



Gas & Flame
Detection

3M™ Meridian Sensor Specifications



Table of contents

Meridian sensor specification guide

Combustible sensors

- 3 Combustible Catalytic Bead Sensor
- 4 Common K-Factors (Relative to Methane)

Toxic sensors

- 5 Ammonia (NH₃) Sensor
- 6 Bromine, High RH (RS Br₂ HRH) Rock Solid Sensor
- 7 Carbon Dioxide (CO₂) Infrared (IR) Sensor
- 8 Carbon Monoxide (CO) Sensor
- 10 Chlorine, High RH (RS Cl₂ HRH) Rock Solid Sensor
- 10 Chlorine, Low RH (RS Cl₂ LRH) Rock Solid Sensor
- 11 Fluorine, High RH (RS F₂ HRH) Rock Solid Sensor
- 12 Fluorine, Low RH (RS F₂ LRH) Rock Solid Sensor
- 13 Hydrogen Chloride, High RH (RS HCl HRH) Rock Solid Sensor
- 14 Hydrogen Chloride, Low RH (RS HCl LRH) Rock Solid Sensor
- 15 Hydrogen Fluoride, High RH (RS HF HRH) Rock Solid Sensor
- 16 Hydrogen Fluoride, Low RH (RS HF LRH) Rock Solid Sensor
- 17 Hydrogen Sulfide (Low Methanol) (H₂S-LM) Sensor
- 18 Oxygen (O₂) Sensor
- 19 Sulfur Dioxide, High RH (RS SO₂ HRH) Rock Solid Sensor
- 20 Sulfur Dioxide, Low RH (RS SO₂ LRH) Rock Solid Sensor
- 21 Notes
- 22 Appendix A: Meridian Sensor Interference Table
- 25 Notes

Combustible catalytic bead sensor

Meridian combustible catalytic bead sensor			
pN	096-3473-55		
Compatible Instruments	Meridian Universal Gas Detector		
Ranges†	Range	Resolution	Cal Gas
	100% LEL	1% LEL	2.5% v/v CH4‡
Accuracy/Linearity*	±3% LEL for conc < 50% LEL		
	±5% LEL for conc ≥ 50% LEL		
Response Time*	t50 < 10 sec		
	t90 < 20 sec		
Operating Temperature	-40 to +75°C (-40 to +167°F)		
Operating Humidity	5-95% RH, non-condensing		
Operating Pressure	100 kPa ± 20 kPa (29.5 in Hg ± 5.9 in Hg)		
Recommendations			
calibration Gas	Target combustible gas (methane default)		
Surrogate Calibration Gas	Methane or Propane		
Calibration Frequency	Quarterly		
Calibration Tubing	Tygon		
Notes	‡A minimum of 10% oxygen is required for the sensor to operate properly		
	*Sensor may be adversely affected by exposure to silicones, sulfur compounds, halogens or lead-containing compounds.		
Commom k-factors (relative to methane)			
see Common K-Factors on Page 4			

Common k-factors (relative to methane)

Meridian combustible catalytic bead sensor					
Common k-factors (relative to methane)					
K-Factor	k-factor	COMMON SYNONYMS	K-Factor	k-factor	COMMON SYNONYMS
Acetaldehyde (C ₂ H ₄ O)	0.64		Heptane (C ₇ H ₁₆)	0.42	
Acetone ((CH ₃) ₂ CO)	0.60		n-Hexane (C ₆ H ₁₄)	0.40	
Acetylene (C ₂ H ₂)	0.63		Hydrogen (H ₂)	0.81	
Ammonia (NH ₃)	1.43		Isopropyl Alcohol ((CH ₃) ₂ CHOH)	0.44	Isopropanol, IPA
Benzene (C ₆ H ₆)	0.45		Methane (CH ₄)	1.00	
1,3-Butadiene (C ₄ H ₆)	0.45		Methyl Alcohol (CH ₃ OH)	0.78	Methanol
n-Butane (C ₄ H ₁₀)	0.52		Methylene Chloride (CH ₂ Cl ₂)	1.11	
Isobutane (C ₄ H ₁₀)	0.45		Methyl Chloride (CH ₃ Cl)	0.88	
Isobutylene (C ₄ H ₈)	0.58		Methyl Ethyl Ketone (C ₄ H ₈ O)	0.43	MEK
Butyl Acetate (C ₈ H ₁₆ O ₂)	0.40		n-Octane (C ₈ H ₁₈)	0.32	
n-Butyl Alcohol (C ₄ H ₉ OH)	0.45	Butanol	Pentane (C ₅ H ₁₂)	0.51	
Chlorobenzene (C ₆ H ₅ Cl)	0.38		Isopentane (C ₅ H ₁₂)	0.46	
Cyclohexane (C ₆ H ₁₂)	0.46		Propane (C ₃ H ₈)	0.51	
Diethyl ether ((C ₂ H ₅) ₂ O)	0.50		Propylene (C ₃ H ₆)	0.62	Propene
n-Decane (C ₁₀ H ₂₂)	0.29		Propylene Oxide (C ₃ H ₆ O)	0.44	
Ethane (C ₂ H ₆)	0.68		Styrene (C ₈ H ₈)	0.43	
Ethyl Acetate (C ₄ H ₈ O ₂)	0.46		Tetrahydrofuran ((CH ₂) ₄ O)	0.47	THF
Ethyl Alcohol (CH ₃ CH ₂ OH)	0.63	Ethanol	Toluene (C ₇ H ₈)	0.42	
Ethylbenzene (C ₆ H ₅ CH ₂ CH ₃)	0.41		Vinyl Chloride (C ₂ H ₃ Cl)	0.56	VCM
Ethylene (C ₂ H ₄)	0.63	Ethene	o-Xylene (C ₈ H ₁₀)	0.38	Xylene, Xylenes
Ethylene Oxide (C ₂ H ₄ O)	0.49				

K-factors may be used two ways:

- for a sensor calibrated to read methane:
When a gas other than methane is known to be present, multiply the reading times the k-factor to get the concentration of the interfering gas.
- To use methane to calibrate an instrument to read another gas:
Divide the methane cal gas concentration by the k-factor and span the instrument to that value.
Example: to span for methanol, apply 32% LEL methane and 32/0.78 = 41% LEL (methanol)

Ammonia (NH₃) sensor

Meridian ammonia (NH ₃) sensor			
pN	096-3473-03		
Compatible Instruments	Meridian Universal Gas Detector		
Ranges†	Range	Resolution	Cal Gas
	100 ppm (default)	1 ppm	50 ppm NH ₃
	50 ppm	0.1 ppm	25 ppm NH ₃
	250 ppm	1 ppm	50 ppm NH ₃
	300 ppm	1 ppm	300 ppm NH ₃
	500 ppm	1 ppm	300 ppm NH ₃
Accuracy/Linearity*	±2 ppm or 2% applied gas		
Response Time*	t50: < 30 sec		
	t90: 3 min		
Operating Temperature	-5 to +50°C (23 to +122°F) continuous		
	-40 to +50°C (-40 to +122°F) non-condensing		
Operating Humidity	5-95% RH, non-condensing		
Operating Pressure	100 kPa ± 20 kPa (29.5 in Hg ± 5.9 in Hg)		
Common Interference Gases	Ratio	Interference Gas	
	0.7	Hydrazine	
	0.6	Hydrogen (H ₂)	
	0.5	MMH (monomethyl hydrazine)	
Ratio: 1 ppm of interference gas will appear as the value shown on an NH ₃ sensor. Other gases may influence sensor; refer to Appendix A on page 24 for additional cross-sensitivity information.			
Recommendations			
calibration Gas	Ammonia (NH ₃)		
Surrogate Calibration Gas	None Recommended		
Calibration Frequency	Quarterly		
Calibration Tubing	Teflon or other fluoropolymer tubing		
Notes	*For a new sensor operating at 25°C, 50%RH		
	†Sensor includes all listed ranges.		

Bromine, high RH (RS BR2 HRH) Rock solid sensor

Meridian rock solid bromine, high RH (RS BR₂ HRH) sensor

pN	096-3473-24		
Compatible Instruments	Meridian Universal Gas Detector		
Ranges†	Range	Resolution	Cal Gas
	10 ppm default	0.01 ppm	5 ppm Cl ₂
	1 ppm	0.01 ppm	2 ppm Cl ₂ ‡
Accuracy/Linearity*	±0.5 ppm or 3% of applied gas		
Response Time*	t50 ≤ 5 sec		
	t90 ≤ 60 sec		
Operating Temperature	-40 to +50°C (-40 to +122°F) non-condensing		
Operating Humidity §	5-95% RH, non-condensing		
Operating Pressure	100 kPa ± 20 kPa (29.5 in Hg ± 5.9 in Hg)		
Common Interference Gases	1	Chlorine (Cl ₂)	
	0.4	Chlorine Dioxide (ClO ₂)	
	0.9	Fluorine (F ₂)	
	< 0.1	Hydrogen Chloride (HCl)	
	< 0.1	Ozone (O ₃)	
	< 0.01	Sulfur Dioxide (SO ₂)	
	< 0.01	Sulfur Dioxide (SO ₂)	

Ratio: 1 ppm of interference gas will appear as the value shown on a RS Br₂ sensor. Other gases may influence sensor; refer to Appendix A on page 24 for additional cross-sensitivity information.

RECOMMENDATIONS

Calibration Gas	Bromine (Br ₂)
Surrogate Calibration Gas	Chlorine (Cl ₂) Span sensor to Cl ₂ cal gas concentration
Calibration Frequency	Quarterly
Calibration Tubing	Teflon or other fluoropolymer tubing
Notes	*For a new sensor operating at 25°C, 50%RH
	†Sensor includes all listed ranges.
	‡Use Range-Invariant Calibration feature if < 1 ppm Cl ₂ calibration gas is unavailable.
	§This sensor is optimized for best performance and longevity in relatively humid conditions. Recommend 70% RH ± 15%.

Carbon Dioxide (CO₂) Infrared (IR) sensor

Meridian carbon dioxide (CO ₂) infrared (IR) sensor			
pN	096-3473-58		
Compatible Instruments	Meridian Universal Gas Detector		
Ranges†	Range	Resolution	Cal Gas
	5% V/V	0.01% V/V	2.5% V/V CO ₂
Accuracy/Linearity*	±0.25% V/V		
Response Time*	t50 < 10 sec		
	t90 < 30 sec		
Operating Temperature	-40 to +75°C (-40 to +167°F)		
Operating Humidity	5-95% RH, non-condensing		
Operating Pressure	100 kPa ± 20 kPa (29.5 in Hg ± 5.9 in Hg)		
Recommendations			
calibration Gas	Carbon Dioxide (CO ₂)		
Surrogate Calibration Gas	None Recommended		
Calibration Frequency	Twice per year		
Calibration Tubing	Tygon		
Notes	*For a new sensor operating at 25°C, 50%RH		

Carbon Monoxide (CO) Sensor

Meridian carbon monoxide (CO) sensor			
pN	096-3473-01		
Compatible Instruments	Meridian Universal Gas Detector		
Ranges†	Range	Resolution	Cal Gas
	100 ppm (default)	1 ppm	50 ppm CO
	50 ppm	0.1 ppm	25 ppm CO
	150 ppm	1 ppm	100 ppm CO
	500 ppm	1 ppm	250 ppm CO
	1000 ppm	1 ppm	500 ppm CO
Accuracy/Linearity*	±5% of applied gas, or better		
Response Time*	t50: < 5 sec		
	t90: < 15 sec		
Operating Temperature	-40 to +50°C (-40 to +122°F)		
Operating Humidity	5-95% RH, non-condensing		
Operating Pressure	100 kPa ± 20 kPa (29.5 in Hg ± 5.9 in Hg)		
Common Interference Gases	Ratio	Interference Gas	
	0.2	Hydrogen (H ₂)	
	0	Hydrogen Sulfide (H ₂ S)	
	0	Isopropanol (IPA) ((CH ₃) ₂ CHOH)	
	0.5	Methanol (CH ₃ OH)	
	0	Methyl Mercaptan (CH ₃ SH)	
	0	Sulfur Dioxide (SO ₂)	
Ratio: 1 ppm of interference gas will appear as the value shown on a CO sensor. Other gases may influence sensor; refer to Appendix A on page 24 for additional cross-sensitivity information.			
Recommendations			
Calibration Gas	Carbon Monoxide (CO)		
Surrogate Calibration Gas	None Recommended		
Calibration Frequency	Quarterly		
Calibration Tubing	Tygon		
Notes	*For a new sensor operating at 25°C, 50%RH		
	†Sensor includes all listed ranges.		

Chlorine, high RH (RS CL₂ HRH) rock solid sensor

Meridian chlorine, high RH (RS CL ₂ HRH) rock solid sensor			
pN	096-3473-20		
Compatible Instruments	Meridian Universal Gas Detector		
Ranges†	Range	Resolution	Cal Gas
	5 ppm default	0.01 ppm	2 ppm Cl ₂
	1 ppm	0.01 ppm	2 ppm Cl ₂ ‡
	3 ppm	0.01 ppm	2 ppm Cl ₂
	10 ppm	0.1 ppm	5 ppm Cl ₂
	20 ppm	0.1 ppm	10 ppm Cl ₂
	30 ppm	0.1 ppm	10 ppm Cl ₂
Accuracy/Linearity*	±0.5 ppm or 3% of applied gas		
Response Time*	t50 ≤ 5 sec		
	t90 ≤ 60 sec		
Operating Temperature	-40 to +50°C (-40 to +122°F)		
Operating Humidity §	5-95% RH, non-condensing		
Operating Pressure	100 kPa ± 20 kPa (29.5 in Hg ± 5.9 in Hg)		
Common Interference Gases	Ratio	Interference Gas	
	1	Bromine (Br ₂)	
	0.4	Chlorine Dioxide (ClO ₂)	
	0.9	Fluorine (F ₂)	
	< 0.1	Hydrogen chloride (HCl)	
	< 0.1	Ozone (O ₃)	
	< 0.01	Sulfur Dioxide (SO ₂)	
Ratio: 1 ppm of interference gas will appear as the value shown on a RS Cl ₂ sensor. Other gases may influence sensor; refer to Appendix A on page 24 for additional cross-sensitivity information.			
Recommendations			
Calibration Gas	Chlorine (Cl ₂)		
Surrogate Calibration Gas	None Recommended		
Calibration Frequency	Quarterly		
Calibration Tubing	Teflon or other fluoropolymer tubing		
Notes	*For a new sensor operating at 25°C, 50%RH		
	†Sensor includes all listed ranges.		
	‡Use Range-Invariant Calibration feature if < 1 ppm Cl ₂ calibration gas is unavailable.		
	§This sensor is optimized for best performance and longevity in relatively humid conditions. Recommend 70% RH ± 15%.		

Chlorine, low RH (RS Cl₂ LRH) rock solid sensor

Meridian chlorine, low RH (RS Cl ₂ LRH) rock solid sensor			
pN	096-3473-21		
Compatible Instruments	Meridian Universal Gas Detector		
Ranges†	Range	Resolution	Cal Gas
	5 ppm default	0.01 ppm	2 ppm Cl ₂
	1 ppm	0.01 ppm	2 ppm Cl ₂ ‡
	3 ppm	0.01 ppm	2 ppm Cl ₂
	10 ppm	0.1 ppm	5 ppm Cl ₂
	20 ppm	0.1 ppm	10 ppm Cl ₂
	30 ppm	0.1 ppm	10 ppm Cl ₂
Accuracy/Linearity*	±0.5 ppm or 3% of applied gas		
Response Time*	t50 ≤ 5 sec		
	t90 ≤ 60 sec		
Operating Temperature	-40 to +50°C (-40 to +122°F) non-condensing		
Operating Humidity §	5-95% RH, non-condensing		
Operating Pressure	100 kPa ± 20 kPa (29.5 in Hg ± 5.9 in Hg)		
Common Interference Gases	Ratio	Interference Gas	
	1	Bromine (Br ₂)	
	0.4	Chlorine Dioxide (ClO ₂)	
	0.9	Fluorine (F ₂)	
	< 0.1	Hydrogen Chloride (HCl)	
	< 0.1	Ozone (O ₃)	
	< 0.01	Sulfur Dioxide (SO ₂)	
Ratio: 1 ppm of interference gas will appear as the value shown on a RS Cl ₂ sensor. Other gases may influence sensor; refer to Appendix A on page 24 for additional cross-sensitivity information.			
Recommendations			
Calibration Gas	Chlorine (Cl ₂)		
Surrogate Calibration Gas	None Recommended		
Calibration Frequency	Quarterly		
Calibration Tubing	Teflon or other fluoropolymer tubing		
Notes	*For a new sensor operating at 25°C, 50%RH		
	†Sensor includes all listed ranges.		
	‡Use Range-Invariant Calibration feature if < 1 ppm Cl ₂ calibration gas is unavailable.		
	§This sensor is optimized for best performance and longevity in relatively dry conditions. Recommend 50% RH ± 15%.		

Fluorine, high RH (RS F₂ HRH) rock solid sensor

MERIDIAN ROCK SOLID FLUORINE, HIGH RH (RS F₂ HRH) SENSOR

PN	096-3473-22		
Compatible Instruments	Meridian Universal Gas Detector		
Ranges†	Range	Resolution	Cal Gas
	5 ppm default	0.01 ppm	2 ppm Cl ₂
	1 ppm	0.01 ppm	2 ppm Cl ₂ ‡
	3 ppm	0.01 ppm	2 ppm Cl ₂
Accuracy/Linearity*	±0.5 ppm or 3% of applied gas		
Response Time*	t50 ≤ 5 sec		
	t90 ≤ 60 sec		
Operating Temperature	-40 to +50°C (-40 to +122°F) non-condensing		
Operating Humidity §	5-95% RH, non-condensing		
Operating Pressure	100 kPa ± 20 kPa (29.5 in Hg ± 5.9 in Hg)		
Common Interference Gases	Ratio	Interference Gas	
	1.1	Bromine (Br ₂)	
	1.1	Chlorine (Cl ₂)	
	0.4	Chlorine Dioxide (ClO ₂)	
	< 0.1	Hydrogen Chloride (HCl)	
	< 0.1	Ozone (O ₃)	
	< 0.01	Sulfur Dioxide (SO ₂)	

Ratio: 1 ppm of interference gas will appear as the value shown on a RS F₂ sensor. Other gases may influence sensor; refer to Appendix A on page 24 for additional cross-sensitivity information.

Recommendations

calibration Gas	Fluorine (F ₂)
Surrogate Calibration Gas	Chlorine (Cl ₂) Span sensor to 1.1 × Cl ₂ cal gas concentration
Calibration Frequency	Quarterly
Calibration Tubing	Teflon or other fluoropolymer tubing
Notes	*For a new sensor operating at 25°C, 50%RH
	†Sensor includes all listed ranges.
	‡Use Range-Invariant Calibration feature if < 1 ppm Cl ₂ calibration gas is unavailable.
	§This sensor is optimized for best performance and longevity in relatively humid conditions. Recommend 70% RH ± 15%.

Fluorine, low RH (RS F₂ LRH) rock solid sensor

Meridian rock solid fluorine, low RH (RS F ₂ LRH) sensor			
pN	096-3473-23		
Compatible Instruments	Meridian Universal Gas Detector		
Ranges†	Range	Resolution	Cal Gas
	1 ppm default	0.01 ppm	2 ppm Cl ₂ ‡
	3 ppm	0.01 ppm	2 ppm Cl ₂
	5 ppm	0.01 ppm	2 ppm Cl ₂
Accuracy/Linearity*	±0.5 ppm or 3% of applied gas		
Response Time*	t50 ≤ 5 sec		
	t90 ≤ 60 sec		
Operating Temperature	-40 to +50°C (-40 to +122°F) non-condensing		
Operating Humidity §	5-95% RH, non-condensing		
Operating Pressure	100 kPa ± 20 kPa (29.5 in Hg ± 5.9 in Hg)		
Common Interference Gases	Ratio	Interference Gas	
	1.1	Bromine (Br ₂)	
	1.1	Chlorine (Cl ₂)	
	0.4	Chlorine Dioxide (ClO ₂)	
	< 0.1	Hydrogen Chloride (HCl)	
	< 0.1	Ozone (O ₃)	
	< 0.01	Sulfur Dioxide (SO ₂)	
Ratio: 1 ppm of interference gas will appear as the value shown on a RS F ₂ sensor. Other gases may influence sensor; refer to Appendix A on page 24 for additional cross-sensitivity information.			
Recommendations			
calibration Gas	Fluorine (F ₂)		
Surrogate Calibration Gas	Chlorine (Cl ₂) Span sensor to 1.1 × Cl ₂ cal gas concentration		
Calibration Frequency	Quarterly		
Calibration Tubing	Teflon or other fluoropolymer tubing		
Notes	*For a new sensor operating at 25°C, 50%RH		
	†Sensor includes all listed ranges.		
	‡Use Range-Invariant Calibration feature if < 1 ppm Cl ₂ calibration gas is unavailable.		
	§This sensor is optimized for best performance and longevity in relatively dry conditions. Recommend 50% RH ± 15%.		

Hydrogen Chloride, High RH (RS HCL HRH)

Rock solid sensor

Meridian hydrogen chloride, high RH (RS HCL HRH) rock solid sensor			
pN	096-3473-25		
Compatible Instruments	Meridian Universal Gas Detector		
Ranges†	Range	Resolution	Cal Gas
	10 ppm default	0.1 ppm	5 ppm SO ₂
	1 ppm	0.01 ppm	5 ppm SO ₂ ‡
	25 ppm	0.1 ppm	9 ppm SO ₂
Accuracy/Linearity*	±4% of applied gas		
Response Time*	t50 < 20 sec		
	t90 < 60 sec		
Operating Temperature	-20 to +50°C (-4 to +122°F) continuous		
	-40 to +50°C (-40 to +122°F) non-condensing		
Operating Humidity §	5-95% RH, non-condensing		
Operating Pressure	100 kPa ± 20 kPa (29.5 in Hg ± 5.9 in Hg)		
Common Interference Gases	Ratio	Interference Gas	
	1.3	Chlorine (Cl ₂)	
	0.4	Chlorine Dioxide (ClO ₂)	
	1.6	Fluorine (F ₂)	
	1	Hydrogen Fluoride (HF)	
	< 0.5	Hydrogen Sulfide (H ₂ S)	
	< 0.1	Ozone (O ₃)	
	1.3	Sulfur Dioxide (SO ₂)	
Ratio: 1 ppm of interference gas will appear as the value shown on a RS HCl sensor. Other gases may influence sensor; refer to Appendix A on page 24 for additional cross-sensitivity information.			
Recommendations			
calibration Gas	Hydrogen Chloride (HCl)		
Surrogate Calibration Gas¶	Sulfur Dioxide (SO ₂) Span sensor to 1.3 × SO ₂ cal gas concentration		
Calibration Frequency	Quarterly		
Calibration Tubing	Tygon for SO ₂ ; Teflon or other fluoropolymer tubing for HCl		
Notes	*For a new sensor operating at 25°C, 50%RH		
	†Sensor includes all listed ranges.		
	‡Use Range-Invariant Calibration feature if < 1 ppm HCl or SO ₂ calibration gas is unavailable.		
	§This sensor is optimized for best performance and longevity in relatively humid conditions. Recommend 70% RH ± 15%.		
	¶Cl ₂ may be used to adjust the sensor output but must be followed with an acid-gas bump to ensure proper function. Acceptable bump gases include: HF, HCl, SO ₂ , acetic acid (vinegar).		

Hydrogen Chloride, Low RH (RS HCL LRH) Rock solid sensor

Meridian hydrogen chloride, low RH (RS HCL LRH) rock solid sensor

pN	096-3473-26		
Compatible Instruments	Meridian Universal Gas Detector		
Ranges†	Range	Resolution	Cal Gas
	10 ppm default	0.1 ppm	5 ppm SO ₂
	1 ppm	0.01 ppm	5 ppm SO ₂ ‡
	25 ppm	0.1 ppm	9 ppm SO ₂
Accuracy/Linearity*	±4% of applied gas		
Response Time*	t50 < 20 sec		
	t90 < 60 sec		
Operating Temperature	-20 to +50°C (-4 to +122°F) continuous		
	-40 to +50°C (-40 to +122°F) non-condensing		
Operating Humidity §	5-95% RH, non-condensing		
Operating Pressure	100 kPa ± 20 kPa (29.5 in Hg ± 5.9 in Hg)		
Common Interference Gases	Ratio	Interference Gas	
	1.3	Chlorine (Cl ₂)	
	0.4	Chlorine Dioxide (ClO ₂)	
	1.6	Fluorine (F ₂)	
	1	Hydrogen Fluoride (HF)	
	< 0.5	Hydrogen Sulfide (H ₂ S)	
	< 0.1	Ozone (O ₃)	
	1.3	Sulfur Dioxide (SO ₂)	

Ratio: 1 ppm of interference gas will appear as the value shown on a RS HCl sensor. Other gases may influence sensor; refer to Appendix A on page 24 for additional cross-sensitivity information.

Recommendations

calibration Gas	Hydrogen Chloride (HCl)
Surrogate Calibration Gas¶	Sulfur Dioxide (SO ₂) Span sensor to 1.3 × SO ₂ cal gas concentration
Calibration Frequency	Quarterly
Calibration Tubing	Tygon for SO ₂ ; Teflon or other fluoropolymer tubing for HCl
Notes	*For a new sensor operating at 25°C, 50%RH
	†Sensor includes all listed ranges.
	‡Use Range-Invariant Calibration feature if < 1 ppm HCl or SO ₂ calibration gas is unavailable.
	§This sensor is optimized for best performance and longevity in relatively dry conditions. Recommend 50% RH ± 15%.
	¶Cl ₂ may be used to adjust the sensor output but must be followed with an acid-gas bump to ensure proper function. Acceptable bump gases include: HF, HCl, SO ₂ , acetic acid (vinegar).

Hydrogen Fluoride, high RH (RS HF HRH)

Rock solid sensor

Meridian hydrogen fluoride, high RH (RS HF HRH) rock solid sensor

pN	096-3473-27		
Compatible Instruments	Meridian Universal Gas Detector		
Ranges†	Range	Resolution	Cal Gas
	10 ppm default	0.1 ppm	5 ppm SO ₂
	1 ppm	0.01 ppm	5 ppm SO ₂ ‡
	5 ppm	0.01 ppm	5 ppm SO ₂ ‡
	30 ppm	0.1 ppm	9 ppm SO ₂
Accuracy/Linearity*	±4% of applied gas		
Response Time*	t50 < 20 sec		
	t90 < 60 sec		
Operating Temperature	-20 to +50°C (-4 to +122°F) continuous		
	-40 to +50°C (-40 to +122°F) non-condensing		
Operating Humidity §	5-95% RH, non-condensing		
Operating Pressure	100 kPa ± 20 kPa (29.5 in Hg ± 5.9 in Hg)		
Common Interference Gases	Ratio	Interference Gas	
	1.3	Chlorine (Cl ₂)	
	0.4	Chlorine Dioxide (ClO ₂)	
	1.6	Fluorine (F ₂)	
	1	Hydrogen Fluoride (HF)	
	< 0.5	Hydrogen Sulfide (H ₂ S)	
	< 0.1	Ozone (O ₃)	
	1.3	Sulfur Dioxide (SO ₂)	

Ratio: 1 ppm of interference gas will appear as the value shown on a RS HF sensor. Other gases may influence sensor; refer to Appendix A on page 24 for additional cross-sensitivity information.

Recommendations

calibration Gas	Hydrogen Chloride (HCl)
Surrogate Calibration Gas¶	Sulfur dioxide (SO ₂) Span sensor to 1.3 × SO ₂ cal gas concentration
	Hydrogen Chloride (HCl) Span sensor to HCl cal gas concentration
Calibration Frequency	Quarterly
Calibration Tubing	Tygon for SO ₂ ; Teflon or other fluoropolymer tubing for HCl

*For a new sensor operating at 25°C, 50%RH

†Sensor includes all listed ranges.

‡Use Range-Invariant Calibration feature if < 1 ppm HF, HCl or SO₂ calibration gas is unavailable.

Notes

§This sensor is optimized for best performance and longevity in relatively humid conditions. Recommend 70% RH ± 15%.

¶Cl₂ may be used to adjust the sensor output but must be followed with an acid-gas bump to ensure proper function. Acceptable bump gases include: HF, HCl, SO₂, acetic acid (vinegar).

Hydrogen Fluoride, low RH (RS HF LRH)

Rock solid sensor

Meridian hydrogen fluoride, low RH (RS HF LRH) rock solid sensor

pN	096-3473-28		
Compatible Instruments	Meridian Universal Gas Detector		
Ranges†	Range	Resolution	Cal Gas
	10 ppm default	0.1 ppm	5 ppm SO ₂
	1 ppm	0.01 ppm	5 ppm SO ₂ ‡
	5 ppm	0.01 ppm	5 ppm SO ₂ ‡
	30 ppm	0.1 ppm	9 ppm SO ₂
Accuracy/Linearity*	±4% of applied gas		
Response Time*	t50 < 20 sec		
	t90 < 60 sec		
Operating Temperature	-20 to +50°C (-4 to +122°F) continuous		
	-40 to +50°C (-40 to +122°F) non-condensing		
Operating Humidity §	5-95% RH, non-condensing		
Operating Pressure	100 kPa ± 20 kPa (29.5 in Hg ± 5.9 in Hg)		
Common Interference Gases	Ratio	Interference Gas	
	1.3	Chlorine (Cl ₂)	
	0.4	Chlorine Dioxide (ClO ₂)	
	1.6	Fluorine (F ₂)	
	1	Hydrogen Chloride (HCl)	
	< 0.5	Hydrogen Sulfide (H ₂ S)	
	< 0.1	Ozone (O ₃)	
	1.3	Sulfur Dioxide (SO ₂)	

Ratio: 1 ppm of interference gas will appear as the value shown on a RS HF sensor. Other gases may influence sensor; refer to Appendix A on page 24 for additional cross-sensitivity information.

Recommendations

calibration Gas	Hydrogen Fluoride (HF)
Surrogate Calibration Gas¶	Sulfur Dioxide (SO ₂) Span sensor to 1.3 × SO ₂ cal gas concentration
	Hydrogen Chloride (HCl) Span sensor to HCl cal gas concentration
Calibration Frequency	Quarterly
Calibration Tubing	Tygon for SO ₂ ; Teflon or other fluoropolymer tubing for HCl

*For a new sensor operating at 25°C, 50%RH

†Sensor includes all listed ranges.

‡Use Range-Invariant Calibration feature if < 1 ppm HF, HCl or SO₂ calibration gas is unavailable.

Notes

§This sensor is optimized for best performance and longevity in relatively dry conditions. Recommend 50% RH ± 15%.

¶Cl₂ may be used to adjust the sensor output but must be followed with an acid-gas bump to ensure proper function. Acceptable bump gases include: HF, HCl, SO₂, acetic acid (vinegar).

Hydrogen sulfide (low methanol) (H₂S-LM) sensor

Meridian hydrogen sulfide (low methanol) (H ₂ S-LM) sensor			
pN	096-3473-02		
Compatible Instruments	Meridian Universal Gas Detector		
Ranges†	Range	Resolution	Cal Gas
	50 ppm (default)	0.1 ppm	25 ppm H ₂ S
	10 ppm	0.1 ppm	10 ppm H ₂ S
	25 ppm	0.1 ppm	10 ppm H ₂ S
	100 ppm	1 ppm	50 ppm H ₂ S
Accuracy/Linearity*	±1% of applied gas, or better		
Response Time*	t50: < 15 sec		
	t90: < 45 sec		
Operating Temperature	-40 to +50°C (-40 to +122°F)		
Operating Humidity	5-95% RH, non-condensing		
Operating Pressure	100 kPa ± 20 kPa (29.5 in Hg ± 5.9 in Hg)		
Common Interference Gases	Ratio	Interference Gas	
	0	Carbon Monoxide (CO)	
	0	Hydrogen (H ₂)	
	0	Isopropanol (IPA) ((CH ₃) ₂ CHOH)	
	0	Methanol (CH ₃ OH)	
	0	Methyl Mercaptan (CH ₃ SH)	
	< 0.2	Sulfur Dioxide (SO ₂)	
Ratio: 1 ppm of interference gas will appear as the value shown on an H ₂ S-LM sensor. Other gases may influence sensor; refer to Appendix A on page 24 for additional cross-sensitivity information.			
Recommendations			
calibration Gas	Hydrogen Sulfide (H ₂ S)		
Surrogate Calibration Gas	None Recommended		
Calibration Frequency	Quarterly		
Calibration Tubing	Tygon		
Notes	*For a new sensor operating at 25°C, 50%RH		
	†Sensor includes all listed ranges.		

Oxygen (O₂) Sensor

Meridian oxygen (O ₂) sensor			
pN	096-3473-19		
Compatible Instruments	Meridian Universal Gas Detector		
Ranges†	Range	Resolution	Cal Gas
	25% V/V (default)	0.1% V/V	20.9% O ₂ and 100% N ₂
	10% V/V	0.1% V/V	20.9% O ₂ ‡ and 100% N ₂
Accuracy/Linearity*	0.25% V/V		
Response Time*	t50: < 5 sec		
	t90: < 20 sec		
Operating Temperature	-30 to +50°C (-22 to +122°F)		
Operating Humidity	5-95% RH, non-condensing		
Operating Pressure	100 kPa ± 20 kPa (29.5 in Hg ± 5.9 in Hg)		
Recommendations			
calibration Gas	Nitrogen (N ₂) and Air		
Surrogate Calibration Gas	None Recommended		
Calibration Frequency	Monthly		
Calibration Tubing	Tygon		
Notes	*For a new sensor operating at 25°C, 50%RH		
	†Sensor includes all listed ranges.		
	‡Use Range-Invariant Calibration feature if <10% O ₂ calibration gas is unavailable.		

Sulfur Dioxide, high RH (RS SO₂ HRH) Rock Solid sensor

Meridian sulfur dioxide, high RH (RS SO₂ HRH) rock solid sensor

pN	096-3473-31		
Compatible Instruments	Meridian Universal Gas Detector		
Ranges†	Range	Resolution	Cal Gas
	10 ppm default	0.1 ppm	5 ppm SO ₂
	1 ppm	0.01 ppm	5 ppm SO ₂ ‡
	3 ppm	0.01 ppm	5 ppm SO ₂ ‡
	25 ppm	0.1 ppm	9 ppm SO ₂
Accuracy/Linearity*	±5% reading		
Response Time*	t50 < 5 sec		
	t90 < 75 sec		
Operating Temperature	-20 to +50°C (-4 to +122°F) continuous		
	-40 to +50°C (-40 to +122°F) non-condensing		
Operating Humidity §	5-95% RH, non-condensing		
Operating Pressure	100 kPa ± 20 kPa (29.5 in Hg ± 5.9 in Hg)		
Common Interference Gases	Ratio	Interference Gas	
	1.6	Chlorine (Cl ₂)	
	0.5	Chlorine Dioxide (ClO ₂)	
	1.5	Fluorine (F ₂)	
	0.8	Hydrogen Chloride (HCl)	
	0.8	Hydrogen Fluoride (HF)	
	< 0.5	Hydrogen Sulfide (H ₂ S)	
	< 0.1	Ozone (O ₃)	

Ratio: 1 ppm of interference gas will appear as the value shown on a RS SO₂ sensor. Other gases may influence sensor; refer to Appendix A on page 24 for additional cross-sensitivity information

Recommendations

calibration Gas	Sulfur Dioxide (SO ₂)
Surrogate Calibration Gas	None Recommended
Calibration Frequency	Quarterly
Calibration Tubing	Tygon

*For a new sensor operating at 25°C, 50%RH

†Sensor includes all listed ranges.

Notes

‡Use Range-Invariant Calibration feature if < 3 ppm SO₂ calibration gas is unavailable.

§This sensor is optimized for best performance and longevity in relatively humid conditions. Recommend 70% RH ± 15%.

Sulfur dioxide, low RH (RS SO₂ LRH) Rock solid sensor

Meridian sulfur dioxide, low RH (RS SO₂ LRH) rock solid sensor

pN	096-3473-32		
Compatible Instruments	Meridian Universal Gas Detector		
Ranges†	Range	Resolution	Cal Gas
	10 ppm default	0.1 ppm	5 ppm SO ₂
	1 ppm	0.01 ppm	5 ppm SO ₂ ‡
	3 ppm	0.01 ppm	5 ppm SO ₂ ‡
	25 ppm	0.1 ppm	9 ppm SO ₂
Accuracy/Linearity*	±5% reading		
Response Time*	t50 < 5 sec		
	t90 < 75 sec		
Operating Temperature	-20 to +50°C (-4 to +122°F) continuous		
	-40 to +50°C (-40 to +122°F) non-condensing		
Operating Humidity §	5-95% RH, non-condensing		
Operating Pressure	100 kPa ± 20 kPa (29.5 in Hg ± 5.9 in Hg)		
Common Interference Gases	Ratio	Interference Gas	
	1.6	Chlorine (Cl ₂)	
	0.5	Chlorine Dioxide (ClO ₂)	
	1.5	Fluorine (F ₂)	
	0.8	Hydrogen Chloride (HCl)	
	0.8	Hydrogen Fluoride (HF)	
	< 0.5	Hydrogen Sulfide (H ₂ S)	
	< 0.1	Ozone (O ₃)	

Ratio: 1 ppm of interference gas will appear as the value shown on a RS SO₂ sensor. Other gases may influence sensor; refer to Appendix A on page 24 for additional cross-sensitivity information.

Recommendations

calibration Gas	Sulfur Dioxide (SO ₂)
Surrogate Calibration Gas	None Recommended
Calibration Frequency	Quarterly
Calibration Tubing	Tygon

*For a new sensor operating at 25°C, 50%RH

†Sensor includes all listed ranges.

Notes

‡Use Range-Invariant Calibration feature if < 3 ppm SO₂ calibration gas is unavailable.

§This sensor is optimized for best performance and longevity in relatively dry conditions. Recommend 50% RH ± 15%.

NOTES:
Meridian

Guidelines for using the Meridian interference table

- The gas interference table does not show, nor should it be implied that no additional interferences may occur. These selectivity ratios are used as guides only. The gas species' actual cross-sensitivities may vary from the values shown.
- It is always best practice to use the target gas to calibrate any sensor. In some cases, however, the target gas is not practically available in a known or stable concentration. In these instances, a surrogate calibration gas may be used. Selectivity ratios for acceptable surrogates are indicated with grey cell highlights.
- For each sensor type, the table shows how 1 ppm of an Interference Gas appears on that specific sensor type. For example, 1 ppm chlorine dioxide (ClO_2) will appear as 0.4 ppm chlorine on a Rock Solid Cl_2 sensor (096-3473-20 or 096-3473-21).

Key for table

Zero	Indicates tested and confirmed no interferences
Blank	Indicates not tested
Neg	Indicates gas produces a negative signal but a stable Ratio has not been defined
Yes	Indicates gas produces a positive signal but a stable Ratio has not been defined
Two values in a cell	Indicates initial peak (in parentheses) and final offset
Dark grey highlight	Indicates target calibration gas or acceptable Surrogate calibration gas

Meridian sensor interference table

SENSORS	SENSORS																	
	Meridian Sensor: Part Number: Target Gas:	Ammonia (NH ₃) 096-3473-03	Rock Solid Br ₂ Hi RH (NH ₃) 096-3473-24	Bromine (Br ₃)	Carbon Monoxide (CO) 096-3473-01	Carbon Monoxide (CO)	Rock Solid Cl ₂ Hi RH Rock Solid Cl ₂ Lo RH 096-3473-20	096-3473-21 Chlorine (Cl ₃)	Rock Solid F ₂ Hi RH Rock Solid F ₂ Lo RH 096-3473-22	096-3473-23 Fluorine (F ₃)	Rock Solid HCl, Hi RH Rock Solid HCl, Lo RH 096-3473-25	096-3473-26 Hydrogen Chloride (HCl)	Rock Solid HF, Hi RH Rock Solid HF, Lo RH 096-3473-27	096-3473-28 Hydrogen Fluoride (HF)	H ₂ S Low Methanol 096-3473-02	Hydrogen Sulfide (H ₂ S)	Rock Solid SO ₂ Hi RH Rock Solid SO ₂ Lo RH 096-3473-31	096-3473-32 Sulfur Dioxide (SO ₂)
INTERFERENCE GASES	Acetylene (C ₂ H ₂)	(0.07) 0.04			0.3										0			
	Ammonia (NH ₃)		0		0		0		0						0			
	Arsine (AsH ₃)	(2.7) 1.6			0										0.8			
	Boron Trichloride (BCl ₃)										0.5		0.5				0.4	
	Boron Trifluoride (BF ₃)										0.4		0.4				0.3	
	Bromine (Br ₂)	NEG					1		1.1		YES		YES				YES	
	Carbon Monoxide (CO)	0.4													0			
	Chlorine (Cl ₂)	(-0.2) -0.09			0						1.3		1.3		-0.2		1.7	
	Chlorine Dioxide (ClO ₂)		0.4				0.4		0.4		0.4		0.4				0.5	
	Diborane (B ₂ H ₆)										1		1				0.9	
	Dichloro-silane (SiH ₂ Cl ₂)	0.2			0										0			
	Disilane (Si ₂ H ₆)	0			0.5										0			
	Ethanol (C ₂ H ₅ OH)	0.2			0										0			
	Ethylene Oxide (EtO) (C ₂ H ₄ O)	0			0.5										0			
	Fluorine (F ₂)	YES	0.9				0.9				1.6		1.6				1.5	
	Germane (GeH ₄)																	
	Hydrogen (H ₂)	(1) 0.6	0		0.19		0		0		0		0		0		0	0
	Hydrogen Bromide (HBr)	NEG									0.6		0.6				0.6	
	Hydrogen Chloride (HCl)	(-0.2) -0.1	(0.1) 0.01		0		(0.1) 0.01		(0.1) 0.01						0.01		0.8	
	Hydrogen Cyanide (HCN)	-0.067			0										0			

NOTES:
Meridian

3M™ Meridian

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