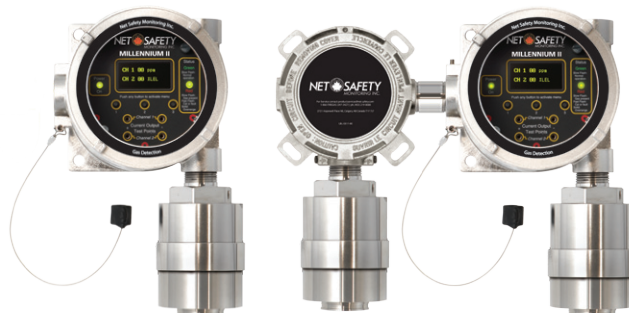


Millennium II Gas Detector

Single or Dual Channel Transmitter/Sensor Package

The Millennium II series of gas detectors have been engineered from the ground-up to include the innovative features that managers and operators in the field demand, while providing rock solid day-to-day operation, even in the most extreme conditions. The Millennium II pushes the boundaries of what you can expect from your detectors.

- SMART Sensor Technology Works with All Sensor Types (IR, CatBead, EC, NE-MOS)
- -55°C to +85°C Temperature Range
- Lowest Power Consumption on the Market
- Wide Voltage Range Allows For Greater Stability and System Compatibility



- Full Sensor Diagnostics
- Full Event & Data Logging
- Intuitive Menu System Simple Set-up/Calibrations
- Field Selectable Gas Curves and Ranges
- Long Range (+2000ft.) Sensor Separation

Single or Multi-Channel Controller

No need to purchase additional gas specific detectors. Use with 1 or 2 sensors and mix and match any of our sensor technologies.

SMART Sensor Technology

The transmitter can be fitted with a wide range of toxic and/or combustible gas sensors. SMART (Self Monitoring Analysis and Reporting Technology) sensors are pre-calibrated and easily connected to the transmitter which recognizes a newly fitted sensor, automatically uploading it's specific configuration profile.

Digital Communications

Sensor and transmitter continuously communicate digitally, giving you the confidence of stable, accurate protection with market-leading response times.

Global Certifications

The Millennium II is approved to FM, CSA, ATEX, ANSI, SIL2 by TÜV SÜD, INMETRO, and GOST-R safety, technical and performance standards.

Superior OLED Display

The only full graphic OLED display available, easy to read in all ambient lighting conditions and operates down to -55°C!

Analog, Relay, Modbus 485 RTU & HART®

Enhanced communication protocols allows the Millennium II to work seamlessly with external safety equipment.

Field-proven Sensor Innovations

Solid state Nano-Enhanced MOS sensors that have the fastest H₂S response and do not "fall asleep"; poison-resistant Catalytic Bead with SensorGuard technology, which prolongs sensor life; Infrared sensor technology utilizing a dual beam design with no mirrors that may become contaminated ("fogged up") or misaligned; and a full range of Electrochemical toxic gas sensors.

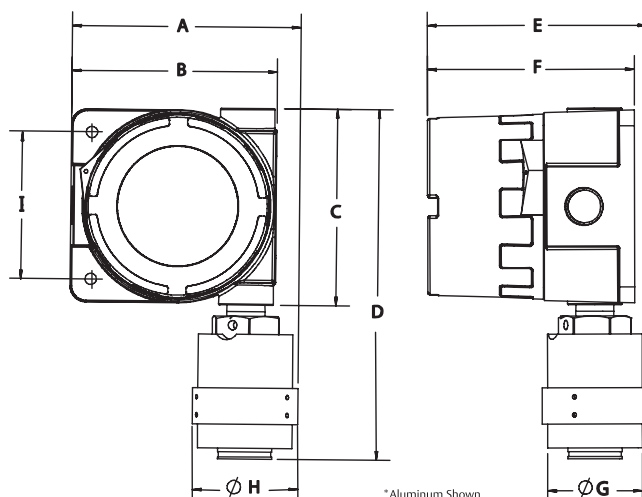
Easy To Use Menus

English, French, Portuguese or Spanish display. The full text menu makes installation, operation and calibration simple. No manual necessary!

Millennium II Transmitter

Specifications

Electrical	
Power Consumption	2.4W @ 24 or 12 Vdc (average - varies by sensor types/quantities)
Voltage Range	10.5 – 32.0 Vdc (HART: 18 – 32 Vdc)
EMC Compliance	EN 50270:2006 per EMC directive 2004/108/EC
Display	Organic LED (OLED), Power/Status LED's
Environmental	
Temperature	-55°C to +85°C (-67°F to +185°F) Certified Operating Range
Relative Humidity	0-99% RH non condensing
Enclosure	
Metallurgy	Aluminum or 316 SS
Conduit Opening	3/4" NPT (3X)
Outputs	
Standard: Analog 4-20mA	
Optional: Four 5 Amp Form C Relays, RS 485 Modbus® RTU, and HART®	
Certifications	
North American Class I, Division 1, Groups BCD; Class I, Zone 1, Group IIB+H2 Type 4X, IP67 FM 6310/6320, ANSI/ISA 12.13.01/92.0.01/92.03.01, CSA-C22.2 No152 ATEX CE 0575 Ex II 2 G Exd IIB+H2 T5 IP67 IEC61779-1/4 IECEx (pending) INMETRO BR-Ex d IIB+H2 T5 IP67 GOST-R SIL2 Rated*	
Sensors	Combustible Gases: Infrared, Catalytic Bead Toxic Gases: Electrochemical, NE-MOS
Warranty	3 years
Mounting	Surface Mount / Pipe Mount / Duct Mount
Weight	Aluminum: 2.4 kg (5.3 lbs), Stainless Steel (316SS): 2.6 kg (5.5 lbs)



*Aluminum Shown

ORDERING INFORMATION

M21-A*	Single Channel - Analog
M21-AR*	Single Channel - Analog & Relay
M21-AD*	Single Channel - Analog & Modbus
M21-ARD*	Single Channel - Analog & Relay & Modbus
M21-ARS*	Single Channel - Analog & Solid State Relays
M21-AH	Single Channel - Analog & HART
M21-AHR	Single Channel - Analog & HART & Relay
M22-A*	Dual Channel - Analog
M22-AR*	Dual Channel - Analog & Relay
M22-AD*	Dual Channel - Analog & Modbus
M22-ARD*	Dual Channel - Analog & Relay & Modbus

Enclosures Available: Aluminum (-A) Stainless Steel (-S)

Ordering Matrix Example:

M21-AD-S (Transmitter - Output - Enclosure Material)

SPECIAL FEATURES

- Current loop text jacks for each channel on faceplate
- Non-intrusive one man calibration (magnetic switch)
- Field selectable toxic gas ranges
- Redundant menu access via push buttons
- Sensor Enable / Disable option from menu (CI1, Div2)
- Alarm relays configurable/assignable to any channel
- Displayed Event Logging (980 events)
- Retrieve last calibration info from sensor
- Four languages - English, French, Spanish, Portuguese

ACCESSORIES

- Calibration Cup,
- Mounting Bracket c/w Hardware
- Sun Shade/Deluge Protection
- Duct Mount and Hardware Kit
- Dust/Sand filter

	A		B		C		D		E	
Aluminum Housings	6.3	160	5.6	142	5.4	137	9.7	246	6.0	152
Stainless Steel Housings	5.9	150	5.1	130	4.6	117	8.9	226	6.0	152
	F		G		H		I			
Aluminum Housings	5.7	145	2.6	66	2.9	74	4.1	103		
Stainless Steel Housings	5.8	147	2.6	66	2.9	74	3.9	100		

Millennium II Series Combustible Gas Sensors

Catalytic Bead and Infrared Specifications

	COMBUSTIBLE GASES [%LEL] CATALYTIC BEAD P/N: SC310(A/S)-100-ASSY	COMBUSTIBLE GASES [%LEL] INFRARED P/N: SC311(A/S)-100-ASSY
Performance		
Response Time	T50 ≤ 5.5sec T60 ≤ 6sec T90 ≤ 12sec	T50 ≤ 4.3 sec T60 ≤ 7 sec T90 ≤ 11 sec
Accuracy	(+/-) 3% < 50% (+/-) 5% > 50%	(+/-) 2% < 50% (+/-) 5% > 50%
Detection Range	0 — 100% LEL Primary Detectable Gases: Methane, Propane, n-Butane, Isobutylene, Hydrogen, Ethane, Pentane, Hexane, Heptane, Ethylene, Propylene, Methanol, Ethanol	0 — 100% LEL Primary Detectable Gases: Methane, Propane, n-Butane, Iso-Pentane, n-Pentane, Ethane, Iso-Butane, Ethylene, Hexane (Field Selectable Curves)
Zero Drift	(+/-) 2% per month	n/a
Repeatability	(+/-) 1% LEL full scale	(+/-) 2% LEL full scale
Environmental		
Temperature	Certified: -40°C to +75°C (-40°F to 167°F) Performance Verified: -55°C to +85°C (-67°F to 185°F)	
Relative Humidity	0–99% RH non condensing	
Enclosure		
Metallurgy	Aluminum or 316 SS	
Certifications	North American Class I, Division 1, Groups BCD; Class I, Zone 1, Group IIB+H2 Type 4X, IP64 FM 6310/6320, ANSI/ISA 12.13.01, CSA-C22.2 No152	North American Class I, Division 1, Groups BCD; Class I, Zone 1, Group IIB+H2 Type 4X, IP64 FM 6310/6320, ANSI/ISA 12.13.01, CSA-C22.2 No152
	ATEX Ⓔ II 2 G Exd IIB+H2 T5 IP67 IEC61779-1/4 IECEX (pending) INMETRO BR-Ex d IIB+H2 T5 IP64 GOST-R	ATEX Ⓔ II 2 G Exd IIB+H2 T5 IP64 IEC61779-1/4 IECEX (pending) INMETRO BR-Ex d IIB+H2 T5 IP64 GOST-R SIL2 Rated
Sensor Separation	Up to 2000 feet/600 meters (18 AWG cabling)	
Warranty	5 years	
Special Features	<ul style="list-style-type: none">• SensorGuard Technology• Poison Resistant• Custom K-factor Input (via HART®)	<ul style="list-style-type: none">• Dual Beam Technology• Sintered Metal IR Lamp Protection• “Quick” Calibration Option

Millennium II Series Toxic Gas Sensors

XChem Electrochemical Specifications

	HYDROGEN SULPHIDE [H2S] (ELECTROCHEMICAL) P/N: ST320(A/S)-100-ASSY	CARBON MONOXIDE [CO] (ELECTROCHEMICAL) P/N: ST360(A/S)-1000-ASSY	SULPHUR DIOXIDE [SO2] (ELECTROCHEMICAL) P/N: ST330(A/S)-100-ASSY
Performance			
Response Time	T50 ≤ 17 sec T90 ≤ 30 sec	T20 ≤ 10 sec T50 ≤ 15 sec T90 ≤ 30 sec	T20 ≤ 9 sec T50 ≤ 15 sec T90 ≤ 30 sec
Accuracy	(+)− 3% Full Scale		
Detection Range	0—20/50/100 ppm (Field Selectable)	0—500/1000 ppm (Field Selectable)	0—20/100 ppm (Field Selectable)
Zero Drift	(+)− 2% per year	< 5% per year	< 0.1 ppm per year
Repeatability	< 5% full scale	< 3% full scale	< 2 ppm full scale
Environmental			
Temperature	−40°C to +75°C (−40°F to 167°F)	−40°C to +50°C (−40°F to 122°F)	−30°C to +50°C (−22°F to 122°F)
Relative Humidity	0–99% RH non condensing	5–95% RH non condensing	
Enclosure			
Metallurgy	Aluminum or 316 SS		
Certifications	North American Class I, Division 1, Groups BCD; Class I, Zone 1, AExd IIB+H2 T5 Type 4X, IP64		
	ATEX CE 0575 Ex II 2 G Exd IIB+H2 T5 Gb IP64		
	IECEX Ex d IIB+H2 T5 Gb		
Sensor Separation	Up to 2000 feet/600 meters (18 AWG cabling)		
Warranty	2 years		
Special Features	• Enhanced Sensor Diagnostics • Field Selectable Ranges		

Millennium II Series Toxic Gas Sensors

XChem Electrochemical Specifications

	NITRIC OXIDE [NO] (ELECTROCHEMICAL) P/N: ST372(A/S)-100-ASSY	NITROGEN DIOXIDE [NO ₂] (ELECTROCHEMICAL) P/N: ST373(A/S)-10-ASSY	OXYGEN [O2] (ELECTROCHEMICAL) P/N: ST340(A/S)-25-ASSY
Performance			
Response Time	T20 ≤ 6 sec T50 ≤ 9 sec T90 ≤ 23 sec	T20 ≤ 10 sec T50 ≤ 20 sec T90 ≤ 40 sec	T20 ≤ 8 sec T50 ≤ 10 sec T90 ≤ 20 sec
Accuracy	(+)–(–) 3% Full Scale		
Detection Range	0–100 ppm	0–10 ppm	0–25% Oxygen
Zero Drift	< 0.3 ppm per year	< 0.03 ppm per year	< 5% per year
Repeatability	< 3% full scale	< 0.2 ppm full scale	< 3% full scale
Environmental			
Temperature	–30°C to +50°C (–22°F to 122°F)	–20°C to +50°C (–4°F to 122°F)	–20°C to +50°C (–4°F to 122°F)
Relative Humidity	5–95% RH non condensing		
Enclosure			
Metallurgy	Aluminum or 316 SS		
Certifications	North American Class I, Division 1, Groups BCD; Class I, Zone 1, AExd IIB+H2 T5 Type 4X, IP64 ATEX CE 0575 Ex II 2 G Exd IIB+H2 T5 Gb IP64 IECEX Ex d IIB+H2 T5 Gb		North American Class I, Division 1, Groups BCD; Class I, Zone 1, AExd IIB+H2 T5 Type 4X, IP64 ATEX Ex II 2 G Exd IIB+H2 IP64
Sensor Separation	Up to 2000 feet/600 meters (18 AWG cabling)		
Warranty	2 years		
Special Features	• Enhanced Sensor Diagnostics		

Millennium II Series Toxic Gas Sensors

NE-MOS (Metal Oxide Semiconductor) Specifications

	HYDROGEN SULPHIDE [H ₂ S] (SOLID STATE NE-MOS) P/N: ST321(A/S)-100-ASSY	AMMONIA [NH ₃] (SOLID STATE NE-MOS) P/N: ST371(A/S)-300-ASSY
Performance		
Response Time	T20 ≤ 7sec T50 ≤ 13sec T90 ≤ 17sec	T20 ≤ 8 sec T50 ≤ 16 sec
Accuracy	(+/-) 2ppm	(+/-) 5ppm
Detection Range	0–20/50/100 ppm (Field Selectable)	0–50/100/300 ppm (Field Selectable)
Zero Drift	2ppm over 6 months	2ppm over 6 months
Repeatability	(+/-) 1ppm or 5% full scale	(+/-) 2ppm or 5% full scale
Environmental		
Temperature	Certified: -40°C to +60°C (-40°F to 140°F) Performance Verified: -40°C to +65°C (-67°F to 149°F)	
Relative Humidity	0–95% RH non condensing	0–90% RH non condensing
Enclosure		
Metallurgy	Aluminum or 316 SS	
Certifications	North American Class I, Division 1, Groups BCD; Class I, Zone 1, Group IIB+H2 Type 4X, IP64 ATEX II 2 G Exd IIB+H2 T5 IP64 IECEX (pending) INMETRO BR-Ex d IIB+H2 T5 IP64 ANSI/ISA-S 92.0.01 SIL2 Rated	North American Class I, Division 1, Groups BCD; Class I, Zone 1, Group IIB+H2 Type 4X, IP64 ATEX II 2 G Exd IIB+H2 T5 IP64 IECEX (pending) INMETRO BR-Ex d IIB+H2 T5 IP64 ANSI/ISA-S 92.03.01
	Up to 2000 feet/600 meters (18 AWG cabling)	
Sensor Separation	Up to 2000 feet/600 meters (18 AWG cabling)	
Warranty	2 years	6 months
Special Features	<ul style="list-style-type: none"> Nano-Enhanced Sensor Technology - Response, Performance Enhanced Sensor Diagnostics 	

Millennium II Series

Separation Boxes & Accessories

SEPARATION BOXES

Class 1, Division 1, Groups BCD - Class 1, Zone 1 – Enclosure rated NEMA 4X, IP67 (See man-0081 for full specifications)

JB-MPD-S	Digital Output - Stainless Steel
JB-MPD-A	Digital Output - Aluminum

ACCESSORIES

UDM-001	Universal duct mount assembly with 1M inlet sampling pipe - Stainless Steel
UDM-002	Universal duct mount assembly with 1.5M inlet sampling pipe - Stainless Steel
UDM-003	Universal duct mount assembly - Stainless Steel
UDM-EX1	1M extension - for use with UDM-001 & UDM-002 - Stainless Steel
UDM-EX2	1.5M extension - for use with UDM-001 & UDM-002 - Stainless Steel

CCS-1	Calibration Cup/Rain Shield/Splash Guard/Dust Filter with DF-1
DSC-1	Dust / Sand protective clip (includes DF-1 disposable filter)

IPF-001	IP 66/67 Filter for SX3 Series sensors, enhanced sensor protection from contamination by dirt and moisture
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UN-MK-31	1" Pipe Mounting kit c/w stainless steel mounting bracket and hardware
UN-MK-32	2" Pipe Mounting kit c/w stainless steel mounting bracket and hardware
UN-MK-33	3" Pipe Mounting kit c/w stainless steel mounting bracket and hardware

HPT-001	HART Communicator port, mounts directly to JB-MPH-A/S or Millennium II transmitter
JB-MPH-A	Separation box - Aluminum - used to remote mount HART port (HPT-001)
JB-MPH-S	Separation box - Stainless steel - used to remote mount HART port (HPT-001)

SSK-51	1" Pipe Mounted Sun shade kit/rain guard - Stainless steel - Includes UN-MK-31 Mounting kit
SSK-52	2" Pipe Mounted Sun shade kit/rain guard - Stainless steel - includes UN-MK-32 Mounting kit
SSK-53	3" Pipe Mounted Sun shade kit/rain guard - Stainless steel - Includes UN-MK-33 Mounting kit

HEADQUARTERS:

FLAME AND GAS DETECTION

Emerson Process Management
Net Safety Monitoring Inc.
2721 Hopewell Place NE
Calgary, Alberta, Canada T1Y 7J7
T +1 (403) 219 0688
T 1 866 FIREGAS
F +1 (403) 219 0694
www.net-safety.com

HEADQUARTERS:

GAS CHROMATOGRAPHS

Emerson Process Management
Rosemount Analytical
5650 Brittmoore Road
Houston, TX 77041 USA
T +1 (713) 827 6380
T 1 866 422 3683
F +1 (713) 827 3865
www.raihome.com

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Emerson Process Management
Rosemount Analytical
6565 P Davis Industrial Parkway
Solon, OH 44139 USA
T +1 (440) 914 1261
T 1 800 433 6076
F +1 (440) 914 1262
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2400 Barranca Parkway
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T 1 800 854 8257
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