


General Monitors[®] S5000 Gas Monitor

Extreme Conditions Demand Exceptional Detection.



Simple retrofits have identical footprint and wiring to S4000 Gas Monitor series.


Bluetooth[®] wireless technology allows mobile device to act as HMI screen and controller via the X/S Connect App.

Dual sensor capability increases detection coverage without increasing CAPEX expense. Remote mount gas sensors up to 100 m away.


Wide operating temperature for extreme environments (-55°C to +75°C).

Instrument status indicators illuminate power, fault, and alarm conditions.

Intuitive user experience with industry-first touch-button interface or familiar magnetic interface.





Remote monitoring & notifications with FGFD FieldServer IoT Gateways



X/S Connect App

Streamline setup for faster configuration with the X/S Connect App.



Advanced Sensor Technology

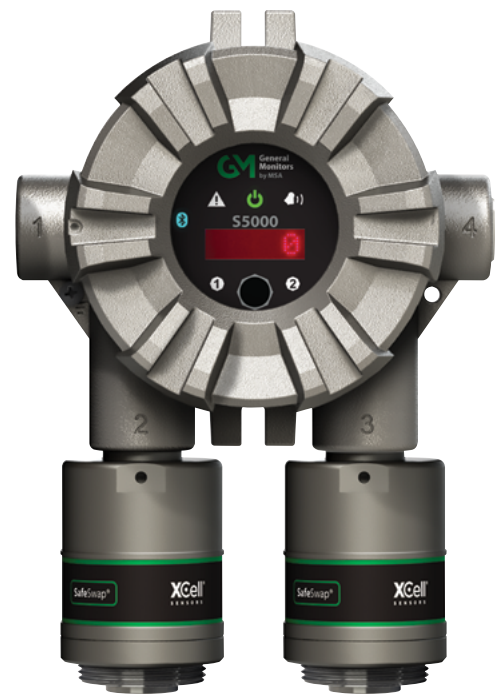
POWERED BY
XCell[®]
SENSORS

WITH
TruCal[®]
TECHNOLOGY

- Patented XCell H₂S and CO Sensors with TruCal technology extend calibration cycles for as long as 2 years, actively monitor sensor integrity, and compensate for environmental factors and electrochemical sensor drift.
 - **Diffusion Supervision** sends acoustic signal every 6 hours to check that sensor inlet isn't obstructed so gas can reach the sensor.
 - Worry-free operation—automatically self-checks four times per day.
- Three-year warranty and five-year expected life for XCell Sensors.
- **Dual sensor capability** doubles sensing power with half the footprint of a single gas sensor transmitter.
- **SafeSwap** enables safe and quick XCell Sensor replacement without powering off gas detector.

Applications

- Compressor stations
- LNG/LPG processing and storage
- CNG maintenance facilities
- Oil well logging
- Drilling and production platforms
- Petrochemical
- Fuel loading facilities
- Refineries



SafeSwap[®]

**SAFEGUARDING PEOPLE,
PLACES & THE PLANET.**

General Monitors S5000 Gas Monitor Sensor Specifications



ELECTROCHEMICAL SENSORS													
Gas	Default Range	Selectable Full Scale Range	Resolution	Response Time*		Repeatability	Zero Drift	Operating Temperature		Sensor Type	Sensor Life	Warranty	Classification
				T50	T90			Min	Max				
Ammonia - 100	0 - 100 ppm	25 - 100 ppm	1 ppm	< 20 Sec	< 60 Sec	< +/- 1%	<1% FS / Month	-30°C (-22°F)	50°C (122°F)	XCell	5 Years	3 Years	Div/Zone 2
Ammonia - 1000	0 - 1000 ppm	190 - 1000 ppm	10 ppm	< 20 Sec	< 300 Sec	< +/- 15%	<1% FS / Month	-30°C (-22°F)	50°C (122°F)	Echem	2 Years	1 Year	Div/Zone 2
Carbon Monoxide - 100	0 - 100 ppm	10 - 1000 ppm	1 ppm	N/A	< 9 Sec	< +/- 2%	<1% FS / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Carbon Monoxide - 500	0 - 500 ppm	10 - 1000 ppm	1 ppm	N/A	< 9 Sec	< +/- 2%	<1% FS / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Carbon Monoxide - 1000	0 - 1000 ppm	10 - 1000 ppm	1 ppm	N/A	< 9 Sec	< +/- 2%	<1% FS / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Carbon Monoxide - H ₂ Resistant	0 - 100 ppm	10 - 100 ppm	1 ppm	N/A	< 9 Sec	< +/- 2%	<1% FS / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Chlorine - 5	0 - 5 ppm	1 - 20 ppm	0.1 ppm	N/A	< 12 Sec	+/- 1%	<1% FS / Month	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 2
Chlorine - 10	0 - 10 ppm	1 - 20 ppm	0.1 ppm	N/A	< 12 Sec	+/- 1%	<1% FS / Month	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 2
Chlorine - 20	0 - 20 ppm	1 - 20 ppm	0.1 ppm	N/A	< 12 Sec	+/- 1%	<1% FS / Month	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 2
Chlorine Dioxide	0-3 ppm	0.5 - 3.0 ppm	0.01 ppm	< 12 Sec	< 30 Sec	< +/- 15%	<1% FS / Month	-40°C (-40°F)	50°C (122°F)	XCell	5 Years	3 Years	Div/Zone 2
Hydrogen	0 - 1000 ppm	250 - 1000 ppm	10 ppm	< 40 Sec	< 185 Sec	< +/- 10%	<1% FS / Month	-30°C (-22°F)	50°C (122°F)	Echem	2 Years	1 Year	Div/Zone 1
Hydrogen Cyanide	0 - 50 ppm	25 - 50 ppm	1 ppm	< 8 Sec	< 30 Sec	< +/- 15%	<1% FS / Month	-20°C (-4°F)	40°C (104°F)	Echem	2 Years	1 Year	Div/Zone 1
Hydrogen Sulfide - 10	0 - 10 ppm	10 - 100 ppm	0.1 ppm	< 7 Sec	< 23 Sec	< +/- 1%	<1% FS / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Hydrogen Sulfide - 50	0 - 50 ppm	10 - 100 ppm	0.1 ppm	< 7 Sec	< 23 Sec	< +/- 1%	<1% FS / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Hydrogen Sulfide - 100	0 - 100 ppm	10 - 100 ppm	0.1 ppm	< 7 Sec	< 23 Sec	< +/- 1%	<1% FS / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Hydrogen Sulfide - 500	0 - 500 ppm	20 - 500 ppm	1 ppm	< 20 Sec	< 60 Sec	< +/- 10%	<1% FS / Month	-40°C (-40°F)	50°C (122°F)	Echem	2 Years	1 Year	Div/Zone 1
Nitric Oxide	0 - 100 ppm	2.5 - 100 ppm	0.5 ppm	< 5 Sec	< 20 Sec	< +/- 15%	<1% FS / Month	-30°C (-22°F)	50°C (122°F)	Echem	2 Years	1 Year	Div/Zone 1
Nitrogen Dioxide	0 - 10 ppm	1.5 - 10 ppm	0.1 ppm	< 30 Sec	< 60 Sec	< +/- 10%	<1% FS / Month	-40°C (-40°F)	50°C (122°F)	Echem	2 Years	1 Year	Div/Zone 2
Oxygen/Oxygen (FM)	0 - 25%	5 - 25%	0.10%	< 6 Sec	< 11 Sec	< +/- 1% Vol	<0.2 % Vol / Year	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 1
Oxygen (Low)	0 - 25%	2 - 25%	0.10%	< 10 Sec	< 30 Sec	< +/- 10%	<1% FS / Month	-30°C (-22°F)	50°C (122°F)	Echem	2 Years	1 Year	Div/Zone 1
Sulfur Dioxide - 100	0 - 100 ppm	25 - 100 ppm	1 ppm	< 10 Sec	< 30 Sec	< +/- 15%	<1% FS / Month	-30°C (-22°F)	50°C (122°F)	Echem	2 Years	1 Year	Div/Zone 2
Sulfur Dioxide - 25	0 - 25 ppm	5 - 25 ppm	0.1 ppm	< 3 Sec	< 6 Sec	< +/- 1%	<1% FS / Month	-40°C (-40°F)	60°C (140°F)	XCell	5 Years	3 Years	Div/Zone 2

XCELL CATALYTIC BEAD SENSORS													
Gas	Default Range	Selectable Full Scale Range	Resolution	Response Time*		Repeatability	Zero Drift	Operating Temperature		Sensor Type	Sensor Life	Warranty	Classification
				T50	T90			Min	Max				
Methane (5.0 %)	0 - 100% LEL	20 - 100% LEL	1%	< 10 Sec	< 22 Sec	< +/- 1% LEL	<5% LEL / Year	-50°C (-58°F)	60°C (140°F)	XCell Cat Bead	5 Years	3 Years	Div/Zone 1
Propane (2.1 %)	0 - 100% LEL	20 - 100% LEL	1%	< 10 Sec	< 22 Sec	< +/- 1% LEL	<5% LEL / Year	-50°C (-58°F)	60°C (140°F)	XCell Cat Bead	5 Years	3 Years	Div/Zone 1
Heptane (1.05 %)	0 - 100% LEL	20 - 100% LEL	1%	< 10 Sec	< 22 Sec	< +/- 1% LEL	<5% LEL / Year	-50°C (-58°F)	60°C (140°F)	XCell Cat Bead	5 Years	3 Years	Div/Zone 1
Nonane (0.8 %)	0 - 100% LEL	20 - 100% LEL	1%	< 10 Sec	< 22 Sec	< +/- 1% LEL	<5% LEL / Year	-50°C (-58°F)	60°C (140°F)	XCell Cat Bead	5 Years	3 Years	Div/Zone 1
Hydrogen (4.0 %)	0 - 100% LEL	20 - 100% LEL	1%	< 10 Sec	< 22 Sec	< +/- 1% LEL	<5% LEL / Year	-50°C (-58°F)	60°C (140°F)	XCell Cat Bead	5 Years	3 Years	Div/Zone 1
Methane (4.4 % EN)	0 - 100% LEL	20 - 100% LEL	1%	< 10 Sec	< 22 Sec	< +/- 1% LEL	<5% LEL / Year	-50°C (-58°F)	60°C (140°F)	XCell Cat Bead	5 Years	3 Years	Div/Zone 1
Propane (1.7 % EN)	0 - 100% LEL	20 - 100% LEL	1%	< 10 Sec	< 22 Sec	< +/- 1% LEL	<5% LEL / Year	-50°C (-58°F)	60°C (140°F)	XCell Cat Bead	5 Years	3 Years	Div/Zone 1
Heptane (0.85 % EN)	0 - 100% LEL	20 - 100% LEL	1%	< 10 Sec	< 22 Sec	< +/- 1% LEL	<5% LEL / Year	-50°C (-58°F)	60°C (140°F)	XCell Cat Bead	5 Years	3 Years	Div/Zone 1
Nonane (0.7 % EN)	0 - 100% LEL	20 - 100% LEL	1%	< 10 Sec	< 22 Sec	< +/- 1% LEL	<5% LEL / Year	-50°C (-58°F)	60°C (140°F)	XCell Cat Bead	5 Years	3 Years	Div/Zone 1

*At ambient conditions

General Monitors S5000 Gas Monitor Sensor Specifications



INFRARED SENSORS

Gas	Default Range	Selectable Full Scale Range	Resolution	Response Time*		Repeatability	Zero Drift	Operating Temperature		Sensor Type	Sensor Life	Warranty	Classification
				T50	T90			Min	Max				
IR400 0-100 % LEL Propane	0 - 100% LEL	N/A	1% LEL	< 1.5 Sec	< 3 Sec	+3% LEL @ <50% LEL; +5% LEL @ >50% LEL	N/A	-40°C (-40°F)	75°C (167°F)	IR400	5+ Years	2 Years	Div/Zone 1
IR400 0-100% LEL Hexane	0 - 100% LEL	N/A	1% LEL	< 1.5 Sec	< 3 Sec	+3% LEL @ <50% LEL; +5% LEL @ >50% LEL	N/A	-40°C (-40°F)	75°C (167°F)	IR400	5+ Years	2 Years	Div/Zone 1
IR400 0-100% LEL Pentane	0 - 100% LEL	N/A	1% LEL	< 1.5 Sec	< 3 Sec	+3% LEL @ <50% LEL; +5% LEL @ >50% LEL	N/A	-40°C (-40°F)	75°C (167°F)	IR400	5+ Years	2 Years	Div/Zone 1
IR400 0-100 % LEL Ethylene	0 - 100% LEL	N/A	1% LEL	< 2 Sec	< 4 Sec	+3% LEL @ <50% LEL; +5% LEL @ >50% LEL	N/A	-40°C (-40°F)	60°C (140°F)	IR400	5+ Years	2 Years	Div/Zone 1
IR400 0-100% LEL Butane	0 - 100% LEL	N/A	1% LEL	< 1.5 Sec	< 3 Sec	+3% LEL @ <50% LEL; +5% LEL @ >50% LEL	N/A	-40°C (-40°F)	75°C (167°F)	IR400	5+ Years	2 Years	Div/Zone 1
IR400 0-100% LEL Ethane	0 - 100% LEL	N/A	1% LEL	< 1.5 Sec	< 3 Sec	+3% LEL @ <50% LEL; +5% LEL @ >50% LEL	N/A	-40°C (-40°F)	75°C (167°F)	IR400	5+ Years	2 Years	Div/Zone 1
IR400 0-100% by Volume Methane	0 - 100% LEL	N/A	1% LEL	< 1.5 Sec	< 3 Sec	+3% LEL @ <50% LEL; +5% LEL @ >50% LEL	N/A	-40°C (-40°F)	75°C (167°F)	IR400	5+ Years	2 Years	Div/Zone 1
IR400 0-100 % LEL Methane EN	0 - 100% LEL	N/A	1% LEL	< 1.5 Sec	< 3 Sec	+3% LEL @ <50% LEL; +5% LEL @ >50% LEL	N/A	-60°C (-76°F)	75°C (167°F)	IR400	5+ Years	2 Years	Div/Zone 1
IR400 0-100 % LEL Propane EN	0 - 100% LEL	N/A	1% LEL	< 1.5 Sec	< 3 Sec	+3% LEL @ <50% LEL; +5% LEL @ >50% LEL	N/A	-60°C (-76°F)	75°C (167°F)	IR400	5+ Years	2 Years	Div/Zone 1
IR400 0-100% LEL Hexane EN	0 - 100% LEL	N/A	1% LEL	< 1.5 Sec	< 3 Sec	+3% LEL @ <50% LEL; +5% LEL @ >50% LEL	N/A	-60°C (-76°F)	75°C (167°F)	IR400	5+ Years	2 Years	Div/Zone 1
IR400 0-100 % LEL Ethylene EN	0 - 100% LEL	N/A	1% LEL	< 2 Sec	< 4 Sec	+3% LEL @ <50% LEL; +5% LEL @ >50% LEL	N/A	-40°C (-40°F)	60°C (140°F)	IR400	5+ Years	2 Years	Div/Zone 1
IR400 0-100% LEL Butane EN	0 - 100% LEL	N/A	1% LEL	< 1.5 Sec	< 3 Sec	+3% LEL @ <50% LEL; +5% LEL @ >50% LEL	N/A	-60°C (-76°F)	75°C (167°F)	IR400	5+ Years	2 Years	Div/Zone 1
IR400 0-100% LEL Ethane EN	0 - 100% LEL	N/A	1% LEL	< 1.5 Sec	< 3 Sec	+3% LEL @ <50% LEL; +5% LEL @ >50% LEL	N/A	-60°C (-76°F)	75°C (167°F)	IR400	5+ Years	2 Years	Div/Zone 1

PASSIVE SENSORS

Gas	Default Range	Selectable Full Scale Range	Resolution	Response Time*		Repeatability	Zero Drift	Operating Temperature		Sensor Type	Sensor Life	Warranty	Classification
				T50	T90			Min	Max				
10058-1	0 - 100% LEL	N/A	1% LEL	< 10 sec	< 30 sec	+3% LEL @ <50% LEL; +5% LEL @ >50% LEL	<5% FS / Year	-40°C (-40°F)	75°C (167°F)	Cat Bead Screened	3-5 Years	2 Years	Div/Zone 1
11159-8	0-20% LEL	N/A	1% LEL	< 10 sec	< 30 sec	+3% LEL @ <50% LEL; +5% LEL @ >50% LEL	<5% FS / Year	-40°C (-40°F)	70°C (158°F)	Cat Bead Sintered	3-5 Years	2 Years	Div/Zone 1
11159-1	0 - 100% LEL	N/A	1% LEL	< 10 sec	< 30 sec	+3% LEL @ <50% LEL; +5% LEL @ >50% LEL	<5% FS / Year	-40°C (-40°F)	70°C (158°F)	Cat Bead Sintered	3-5 Years	2 Years	Div/Zone 1
50448-9	0-20 ppm	N/A	1 ppm	< 14 sec	n/a	+ 2 ppm or 10% of applied gas	N/A	-40°C (-40°F)	75°C (167°F)	MOS Screened	3-5 Years	2 Years	Div/Zone 1
50448-5	0-50 ppm	N/A	1 ppm	< 14 sec	n/a	+ 2 ppm or 10% of applied gas	N/A	-40°C (-40°F)	75°C (167°F)	MOS Screened	3-5 Years	2 Years	Div/Zone 1
50448-1	0-100 ppm	N/A	1 ppm	< 14 sec	n/a	+ 2 ppm or 10% of applied gas	N/A	-40°C (-40°F)	75°C (167°F)	MOS Screened	3-5 Years	2 Years	Div/Zone 1
51457-9	0-20 ppm	N/A	1 ppm	< 30 sec	n/a	+ 2 ppm or 10% of applied gas	N/A	-40°C (-40°F)	70°C (158°F)	MOS Sintered	3-5 Years	2 Years	Div/Zone 1
51457-5	0-50 ppm	N/A	1 ppm	< 30 sec	n/a	+ 2 ppm or 10% of applied gas	N/A	-40°C (-40°F)	70°C (158°F)	MOS Sintered	3-5 Years	2 Years	Div/Zone 1
51457-1	0-100 ppm	N/A	1 ppm	< 30 sec	n/a	+ 2 ppm or 10% of applied gas	N/A	-40°C (-40°F)	70°C (158°F)	MOS Sintered	3-5 Years	2 Years	Div/Zone 1

*At ambient conditions

General Monitors[®] S5000 Gas Monitor

Specifications



Product Specifications		
COMBUSTIBLE GAS SENSOR TYPE	Catalytic bead (Passive comb., XCell comb.) Infrared (IR400)	
TOXIC GAS & OXYGEN SENSOR TYPE	XCell Toxic	Ammonia (NH ₃), Carbon Monoxide (CO), Carbon Monoxide (CO) H ₂ -resistant, Chlorine (Cl ₂), Sulfur Dioxide (SO ₂) Chlorine Dioxide (ClO ₂)
	Passive MOS, Echem,	
	XCell Toxic	Hydrogen Sulfide (H ₂ S)
	XCell O₂	Oxygen (O ₂)
	Electrochem	Ammonia (NH ₃), Hydrogen (H ₂), Hydrogen Cyanide (HCN), Nitric Oxide (NO), Nitrogen Dioxide (NO ₂)
SENSOR MEASURING RANGES	Combustible	0-100% LEL (CB, IR)
	Cl₂	0-5, 0-10, 0-20 ppm
	ClO₂	0-3 ppm
	CO	0-100, 0-500, 0-1000 ppm
	CO, H₂-resistant	0-100 ppm
	H₂	0-1000 ppm
	HCN	0-50 ppm
	H₂S	0-10, 0-20, 0-50, 0-100, 0-500 ppm
	NH₃	0-100 ppm, 0-1000 ppm
	NO	0-100 ppm
	NO₂	0-10 ppm
	O₂	0-25%
	SO₂	0-25, 0-100 ppm
CLASSIFICATIONS DIVISIONS (US/CAN)	See manual for complete CSA listings. Class I, Div/Zone 1&2, Groups A, B, C & D T5/T4; Class II, Div/Zone 1&2, Groups E, F & G, T6; Class III	
US ZONES	Type 4X, IP66 Class I, Zone 1 AEx db IIC T5 Gb Class I, Zone 2 AEx nA nC IIC T4 Gc Zone 21 AEx tb IIIC T85°C Db	
CANADIAN ZONES/ ATEX/ IECEx	Ex db IIC T5 Gb Ex nA nC IIC T4 Gc Ex tb IIIC T85°C Db	
WARRANTY	S5000 transmitter & S5000 junction box	2 years
	XCell Sensors	3 years
	Passive comb., MOS, IR400	2 years
	Echem Sensors	Varies by gas
APPROVALS	CSA, FM**, ATEX, IECEx, INMETRO, ABS, DNV-GL Marine, CE Marking. Complies with C22.2 No. 152, FM 6320, ANSI/ISA/CSA/IEC/EN 60079-29-1, ANSI/ISA 12.13.01, Suitable for SIL 2.	
Mechanical Specifications***		
HOUSING (W x H x D)	6.37" x 5.38" x 4.25" (162 x 137 x 108 mm)	
W/PASSIVE SENSOR	6.37" x 7.62" x 4.25" (162 x 193 x 108 mm)	
W/DIGITAL SENSOR	6.37" x 10.4" x 4.25" (162 x 265 x 108 mm)	
W/IR400 IR SENSOR	14.8" x 6.0" x 4.25" (375 x 152 x 108 mm)	
WEIGHT	8 lb. (3.6 kg), 316 SS	

** See manual for FM-approved sensors

*** Applies to both S5000 transmitter and S5000 junction box

Environmental Specifications		
OPERATING TEMPERATURE RANGE	S5000 transmitter / S5000 junction box	-55°C to +75°C
	CB (sintered, Zones)	-40°C to +70°C
	CB (screened, Div)	-40°C to +75°C
	MOS (sintered, Zones)	-40°C to +70°C
	MOS (screened, Div)	-40°C to +75°C
	IR (CSA)	-40°C to +75°C
	IR (ATEX/IECEx)	-60°C to +75°C
	XCell	-40°C to +60°C
STORAGE TEMPERATURE RANGE	S5000 transmitter, S5000 junction box housings, IR400, passive sensors	-50°C to +85°C
	XCell sensors	-40°C to +60°C
RELATIVE HUMIDITY (NON-CONDENSING)	XCell sensors (except O₂)	5-95%
	XCell O₂, IR400	10-95%
	Echem	15-90%
	Passive combustible	5-90%
	Passive H₂S	0-95%
Electrical Specifications		
INPUT POWER	24 VDC nominal, 12 to 30 VDC	
SIGNAL OUTPUT	Dual 4-20 mA current source or sink, HART, Modbus, Bluetooth. <i>Optional: w/o Bluetooth</i>	
RELAY RATINGS	5A @ 30VDC; 5A @250 VAC (3X) SPDT – fault, warn, alarm	
RELAY MODES	Common, discrete, horn	
NORMAL MAX POWER		Without Relays With Relays
	Passive comb.	5.0 W 6.0 W
	Passive MOS	9.8 W 10.8 W
	IR400	7.9 W 8.9 W
	XCell comb.	5.0 W 6.0 W
	XCell toxic & O₂	2.6 W 3.6 W
	IR400 + XCell comb.	10.8 W 11.8 W
	IR400 + XCell toxic or O₂	8.6 W 9.6 W
	Dual XCell toxic or O₂	3.3 W 4.3 W
	Dual XCell comb.	7.4 W 8.4 W
	XCell comb. + XCell toxic or O₂	5.7 W 6.7 W
STATUS INDICATORS	4-digit scrolling LED, icons depicting fault, warn, alarm, Bluetooth, 1 and 2 to indicate sensor reading displayed	
RS-485 OUTPUT	Modbus RTU, suitable for linking up to 128 units or up to 247 units with repeaters	
BAUD RATE	2400, 4800, 9600, 19200, 38400, 115200	
HART	HART 7, Device Description (DD) and Device Type Manager (DTM) available	
FAULTS MONITORED	Low supply voltage, RAM checksum error, flash checksum error, EEPROM error, internal circuit error, relay, invalid sensor configuration, sensor faults, calibration faults, analog output mismatch fault	
CABLE REQUIREMENTS	3-wire shielded cable for single sensor and 4-wire shielded cable for dual sensor configurations. <i>Refer to manual for wiring and mounting distances.</i>	
REMOTE SENSOR W/S5000 JUNCTION BOX	Remote-mount gas sensors with a display-less junction box up to 328 ft (100 m) away from the transmitter using a 16 AWG cable. <i>Refer to the manual for S5000 junction box wiring details and other optional junction boxes.</i>	

Note: This Bulletin contains only a general description of the products shown. While product uses and performance capabilities are generally described, the products shall not, under any circumstances, be used by untrained or unqualified individuals. The products shall not be used until the product instructions/user manual, which contains detailed information concerning the proper use and care of the products, including any warnings or cautions, have been thoroughly read and understood. Specifications are subject to change without prior notice. MSA is a registered trademark of MSA Technology, LLC in the US, Europe, and other Countries. For all other trademarks visit <https://us.msasafety.com/Trademarks>.

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