



A HALMA COMPANY

L-TEK P100

Portable Laser Product



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Contents

- Advantages of TDLAS principle2
- TDLAS measurement principle3
- L-TEK P100 portable laser4

Advantages of the TDLAS principle

Long-distance monitoring

The single directionality and long-distance detection capabilities of lasers are used in the application of long-distance gas leakage monitoring. The original passive monitoring mode relying on diffusion or pump which need to wait for the leakage gas to diffuse into the detector.

Low maintenance cost

For sensors with traditional measuring principles, high concentration gas affects the sensitivity and service life of the sensor. TDLAS testing devices have the feature of non contact measurement. there is no false alarm cause poisoning as parts are semiconductors, optical glass and other long life and stable parts. Product life up to 5-10 times than traditional device which reduce the maintenance cost caused by frequent replacement of parts.

High accuracy, no false alarms

Due to the single-mode nature of the laser radiation wavelength, the absorption spectral line of the specific wavelength of the measured gas is selected, so as to avoid the cross-interference of other gas components, so the distinctive feature of TDLAS detection technology is that it has good fingerprint, completely eliminates the false alarm, does not need to be re-checked, and simplifies safety management.

Fast response time

The response time of gas sensing equipment is critical, TDLAS detection equipment can have millisecond measurement response time, which is 1000 times faster than the response time of catalytic combustion and electrochemical technology and improve production safety.

Laser gas sensor compared to other combustible gas sensors

	Semiconductor	Thermally catalytic	Ultrasonic	NDIR	TDLAS
Area detection	NO	NO	Short distance	Short distance	50m Wide coverage (up to 50m)
Detection method	Point	Point	Plane	Point, line	Point, line, area
Sensitivity	Low, 0.1%	Low, 0.1%	Low, 0.1 kg/s	≤ 0.1%	High sensitivity, 0.0001%
Lifetime	2	2-3	≥ 5	≥ 5	Long lifetime, ≥ 10
Selectivity	Poor	Poor	General	Poor(Only suitable for high-pressure gases)	Excellent (Sensitive to a single gas)
Stability	Poor	Poor	Poor	General	Excellent (Calibration free and less susceptible to environmental impact)
Cost factors	Lowest	Low	High	High	High*

TDLAS measurement principle

TDLAS (Tunable Diode Laser Absorption Spectroscopy) technology utilizes the characteristics of target gas molecules absorbing specific wavelengths of laser light intensity, which can measure the concentration of target gas. It can monitor methane leakage, hydrogen sulfide, hydrogen chloride, and oil gas volatilization as needed.

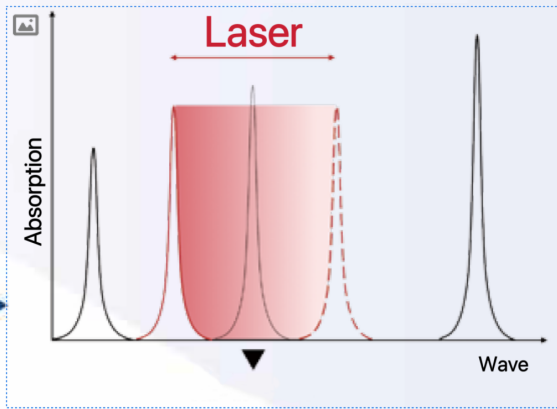
Technical characteristics

- High security, long-distance safety detection
- High sensitivity, able to detect micro leaks
- High accuracy, fingerprint feature avoid gas cross interference
- Easy maintenance, no need for frequent calibration
- Fast response, millisecond response
- Longer lifetime

Measurement method

TDLAS (Tunable Diode Laser Absorption Spectroscopy) technology utilizes the characteristics of target gas molecules absorbing specific wavelengths of laser light intensity, which can measure the concentration of target gas. It can monitor methane leakage, hydrogen sulfide, hydrogen chloride, and oil gas volatilization as needed.

The laser emits a specific wavelength of laser light through the internal control circuit, the laser passes through the detection area and reaches the reflective surface (process facilities, ground, etc.) and is reflected back to the detector in the equipment, if there is a characteristic gas to be detected in the detection area, the laser reacts with the gas and is absorbed, the higher the gas concentration, the greater the absorption, the light intensity detected by the detector in the equipment changes, and the light intensity information is fed back to the control circuit for processing. The detector measures the absorption rate according to the laser light reflected back to determine whether there is leakage, and the gas unit is PPM.M



L-TEK P100 portable laser methane telemetry

Product description

Portable laser methane, using TDLAS (Tunable Diode Laser Absorption Spectroscopy) technology, can be used for methane and methane-containing gas concentration monitoring in the target area according to the absorption characteristics of methane gas to specific wavelength lasers. Portable laser methane telemetry is widely used in methane and methane-containing gas inspection in petroleum, chemical, mine, city gas and other industries. Through long-distance and non-contact telemetry method, the personal safety of workers in high-risk scenes is effectively guaranteed. The portable detector has a compact design, which is convenient for inspectors to carry and improve detection efficiency.

Features

- Intrinsically safe explosion-proof design, suitable for hazardous occasions.
- ppm level sensitivity, suitable for micro leakage monitoring.
- Millisecond-level response speed, fast inspection without staying and waiting, improve inspection efficiency.
- Compact design, easy to carry.
- Non-contact measurement, expand the scope of inspection, ensure the personal safety of inspection personnel.
- Battery support all-day inspection, USB charging.
- Fingerprint features, not disturbed by other gases.
- Friendly interface, simple operation.
- Strong adaptability, not affected by ambient temperature.
- Non-poisoning, calibration-free, stable and reliable.



Product parameters

Detectable gases	Methane (CH4)	Weight	300g
Detection distance	Standard 20m; Increased range to 50m	Battery life	8 hours (USB TypeC charging)
Response time	≤ 0.05 (adjustable)	Calibration	Long term calibration free
Sensitivity	5ppm m	Standards	IEC 60079-0: 2017 Ed.7 IEC 60079-11: 2011 Ed.6 IEC 60079-28: 2015 Ed.2
Detection range	0 ~ 99999ppm.m	Explosion proof sign	IECEX; Ex ib op is IIB T4 Gb
Operating temperature/humidity	-20°C ~ 50°C /98%RH (No condensation)	Ingress protection	IP54
Power consumption	< 2W	Laser safety level	Detection laser : Class I Indicating laser: Class III
Size	138mm*49mm*36mm		