



Portable Gas Analyzer
Model:pGas4820-VOCs

Portable Industry Gas Analyzer

____ Tunable Diode Laser Spectroscopy
____ Qualitative and Quantitative Analysis for Organic Vapors

Ref: pGas4820_VOCs_DS_E
Version:2005-02-03

Information: http://www.fullsense.com/Products/Gas/Portable/pGas4820_IntE.pdf

- High selectivity from gases mixture is expected, None of interferences of water vapor
- More gases detection is supported
- Dissolved gas detect is supported with DGA software
- Intelligent Analysis Based on Powerful CPU
- Rapid Test in Seconds
- Sub-ppm or ppm detection of over 120 gases
- 100 frame Data log
- LCD 8x20 Display, Backlight Available
- RS232/485 Communication
- Full Function Keypad Operation
- Memo Driven Software, Easy to use; easy to train new operators
- Lightweight and easily portable
- Long life sensor designed
- Free of maintenance
- Versatile and up-gradable to suit your needs(Spectral Scanning upgrade permits collection of spectral fingerprint of unknowns, for further in-depth analysis and identification)
- ISO 14000 / ISO 14001 ENVIRONMENTAL MANAGEMENT Analyzer

High reliable, Free from Interferences, Professional to Industrial Analysis

p-Gas4810 was special designed for industry general gas analysis. It was based on high resolution TDLAs MFS- NIR spectroscopy technology. The resolution of the spectrum is <10nm between 350-470nm; <3-5nm between 400-700nm;<14nm between 700-800nm;<0.4nm between 760-980nm;<3nm between 1060nm; <20MHz between 1200-1580nm; <20MHz between 1400-1650nm; <30MHz between 1400-2050nm, <80MHz between 1.65-2.4um;

Applications:

- Industry gas analysis.
- Leak Detection for process maintenance
Using a leak detection probe, you can set up the pGas4810-MP4L23-OPL10-PSED to check for leaks around many types of process equipment.
- Groundwater and soil contamination assessment
- Tanker loading emissions monitoring
- Occupational hygiene analysis
- Detection of leaks from storage facilities
- Vehicle emissions
- Stack Emissions Monitoring
- Atmosphere Analysis. pGas4810- MP4-OPL10k-ASM-HAP is for trace pollutants analysis.
- Environ monitoring, and urban air pollution surveys. pGas4810-MP4-OPL36-ASM-EAP is the design for popular environ hazardous gases analysis.
- Odor investigations and Effluvium Detect
- Assessment and quantification of indoor air quality
- Indoor Air Quality Studies
The pGas4810-MP4-OPL36-ASM-EAP makes precise spot measurements for compounds such as CO₂, CO, formaldehyde, or organic vapors.
- Occupational Air Quality

- Acid gases and odorous species SO₂, NO₂, H₂S and NO
- Light hydrocarbons and combustion products
- Industrial Hygiene
Real-time detection of vapors in job environments promotes safe work habits.
pGas4810-MP4-OPL10k-ASM-HAP analyzers monitor at typical government-regulated levels.
- Waste Anesthetic Gases
Service technicians can identify leaks on anesthetic delivery systems by using the pGas4810-MP2-OPL1-VAMCs Gas Analyzer as a part of Preventative Maintenance (PM) work.
- Emergency Response Analysis
The pGas4810- MP4-OPL36-PSED assists emergency response personnel in qualifying hazardous spills and emissions.
- Fume Hood/Tracer Gas Analysis
When the handling of toxic substances is performed in fume hoods, worker safety can be jeopardized. The pGas4810- MP4-OPL10-PSED serves as an effective monitor for evaluating fume containment of laboratory hoods.
- Air contaminants detection of scuba diving tank, nuke.
- Air contaminants detection of aerostat.
- Atmosphere analysis of universe space
- War fairs, chemical agents, bio agents detection
- Drugs detection
- Public safety monitor, explosive and hazardous materials detection

Instrumental Functions

- LCD 320×240 Graphic LCD Display, with backlight
- RS232/RS485 serial port. Supporting STIMcom / Modbus communication, and printer; USB support in new version
- Non-volatile memory supported data store and read out, or output to computer
- Built-in Sampling pump included, and suitable sample pre-process assembly
- Built-in alarm include LED flash, LCD indication, and Beep; Alarm limit setup supported, default to TWIN standard
- Sampling gun with filter/trap for dusts and condensed water drain.
- System diagnostic
 - Protection against accidental turn-off
 - Over-range protection for all installed sensors
 - Storage protection for sensors
- Flexible tubing for re-configuration
- User complete calibration, zero-adjust and essential data setup support
- Interfering gas compensation select
- Basal humidity and temperature detected for compensation and controlled for normal test. Over limit alarm support
- Rechargeable batteries to provide 100 hours of continuous operation
- 15-24 V DC powered. Local AD to DC adapter supported
- Basal intrinsically safe system, except parts of pump and heater. Special order for class 1 div. 1, groups a, b, c and d and class 2 div. 1, groups e, f and g for use in hazardous areas recommended.

Specifications

Electronic unit: BD6, ADC resolution: 0.0015%FS

Protection against electromagnetic and radio frequencies interference

Maintenance interval: Recommended every 3 months (no consumables needed)

Calibration: In situ with flow through cell, or in separate calibration device,

Identification set by high pure gas only.

Storage or standby would not decay the system. Long life supported.

Detector Type Single beam near infrared spectrophotometer

Optics Bandwidth: 0.1 to 0.001nm;
Refer to Laser list

Dynamic range: General 1000 to 100000 :1

Accuracy: 2% of reading or LDL whichever is great

Pump Flow Rate 1-15 liters/ minute

Analysis Time 1-20s;

Alarms User Definable

Readout	8 line x 40 character LCD
Start up:	3mins
Response Time	T90:1-10 seconds to 90% of final reading
Optical Path length (OPL)	OPL1: 0.5m to 1.00m OPL10: 10m OPL36k:36km OPL could be expanded to kilometers by Perrot Cell for trace gas analysis.
Sample Cell Volume	2.0 liters
Instrument span drift:	< 4% of measuring range between maintenance intervals
Instrument zero drift:	Negligible (<2% of measuring range between maintenance intervals)
Sampling pressure:	Atmosphere \pm 20% (Standard sampling condition)
Sampling temperature:	-10 °C to 50 °C(Standard sampling condition)
Battery	Internal, rechargeable NiCd. 12V nominal; 2 Ah Capacity. Recharge time 4 to 8 hours Continuous running time: >24Hr/ each charge; Standby time: 7 days
Output	0-2.5Vdc, Serial RS232 or RS485
Dimensions	553mm (W) x 365mm (H) x 193mm (D) Mass 15 kg
Intrinsic Safety	User specified models are certified for CENELEC, Groups IIC, Zone 1 and 2
Certifications	ETL (Class I, Div 1, Groups B, C, & D, Temperature Class T4; ETL-C (Class I, Div. 1, Groups, B, C, & D, Temperature Class T4); CENELEC (EEx ib d IIB + H2 T4)

Environment Requirements:

Environmental Humidity:

Operating:0 to 100% RH, non-condensing




Storage:0 to 90% RH, non-condensing

Environmental Temperature Range:

N:Operating -10 °C to 50 °C

N:Storage -40 °C to 70 °C

Instrumental Type:

pGas4820-H-OPL(<1)-MP(1-4)	pGas4820-OPL(1-100)- MP(1-8)	HBD7-Gas4821-H-OPL(<1) MP(1-2)
		
Dispersion sampling; OPL \leq 1m; Scan range: 50nm; 1kw Rechargeable battery,20 more hour continuous working supported;	Pump sampling; OPL \leq 1m, or 30m,100m Scan range: 50nm; 1kw Rechargeable battery,20 more hour continuous working supported;	Dispersion sampling; OPL \leq 0.6 m; Scan range: 20nm; 120mAHr Rechargeable battery, 1 more hour continuous working supported; Safety: Intrinsic

pGas4820-Series Products

Organic Gas Analyzer Special

Model	Professional	Specifications	Application
HBD7-Gas4821 -H-OPL06-L2250-VOC	Organic vapor analyzer	1ppm-100% LEL; LDL<1ppm for most gases 1 specified gases calibration in plant;	Industry analysis; Leakage detection; Environ analysis;

		128 gases calibration supported	Class 0 area test;
pGas4821 -H-OPL1-L2250-VOC	Organic vapor analyzer	0.1ppm-100% LEL; LDL<1ppm for most gases 1 specified gases calibration in plant; 256 gases calibration supported	Industry analysis; Leakage detection; Environ analysis;
pGas4821 -OPL1-L2250-VOC	Organic vapor analyzer	0.1ppm-100% LEL; LDL<1ppm for most gases 1 specified gases calibration in plant; 256 gases calibration supported	Industry analysis; Leakage detection; Environ analysis;
pGas4821 -OPL30-L2250-VOC	Organic vapor analyzer	0.01ppm-1000ppm; LDL<10ppb for most gases 1 specified gases calibration in plant; 256 gases calibration supported	Industry analysis; Leakage detection; Environ analysis;
HBD7-Gas4821 -H-OPL06-L2300-VOC	Organic vapor analyzer	1ppm-100% LEL; LDL<1ppm for most gases 1 specified gases calibration in plant; 128 gases calibration supported	Industry analysis; Leakage detection; Environ analysis; Class 0 area test;
pGas4821 -H-OPL1-L2300-VOC	Organic vapor analyzer	0.1ppm-100% LEL; LDL<1ppm for most gases 1 specified gases calibration in plant; 256 gases calibration supported	Industry analysis; Leakage detection; Environ analysis;
pGas4821 -OPL1-L2300-VOC	Organic vapor analyzer	0.1ppm-100% LEL; LDL<1ppm for most gases 1 specified gases calibration in plant; 256 gases calibration supported	Industry analysis; Leakage detection; Environ analysis;
pGas4821 -OPL30-L2300-VOC	Organic vapor analyzer	0.01ppm-1000ppm; LDL<10ppb for most gases 1 specified gases calibration in plant; 256 gases calibration supported	Industry analysis; Leakage detection; Environ analysis;
pGas4822 -H-OPL30-L22L23-VOC	Organic vapor analyzer	0.01ppm-1000ppm; LDL<10ppb for most gases 2 specified gases calibration in plant; 256 gases calibration supported	Industry analysis; Leakage detection; Environ analysis;

List of Typical Detectable Gases

*The range data is with 1 m optical path cell, unless other where specified with OL.

*analyzer for unlisted gases might be designed by requirements. Such as Acetylene (C₂H₂), Allene (CH₂CCH₂), Ammonia (NH₃), Butadiyne (C₄H₂), Butene (CH₂CHCH₂CH₃), Carbon dioxide (CO₂), Carbon disulfide (CS₂), Carbon monoxide (CO), Carbon tetrachloride (CCl₄), Carbonyl fluoride (COF₂), Carbonyl sulfide (COS), Chlorine nitrate (ClONO₂), Chlorine oxide (ClO), Chlorosulfonyl isocyanate (CSI) (ClSO₂NCO), Cyanogen (C₂N₂), Cyclopropane (C₃H₆), Dimethyl sulfide (DMS) (H₃CSCH₃), Dimethyl sulfoxide (DMSO) (H₃CSOCH₃), Ethane (CH₃CH₃), Ethylene (C₂H₄), Formaldehyde (H₂CO), Formic acid (HCO₂H), Hydrazine (N₂H₄), Hydrogen (H₂), Hydrogen bromide (HBr), Hydrogen chloride (HCl), Hydrogen cyanide (HCN), Hydrogen fluoride (HF), Hydrogen iodide (HI), Hydrogen peroxide (H₂O₂), Hydrogen sulfide (H₂S), Hydroperoxy radical (HO₂), Hypobromous acid (HOBr), Hypochlorous acid (HOCl), Isobutene ((CH₃)₂CCH₂), Methane (CH₄), Methanesulfonyl chloride (CH₃SO₂Cl), Methanol (CH₃OH), Methylamine (CH₃NH₂), Methyl chloride (CH₃Cl), Methyl fluoride (CH₃F), Methyl mercaptan (CH₃SH), Nitric acid (HNO₃), Nitric oxide (NO), Nitrogen (N₂), Nitrogen dioxide (NO₂), Nitrogen oxide cation (NO⁺), Nitrous oxide (N₂O), Oxygen (O), Oxygen (O₂), Ozone (O₃), Phosphine (PH₃), Propane (C₃H₈), Propylene (C₃H₆), Propyne (CH₃C₂H), Sulfur dioxide (SO₂), Sulfur hexafluoride (SF₆), Sulfuryl chloride (SO₂Cl₂), Sulfuryl fluoride (SO₂F₂), Thiophosphoryl chloride (SPCl₃), Water (H₂O).

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General Gas Detect Information

Gases	Molecule	S	C	L	L22	L23
Acetylene	C ₂ H ₂	M+	m	w	m	m
Allene	CH ₂ CCH ₂		w	m	m	m
Ammonia	NH ₃	m	m	w	m	m
Benzene						
Butadiyne	C ₄ H ₂	w	w			
Butene	CH ₂ CHCH ₂ CH ₃		w	m	m	m
Carbon dioxide	CO ₂	m	w	w	m	m
Carbon disulfide	CS ₂				w	w
Carbon monoxide	CO	m	m	m	m	m
Carbon tetrachloride	CCl ₄					
Carbonyl fluoride	COF ₂	W				
Carbonyl sulfide	COS			w	m	m
Chlorine nitrate	ClONO ₂					
Chlorine oxide	ClO					
Chlorosulfonyl isocyanate(CSI)	ClSO ₂ NCO	w	w	w	w	w
Cyanogene	C ₂ N ₂				w	w
Cyclopropane	C ₃ H ₆			w	m	m
Dimethyl sulfide (DMS)	H ₃ CSCH ₃		w	w	m	m
Dimethyl sulfoxide (DMSO)	H ₃ CSOCH ₃					
Ethane	CH ₃ CH ₃			m	m	m
Ethylene	C ₂ H ₄			w	m	m
Formaldehyde	H ₂ CO			w	w	w
Formic acid	HCO ₂ H					
Hydrazine	N ₂ H ₄	M+	M+	M+	m	m
Hydrogen	H ₂					
Hydrogen bromide	HBr				m	m
Hydrogen chloride	HCl				m	m
Hydrogen cyanide	HCN	w	m	w	m	m
Hydrogen fluoride	HF	w				
Hydrogen iodide	HI	w	m	m	m	m
Hydrogen peroxide	H ₂ O ₂					
Hydrogen sulfide	H ₂ S	w	m	m	m	m
Hydroperoxy radical	HO ₂					
Hypobromous acid	HOBr					
Hypochlorous acid	HOCl					
Isobutene	CH ₃ CCCH ₂		w	m	m	m
Methane	CH ₄			w	m	m
Methanesulfonyl chloride	CH ₃ SO ₂ Cl					
Methanol	CH ₃ OH	w	w	w	m	m
Methylamine	CH ₃ NH ₂	m	m	w	m	m
Methyl chloride	CH ₃ Cl					
Methyl fluorine	CH ₃ F	m			m	m
Methyl mercaptan	CH ₃ SH	w	w	w	m	m
Nitric acid	HNO ₃			w	m	m
Nitric oxide	NO				m	m
Nitrogen	N ₂					
Nitrogen dioxide	NO ₂			W-	W-	W-
Nitrogen oxide cation	NO+					
Nitrous oxide	N ₂ O				w	w
Oxygen	O					
Oxygen	O ₂		w-	w-	W-	W-
Ozone	O ₃				w-	w-
Phosgene	PH ₃					
Phosphine	PH ₃				m	w
Propane	C ₃ H ₈	w	w	w	m	m
Propylene	C ₃ H ₆		w	m	m	m
Propyne	CH ₃ C ₂ H		m	w	m	m
Sulfur dioxide	SO ₂	w	w	w	w	w
Sulfur hexafluoride	SF ₆	w-			w	w
Sulfuryl chloride	SO ₂ Cl ₂					
Sulfuryl fluoride	SO ₂ F ₂					

Thiophosphoryl chloride
Water

SPCl₃
H₂O

w

w

M+

M+

- * m middle absorption,
- * w weak absorption;
- * - means more weaker than usual

More Gases Analyzing Datasheet

Gases		
COMPOUND		
ACETALDEHYDE		
ACETIC ACID		
ACETIC ACID		
ACETONE		
ACETONE		
ACETONITRILE		
ACETOPHENONE		
ACETYLENE		
ACRYLONITRILE		
AMMONIA		
AMMONIA		
ANILINE		
BENZALDEHYDE		
BENZENE		
1,3-BUTADIENE		
1,3-BUTADIENE		
BUTANE		
n-BUTYL ACETATE		
n-BUTYL ALCOHOL		
t-BUTYL ALCOHOL		
BUTYL CELLOSOLVE		
t-BUTYL METHYL ETHER		
CARBON DIOXIDE (absolute)		
CARBON DIOXIDE (absolute)		
CARBON DIOXIDE (differential)		
CARBON DIOXIDE (differential)		
CARBON DISULFIDE		
CARBON MONOXIDE		
CARBON TETRACHLORIDE		
CARBON TETRACHLORIDE		
CELLOSOLVE		
CELLOSOLVE		
CELLOSOLVE ACETATE		
CHLOROBENZENE		
CHLOROBROMOMETHANE		
CHLOROFORM		
CHLOROFORM		
CHLOROFORM		
CHLOROFORM		

m-CRESOL		
CUMENE		
CYCLOHEXANE		
CYCLOHEXANE		
CYCLOPENTANE		
DESFLURANE		
DESFLURANE		
DESFLURANE		
DESFLURANE		
m-DICHLOROBENZENE		
o-DICHLOROBENZENE		
p-DICHLOROBENZENE		
1,1-DICHLOROETHANE		
1,2-DICHLOROETHYLENE		
DICHLOROETHYLETHER		
DIETHYLAMINE		
DIMETHYLACETAMIDE		
DIMETHYLAMINE		
N,N-DIMETHYLFORMAMIDE		
DIOXANE		
ENFLURANE		
ENFLURANE		
ENFLURANE		
ENFLURANE		
ETHANE		
ETHANOLAMINE		
ETHYL ACETATE		
ETHYL ALCOHOL		
ETHYL BENZENE		
ETHYL CHLORIDE		
ETHYL ETHER		
ETHYL LACTATE		
ETHYLENE		
ETHYLENE DICHLORIDE		
ETHYLENE OXIDE		
ETHYLENE OXIDE		
FORMALDEHYDE		
FORMIC ACID		
GEN HALOCARBONS (Chloroform)		
GEN HALOCARBONS (Chloroform)		
GEN HYDROCARBONS (Hexane)		
GEN HYDROCARBONS (Methane)		
HALOTHANE		
HALOTHANE		
HALOTHANE		
HALOTHANE		
HEPTANE		
n-HEXANE		

HYDRAZINE		
ISOBUTANE		
ISOFLURANE		
ISOFLURANE		
ISOFLURANE		
ISOFLURANE		
ISOPROPYL ALCOHOL		
ISOPROPYL ALCOHOL		
ISOPROPYL ALCOHOL		
ISOPROPYL ALCOHOL		
ISOPROPYL ETHER		
METHANE		
METHYL ACETATE		
METHYL ACETATE		
METHYL ACRYLATE		
METHYL ALCOHOL		
METHYL CELLOSOLVE		
METHYL CELLOSOLVE ACETATE		
METHYL CELLOSOLVE ACETATE		
METHYL CHLORIDE		
METHYL CHLOROFORM		
METHYL ETHYL KETONE		
METHYL ETHYL KETONE		
METHYL ISOBUTYL KETONE		
METHYL METHACRYLATE		
METHYL METHACRYLATE		
METHYLACETYLENE		
METHYLAMINE		
METHYLENE CHLORIDE		
NITROGEN TRIFLUORIDE		
NITROUS OXIDE		
OCTANE		
OCTANE		
PENTANE		
PERCHLOROETHYLENE		
PERCHLOROETHYLENE		
PERCHLOROETHYLENE		
PGMEA		
PHOSGENE		
PROPANE		
n-PROPANOL		
PROPYLENE OXIDE		
PYRIDINE		
TRICHLOROMONOFUOROMETHANE		
TRICHLOROTRIFLUOROETHANE		
TRICHLOROTRIFLUOROETHANE		
1,2-DICHLOROTETRAFLUOROETHANE		
1,2-DICHLOROTETRAFLUOROETHANE		

DICHLORODIFLUOROMETHANE		
DICHLORODIFLUOROMETHANE		
DICHLOROTRIFLUOROETHANE		
DICHLOROTRIFLUOROETHANE		
DICHLOROTRIFLUOROETHANE		
DICHLOROTRIFLUOROETHANE		
1-CHLORO-1,1,2,2-TETRAFLUOROETHANE		
1-CHLORO-1,1,2,2-TETRAFLUOROETHANE		
1-CHLORO-1,1,2,2-TETRAFLUOROETHANE		
1-CHLORO-1,1,2,2-TETRAFLUOROETHANE		
1,1,1,2-TETRAFLUOROETHANE		
BROMOTRIFLUOROMETHANE		
1,1-DICHLORO-1-FLUOROETHANE		
1,1,1-TRIFLUOROETHANE		
1,1-DIFLUOROETHANE		
DICHLOROFLUOROMETHANE		
DICHLOROFLUOROMETHANE		
CHLORODIFLUOROMETHANE		
CHLORODIFLUOROMETHANE		
DICHLOROPENTAFLUOROPROPANE		
SEVOFLURANE		
SEVOFLURANE		
STYRENE		
STYRENE		
STYRENE		
SULFUR DIOXIDE		
SULFUR HEXAFLUORIDE		
SULFURYL FLUORIDE		
TETRAHYDROFURAN		
TOLUENE		
TOLUENE		
TOLUENE		
1,1,2-TRICHTHLORETHANE		
1,1,2,2-TETRACHLOROETHANE		
TRICHTHLORETHYLENE		
TRICHTHLORETHYLENE		
VINYL ACETATE		
VINYL CHLORIDE		
VINYL CHLORIDE		
VINYLDENE CHLORIDE		
XYLENE		
XYLENE		
XYLENE		