



Gas Leak Detection by SELMA



Solution for Distribution Pipelines

About Pergam-Suisse AG

Specializing in natural gas leak detection and NDT products and services worldwide

- International distributor of high quality NDT and natural gas leak detection equipment including custom installations and integration
- Manufacturer of **ALMA** and **SELMA** natural gas leak detection systems
- Provider of NDT and natural gas leak inspections services
- Highly experienced in the field of IR, laser technologies and natural gas detection
- Located in the center of Zurich, Switzerland



SELMA is a diagnostic tool for the detection of gas leaks in urban areas

- Detects gas leaks
- Detects leaks in front and to the side of the driving path
- Fast detection at normal driving speed
- Simple operation and data assessment
- Can be installed on any vehicle
- Inspection of high- and low pressure gas distribution networks
- Can detect small leaks
- It is based on a pulsed IR laser
- Two independent laser detection systems:
 - Roof laser for road sideways leak inspection
 - Bumper laser for street leak inspection
- Video camera and GPS registration comes as standard with the SELMA System
- Upon completion of an emission survey for a customer, we deliver a prepared inspection report with following content: Route of inspection, natural gas leak detections with time and GPS coordinates.
- Leak size measured in ppm x m and documented with pictures and real time video.
- All imaging material will be stored on a Hard Disc and are included as a part of the inspection.



SELMA Roof - Street Evaluating Laser Methane Assessment

Technical data:

■	Average operating speed	30 km/h
■	Maximum operating speed	50 km/h
■	Maximum distance for leak detection	50 m
■	Survey mode	340°
■	Green laser power	5 mW
■	Laser power (Class 1M)	10 mW
■	Sensitivity (road side)	20 ppm*m
■	Power supply	12 V ; 120 W
■	Operating temperature range	- 10° C to + 50° C
■	Laser wavelength	1.65 μm



Leak	Time	Latitude	Longitude	Concentration (PPM)	Speed (Km/H)
1	10:26:44	59.426695	24.797637	0.56	21.60
2	10:31:34	59.427943	24.796262	6.28	12.60
3	10:32:43	59.429342	24.792133	16.92	12.24
4	10:35:20	59.426035	24.788843	2.31	17.28
5	10:36:25	59.427847	24.782012	0.58	18.00
6	10:37:34	59.429377	24.787938	7.65	25.20

Map below shows the detection point locations.



Detection	Time	Latitude	Longitude	Maximal car speed (km/h)	Maximal gasconcentration (ppm)
1	11:03:23.67	44.425290	8.949869	12.4	0.31
2	11:03:36.67	44.425613	8.950064	18.2	0.63
3	11:07:00.07	44.420869	8.950245	16.1	0.34
4	11:07:20.48	44.420599	8.950884	16.8	0.94
5	11:07:29.67	44.420704	8.951152	19.8	0.54
6	11:07:42.07	44.420630	8.951291	20.2	1.47
7	11:07:48.28	44.420420	8.951060	19.4	2.67

Results in Google Map are shown below:



SELMA Bumper - Street Evaluating Laser Methane Assessment

Technical data:

■ Average operating speed	30 km/h
■ Maximum operating speed	50 km/h
■ Sensitivity (bumper system)	0.1 ppm
■ Measurement time	0.04 sec; 0.2 sec (simultaneously)
■ Power supply	12 V; 240 W
■ Operating temperature range	- 10° C to + 50° C
■ Air flow rate	6 l/sec



Subject to technical changes.

PERGAM-SUISSE AG *worldwide inspection service*



Switzerland



Pakistan

The primary goal of the SELMA System is to locate and identify potential threats and vulnerabilities of the naturalgas distribution system. These vulnerabilities are identified using the SELMA system.



PERGAM-SUISSE AG provides full training and services for these products and is able to offer a complete range of helicopter services which include flights, inspections and demonstrations.



USA



Germany



Advantages of SELMA

Detects gas leaks
Simple operation and data assessment
High sensitivity
Detects leaks in front and road side
of the driving path



PERGAM-SUISSE AG

PERGAM-SUISSE AG also offers the following products:

Gas Leak Detectors

ALMA (Remote Gas leak detection system for transmission pipelines installed on a helicopter)

GasFinder



Services:

PERGAM-SUISSE AG provides full training and services for these products and is able to offer a complete range of helicopter services which include flights, inspections and demonstrations.

