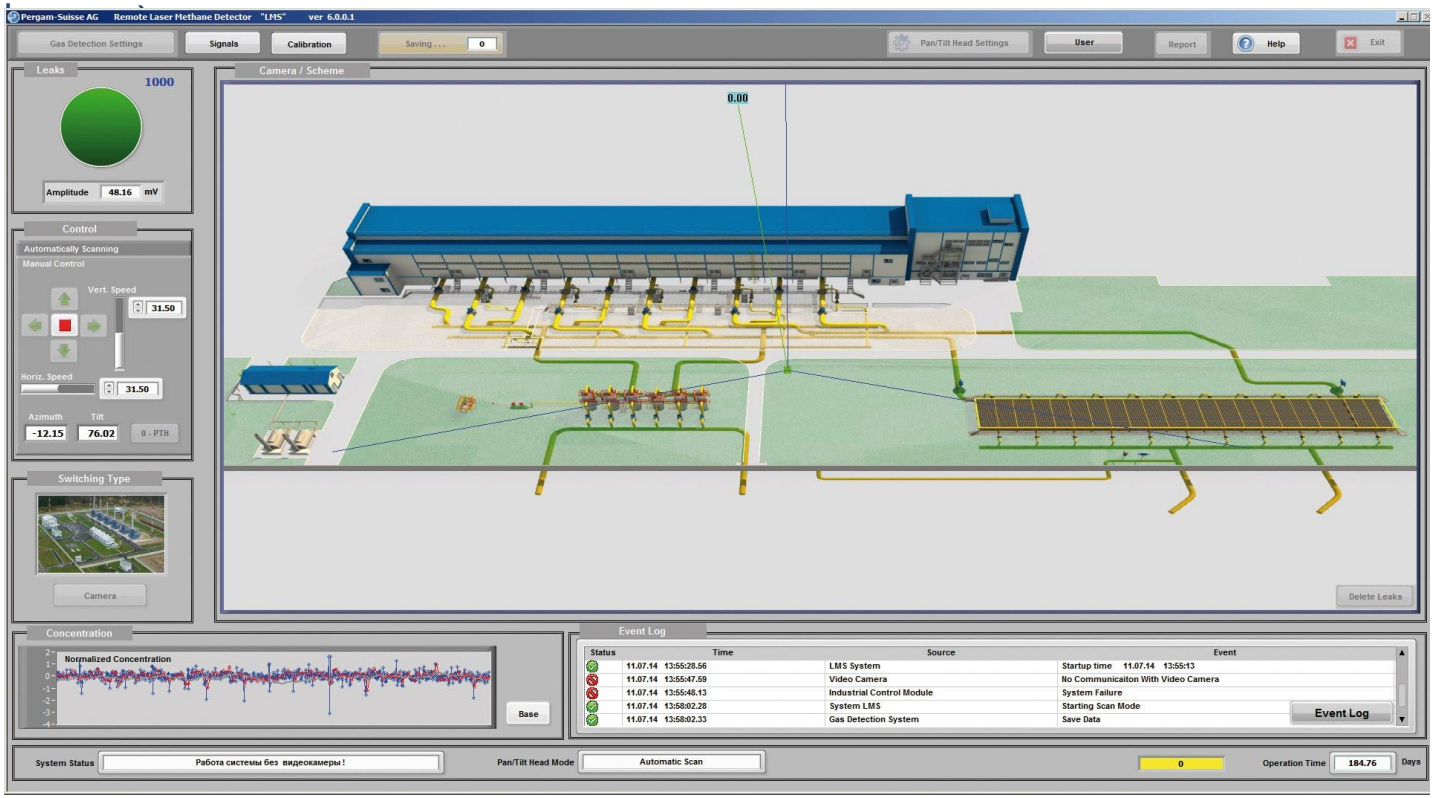
Azimuth	360°
Elevation	- 90° to + 30°

Full Integration

The LMS-Remote System can integrate to your facilities, include interaction with other systems (fire protection systems and gas emission control systems)

User-Friendly Software

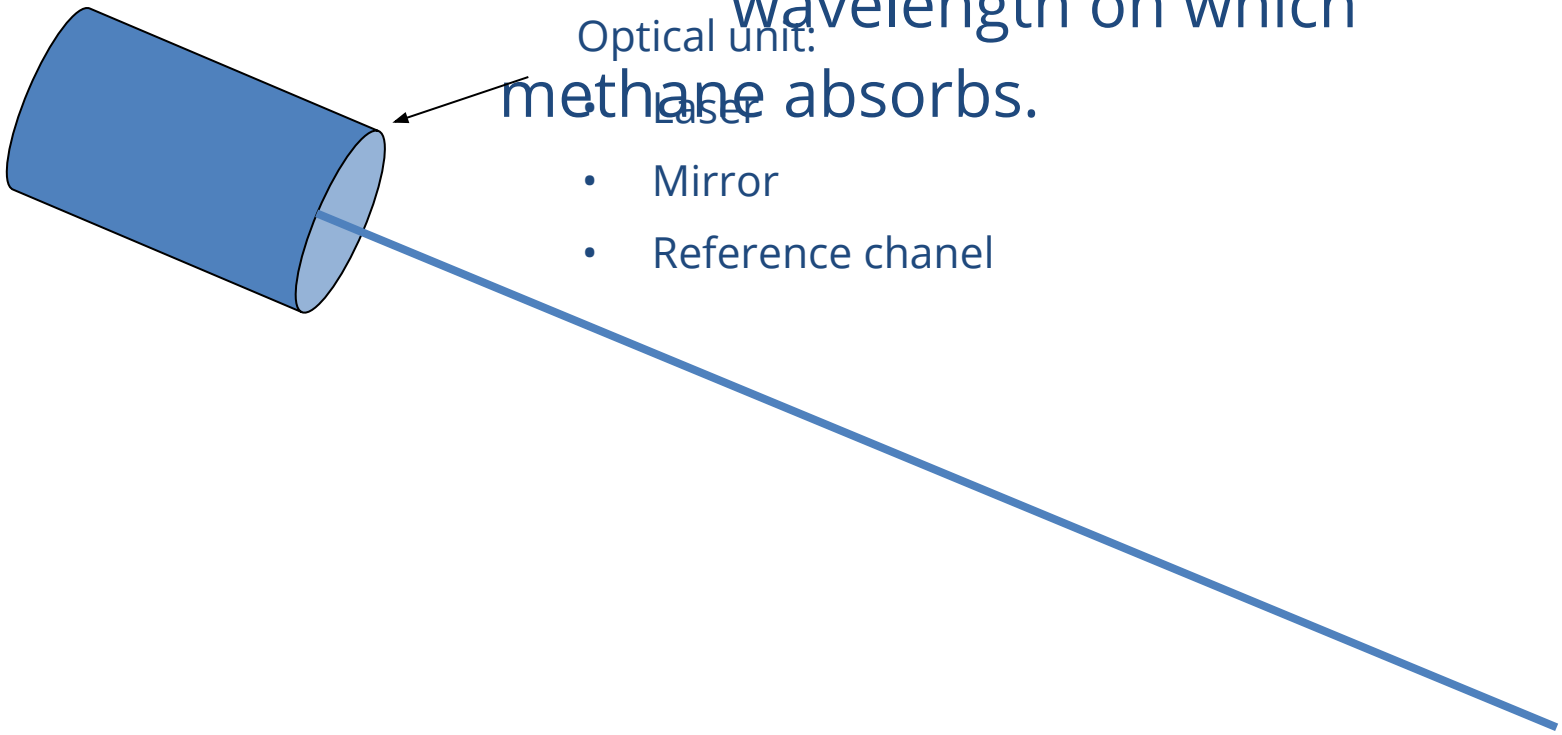
Operator PC for monitoring and detection alarms, system control, data and video storage, and historical data analysis. The software allows online monitoring. You can get from our system data in txt format (leak size, location of the leak). Additional information: Software can create a report in Microsoft Word format (only one click by special



Operation Principle

Laser beam (IR wavelengths)

The laser emits at a wavelength on which methane absorbs.

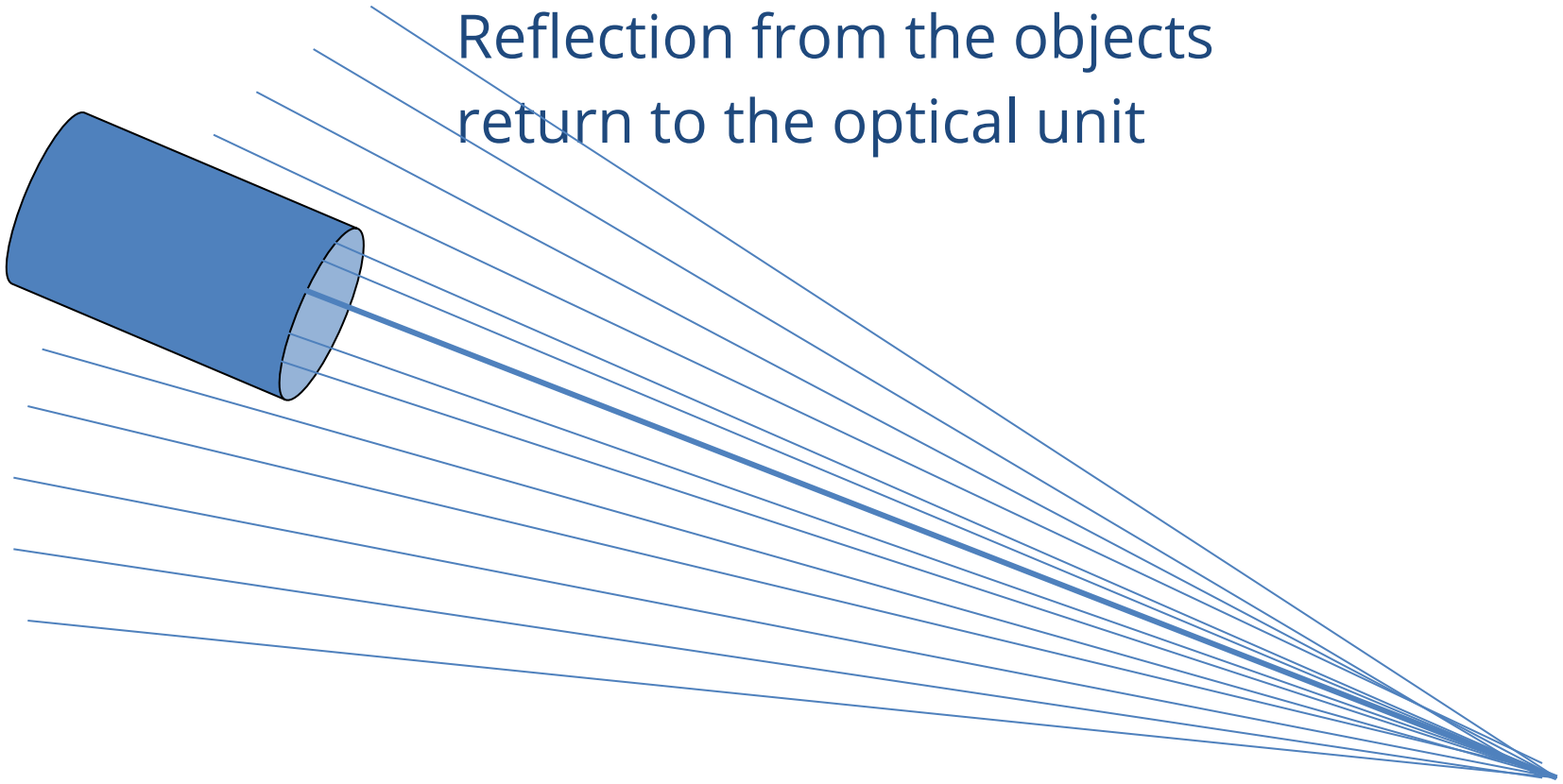


Optical unit:

- Laser
- Mirror
- Reference chanel

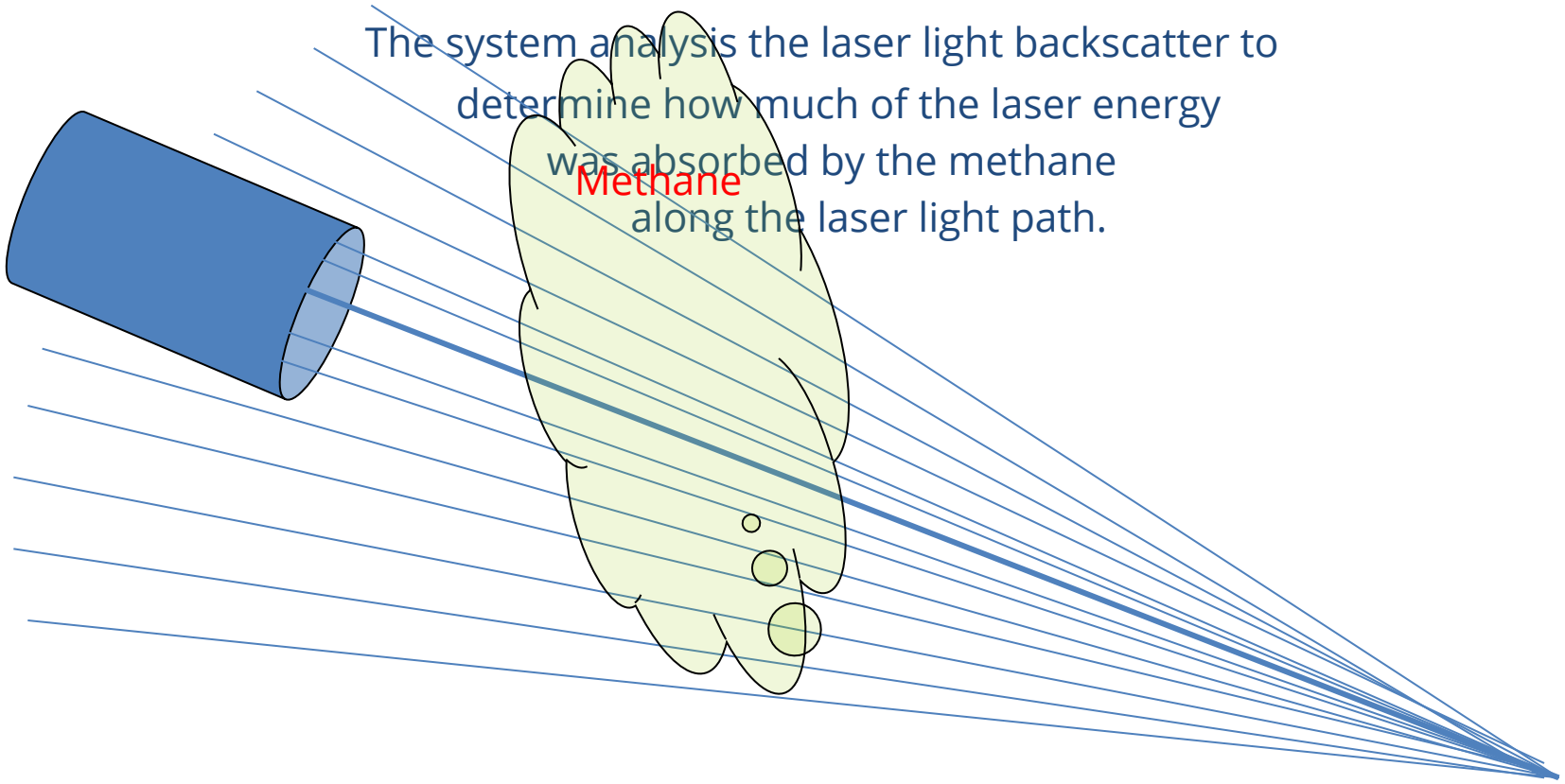
Operation Principle

Reflection from the objects return to the optical unit



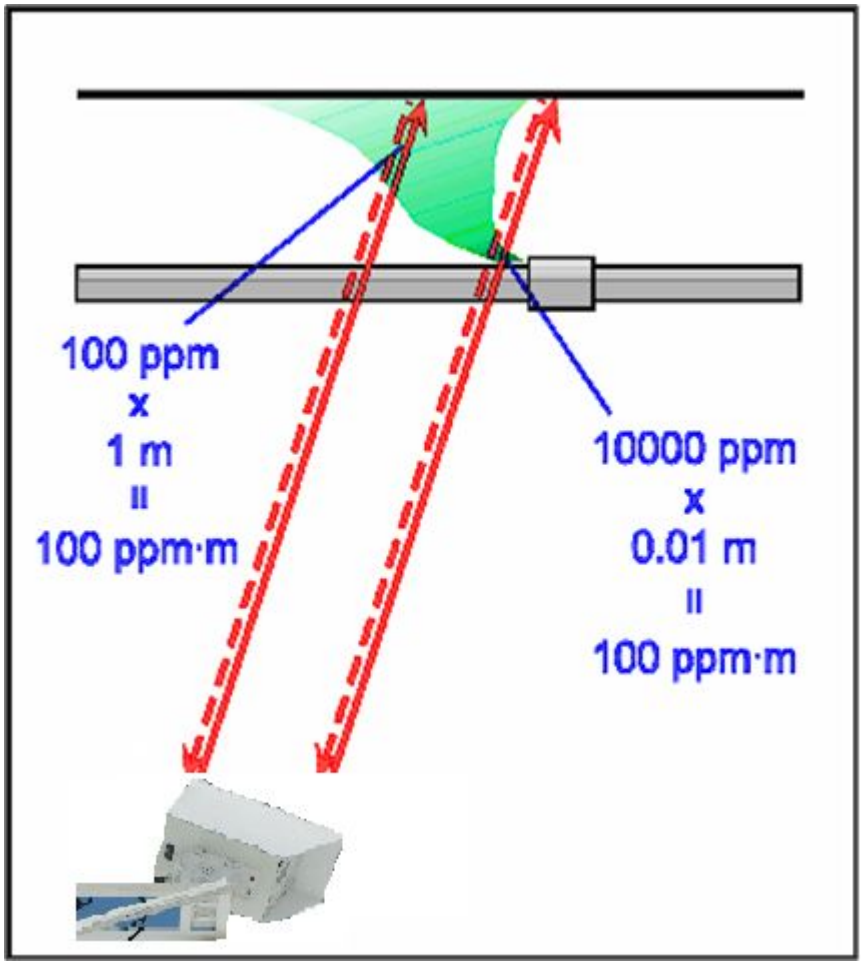
Operation Principle

The system analysis the laser light backscatter to determine how much of the laser energy was absorbed by the methane along the laser light path.



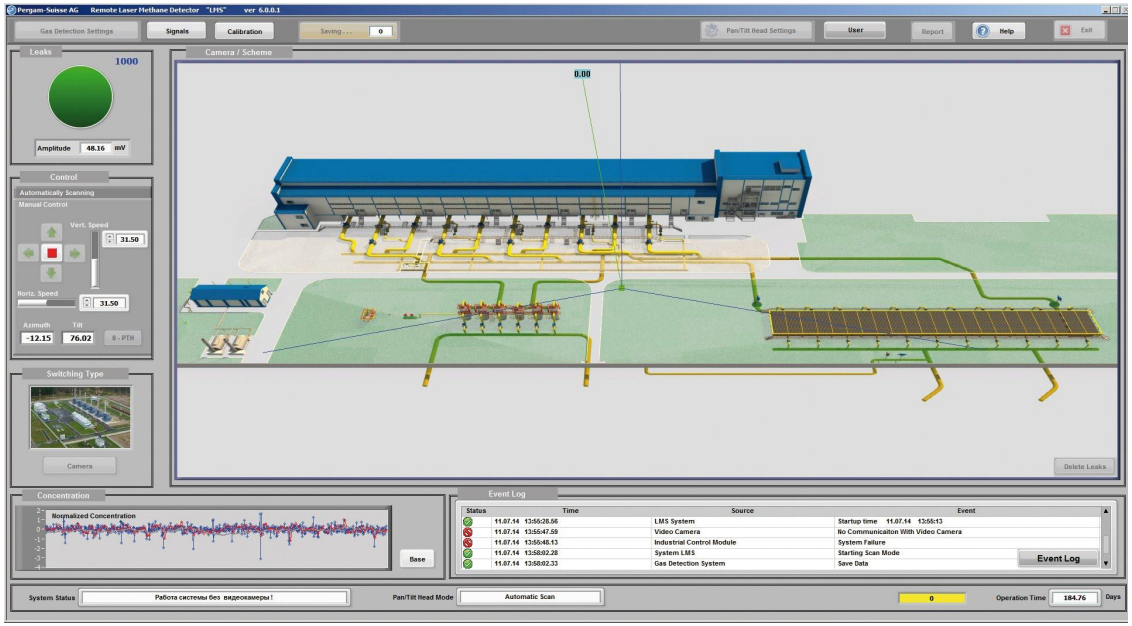
Principle of remote detection

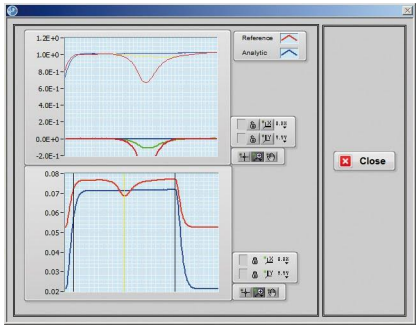
- The LMS-Remote is based on utilization of laser absorption spectrophotometer of methan gas for gas measurement.
- The system detects natural gas leaks by emitting a laser at particular wavelengths and analyzing the light reflection from the objects to determine how much was absorbed by the methane in the natural gas.
- The measured gas volume is expressed by the methane column density (ppm-m): methane density (ppm) multiplied by the thickness (m)

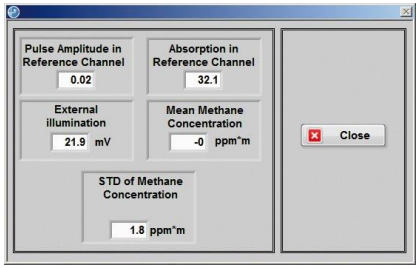


Operation Principle

A unique detection algorithm allows for real-time measurement of the methane concentration above atmospheric.

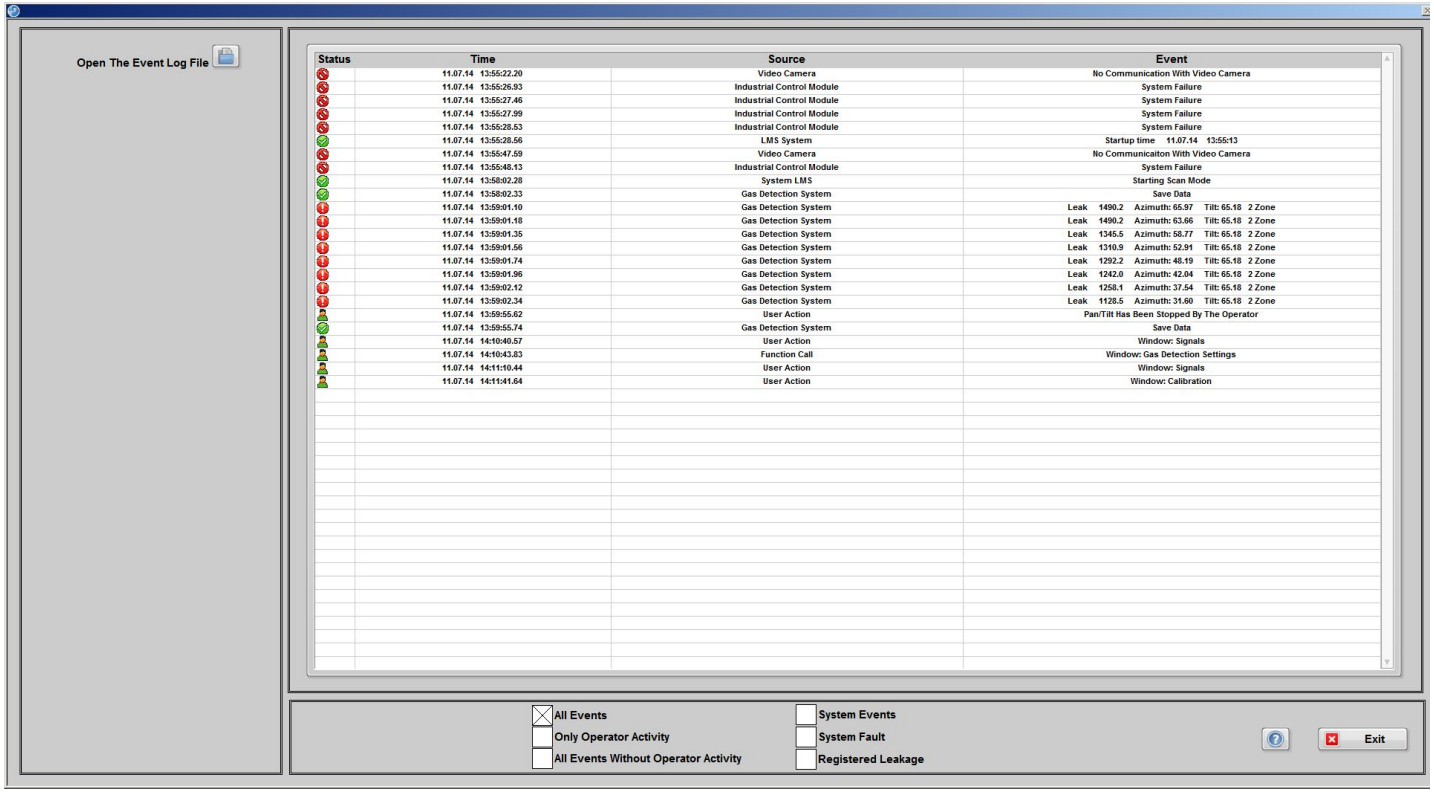






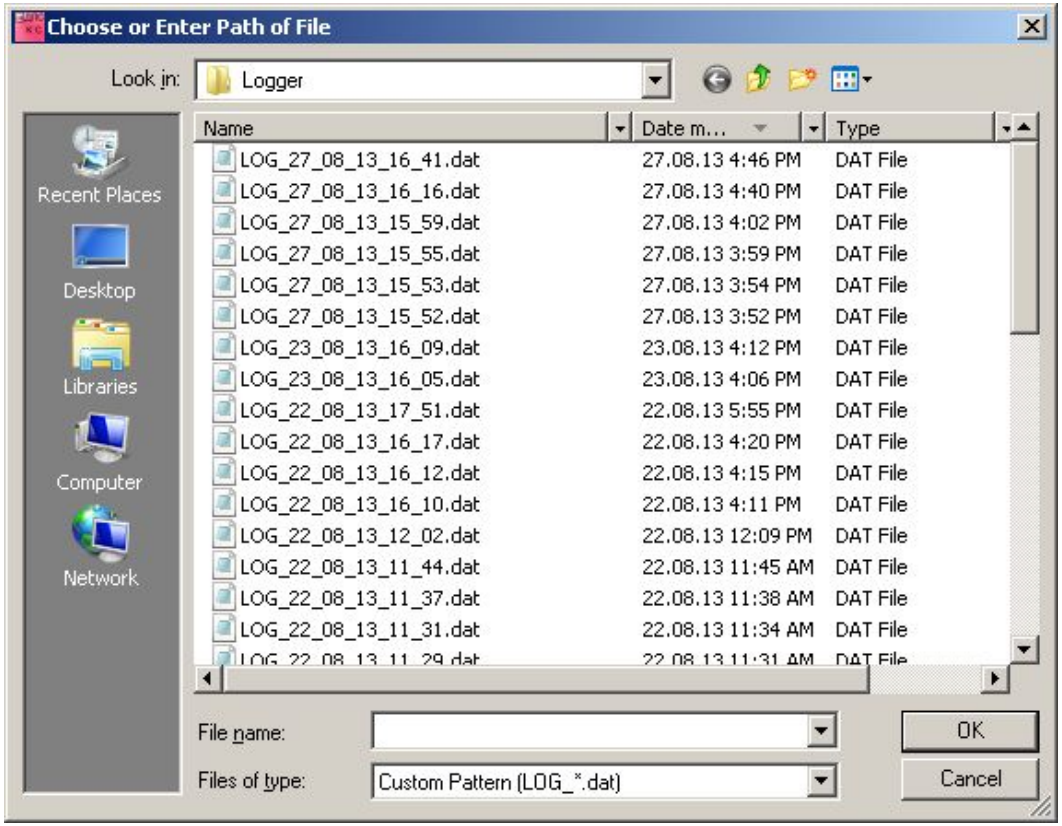
Full Control

Database of operator actions



Full Control

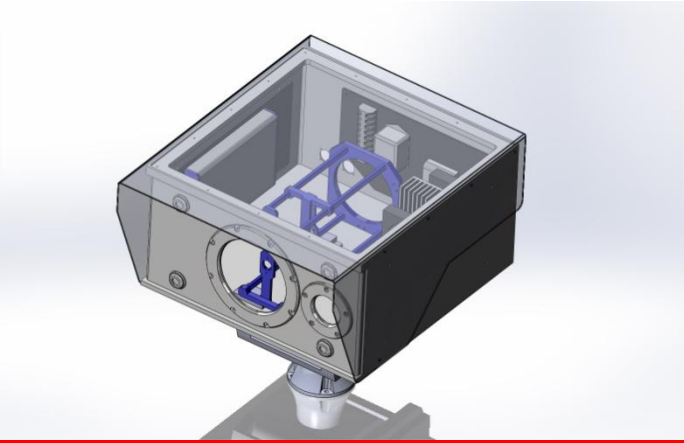
Archive data for the whole period of operation



Explosion-proof

Explosion-proof certified detector

The LMS-Remote is NANIO certified. LMS Remote is TR TS approved applied for operations in hazardous areas Zone 2.



Wide operating temperature range

Harsh environment situation from -50°to +40°.
Can be used in cold & hot areas

Technical Data

Maximum measurement distance	150 m (stationary version with retroreflector up to 1 km)
Range of movement	Azimuth 360° Elevation - 90 to + 30
Measurement time	0.02 sec, 0.1 sec (simultaneously)
Sensitivity for 0.2 sec measurement time :	
from distance 50 m	25 - 20,000 ppm*m
from distance 100 m	100 - 20,000 ppm*m
from distance 150 m	225 - 20,000 ppm*m
Laser wavelength	1.65 µm
Laser power	25 mW
Power supply	12 V 6 A and 24 V 6A
Total weight	45 kg
Envir. Protection	IP67
Operating temperature range	-50 to +40 °C
Video camera	Full 1920 x 1080/30p High Definition; 200X zoom ratio (20x zoom/10x digital); with analyzing / post-processing software

Calibration and self-check

- Built-in standard gas cell allows calibration and Self-check
- Executes concentration check device start up Auto-calibration
- The system is automatically conducting an auto-calibration during the operation.

Thank you for your attention!

For Further Information:

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