

T-Series

Advanced IR Gas Analyzer for Process Monitoring



The T-Series Inline Gas Analyzer improves gas measurement accuracy over the traditional non-dispersive infrared (NDIR) analyzers by using Tunable Filter Spectroscopy (TFS™), a spectroscopic scanning technique capable of generating slices of spectra in the infrared region. Each scan produces an absorption spectrum which is used to identify compounds and provide concentration values. TFS technology improves gas identification accuracy and selectivity by subtracting out spectra from interferent gases within the same infrared regions. This spectral processing capability also provides multi-component measurement.

True in-process measurement is achieved with the T-Series by employing a single path optical design with

the gas cell located between the infrared source and the spectrometer/detector. A variety of sample ports can be accommodated from compression fittings to KF flanges commonly used in semiconductor applications.

The T-Series is a versatile analyzer platform that can be factory configured to monitor or detect various IR active gases from near to mid-infrared at either parts per million capability or percent level sensitivities. With high measurement accuracy, selectivity and multi-component identification, the T-Series is the preferred solution over other spectroscopic techniques for semiconductor, specialty gases and other chemical process monitoring applications.

Product Features

- High accuracy and selectivity
- Analytical versatility with ppm to percent level sensitivity for most IR active gases
- Complete, integration-ready system for reduced complexity and fast install time
- Inline or in-process sampling with configurable manifold and sample ports design
- Easy installation and maintenance for lower cost-of-ownership



Applications

- Chamber clean end-point detection
- Etch process monitoring
- Gas blending control
- Chemical process monitoring

Analyzer

Measurement Technique	IR absorption using Tunable Filter Spectrometry				
Measurable Gases	<ul style="list-style-type: none"> • SiF₄, CO₂, WF₆, and SiF₄ & CO₂ (dual gas measurement) • Other gases available (measurement feasibility dependent on sample matrix). Contact MKS for more information. 				
Gas Cell Path Length	15 cm (standard), contact MKS for custom length				
Update Rate	1 - 120 seconds (software configurable)				
Calibration	Factory calibrated; no recalibration required				
Optics Purge Flow	Dry nitrogen or air (only required for measurement certain gases; contact MKS)				
Dimensions (for 15 cm cell with KF40)	<table border="0"> <tr> <td style="text-align: right;">Sensor Head</td> <td> <ul style="list-style-type: none"> • 16.0 x 6.0 x 5.4 in (407 x 153 x 137 mm) • 12.6 x 10.0 x 3.1 in (320 x 254 x 78 mm) </td> </tr> <tr> <td style="text-align: right;">Control Box</td> <td></td> </tr> </table>	Sensor Head	<ul style="list-style-type: none"> • 16.0 x 6.0 x 5.4 in (407 x 153 x 137 mm) • 12.6 x 10.0 x 3.1 in (320 x 254 x 78 mm) 	Control Box	
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Control Box					
Power	120 VAC, 230 VAC, or 24 VDC (2 amp)				
Weight	7 lbs. (3.2kg)				

Sampling Parameters

Sample Temperature	20 - 60°C (contact MKS for other ranges)
Sample Pressure	0.5 – 760 Torr (contact MKS for other ranges)
Sample Ports/Fittings	NW25 (typical; contact MKS for other manifold styles and fittings)

Communication

Measurement Output	<table border="0"> <tr> <td style="text-align: right;">Analog Output 1</td> <td>• 0 – 10 V (user configurable)</td> </tr> <tr> <td style="text-align: right;">Analog Output 2</td> <td>• 0 – 10 V (user configurable)</td> </tr> </table>	Analog Output 1	• 0 – 10 V (user configurable)	Analog Output 2	• 0 – 10 V (user configurable)
Analog Output 1	• 0 – 10 V (user configurable)				
Analog Output 2	• 0 – 10 V (user configurable)				
Fault Indicator	Digital Output 1				
Service Port	Digital Diagnostic Codes				
Connection	DB15				
Advanced Communication	Modbus TCP/IP				

Please contact your local MKS office for price and availability information.

