



Model GM-XP-316 VOC Leak Detector – EPA Method 21



Application

Matheson's Cosmos GM-XP-316 is ideal for EPA's Method 21 fugitive emission monitoring of volatile organic compound (VOC) leaks from process equipment. Potential leak sources include:

- Valves, seals, drains, other connections
- Pressure relief devices and vents
- Pumps and compressors

EPA Method 21 requires the use of an instrument that meets a series of specifications and performance criteria. Additional information can be found under EPA 40 CFR Ch.1, Pt.60, App.A, Method 21.

Description

The Cosmos GM-XP-316 meets or exceeds the specifications and performance criteria required by EPA Method 21.

	EPA Method 21 Criteria	Model GM-XP-316
Portable	Yes	Yes
Sampling Type	Suction	Suction
Response Time	<30 seconds	<30 seconds
Response Factor to Reference VOC	<10	<10
Scale Readable to +/-2.5% of leak definition concentration	Yes	Yes
Sensor Output	Linear	Linear
Intrinsically Safe	Yes	Yes

A large, clear analog meter is graduated in two ranges: "L" low concentration range and "H" high concentration range. There are four (4) dual scale ranges available to choose from:

"L" Low	200 ppm	500 ppm	1,000 ppm	5,000 ppm
"H" High	2,000 ppm	5,000 ppm	10,000 ppm	50,000 ppm

The GM-XP-316 can be calibrated on any number of compounds, although methane is most typical as it provides the best response factors to other substances.

A single multi-position switch turns the instrument on, checks the battery voltage and selects the sensitivity range desired. A maximum of 30 seconds is all that is needed for instrument warm up. Up to ten hour operation is possible with the 4 AA dry cell batteries included. And although not required by EPA Method 21, the GM-XP-316 is available with an optional built in audible/visual alarm, as well as an optional recorder output circuit and terminal connector.

Principle of Operation

The Cosmos GM-XP-316 utilizes a long life catalytic combustion sensor. This sensor works by detecting the temperature rise (due to change in resistance) of a platinum coil created by the target gas being oxidized on the surface of a catalyst. The sensor features:

- Linear Output
- High Accuracy; Superior Repeatability
- Immune to Ambient Temperature/Humidity Changes
- Low Power consumption

An integral, extremely low power drain micro-pump provides a continuous, steady sample flow to give accurate and repeatable measurements.



Specifications

Detection Principle:	Catalytic Combustion
Sampling Method:	Auto-Suction (micro-pump)
Measuring Range:	Dual scale (see table)
Sensor Output:	Linear
Calibration Gas:	Customer to specify on order Typically Methane (CH ₄)
Accuracy:	"L" range: +/- 10% f.s. "H" range: +/- 5% f.s.
Alarm ("A" Model Only):	Factory set at midpoint of "L" range. Other settings available upon request
Warm Up Time:	30 seconds maximum
Response Time:	3 seconds max. to start of meter deflection w/1m hose; <30 seconds to 90% reading
Operating Time:	Up to 10 hours w/alkaline batteries
Power Source:	4 AA batteries (alkaline, dry cell, NiCad) Dry cell provided as standard
Operating Temperature:	-20°C to 50°C (-4°F to 122°F)
Operating Humidity:	20 to 85% RH
Altitude:	2000m (6,562 feet) max.
Dimensions:	7.5"L x 3.5"W x 1.6"D (100mm x 84mm x 40mm)
Weight:	1.5 lbs. (700 g)
Warranty:	1 Year



Model GM-XP-316

VOC Leak Detector – EPA Method 21 (continued)

Ordering Information

Model Number	Description
GM-XP-316-Gas Code-Range Code	Cosmos VOC Leak Detector with AT-3A metal probe, DF-4 moisture trap, FE-2 filter and 2 refills, 1m sampling hose, 4 AA dry cell batteries and carrying case w/shoulder strap <i>Specify Gas and Range Codes from table below.</i>
GM-XP-316A-Gas Code-Range Code	Same as above except with built-in audible/visual alarm. <i>Specify Gas and Range Codes from table below.</i>
AT-20	Long metal probe (100cm)
AT-3A	Standard metal probe
XXRU3A	Rubber tip for AT-3A
RP-4SP	1m telescopic probe (0.3-1m)
RP-4SP-2	2m telescopic probe (1-2m)
SF-8	Floating probe
SH-6-1	Standard 1m sampling hose
SH-6-2	2m sampling hose
SH-6-3	3m sampling hose
SH-6-5	5m sampling hose
FE-17	Water block filter
FE-2-10	Filter element (10pcs)
FE-2-100	Filter element (100 pcs)
ROC	Recorder Output Circuit
RTC	Recorder Terminal Connector

Gas Code Table

Gas Code	Calibration Gas	Gas Code	Calibration Gas
AC	Acetone	FR	Halocarbon 502
AY	Acetylene	HX	Hexane
AR	Acrylonitrile	HY	Hydrogen
AM	Ammonia	ME	Methane
BZ	Benzene	MB	Methyl Bromide
BU	Iso-butane	PR	Propane
BY	Butyl Acetate	TO	Toluene
CM	Carbon Monoxide	TR	Trichloroethylene
EO	Ethylene Oxide	VC	Vinyl Chloride
FN	Halocarbon 123	XY	Xylene

Range Code Table

Range Code	2K	5K	10K	50K
Low Range	0-200ppm	0-500ppm	0-1,000ppm	0-5,000ppm
High Range	0-2,000ppm	0-5,000ppm	0-10,000ppm	0-50,000ppm