

Millennium II BASIC Gas Detector

LED Indication (No Display) Transmitter/Sensor Package

Net Safety's Millennium II BASIC gas detector package is a robust and reliable safety solution delivering highly accurate monitoring and protection. Compatible with our state-of-the-art SMART sensor technology, it provides a flexible detection platform that includes all the features users in the field demand with complete ease-of-use and operation.

- 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
- Non-intrusive Menu System, Simple Set-up and Calibrations via External Magnet or Optional HART® Port Connection
- Field Selectable Gas Curves and Ranges
- Long Range (+2000ft.) Sensor Separation

Streamline Controller Design

Designed for applications that require a local, full-featured transmitter interface but do not require a character display. The Millennium II BASIC includes bright LED indicators for Power/Alarm/Fault conditions with an optional HART® interface.

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 connect 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 BASIC is approved to FM, CSA, ATEX, ANSI, INMETRO, and GOST-R safety, technical and performance standards.

Analog, Relay, Modbus 485 RTU & HART®

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

Field-proven Sensor Innovations

Solid state Nano-Enhanced MOS sensors that have fast 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.

Millennium II BASIC Transmitter

Specifications

Electrical	
Power Consumption	1.1W @ 24 or 12 Vdc (average - varies by sensor type)
Voltage Range	10.5 – 32.0 Vdc (HART: 18 – 32 Vdc)
EMC Compliance	EN 50270:2006 per EMC directive 2004/108/EC
Display	Multi-color LED Indication (Normal/Fault/Alarm)
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	Optional: Analog 4-20mA, Four 5 Amp Form C Relays, RS 485 Modbus® RTU, and HART®
Certifications	<p>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</p> <p>ATEX CE 0575 II 2 G Exd IIB+H2 T5 IP67 IEC61779-1/4</p> <p>IECEX (pending)</p> <p>INMETRO BR-Ex d IIB+H2 T5 IP67</p> <p>GOST-R</p>
Sensors	Combustible Gases: Infrared, Catalytic Bead Toxic Gases: Electrochemical, NE-MOS
Warranty	3 years
Mounting	Surface Mount / Pipe Mount / Duct Mount
Weight	Aluminum: 0.8 kg (2.0 lbs), Stainless Steel (316SS): 1.6 kg (3.5 lbs)

ORDERING INFORMATION

M2B-A	Single Channel - Analog
M2B-R	Single Channel - Relay
M2B-D	Single Channel - RS485 Modbus
M2B-AH	Single Channel - Analog &HART

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

Ordering Matrix Example:

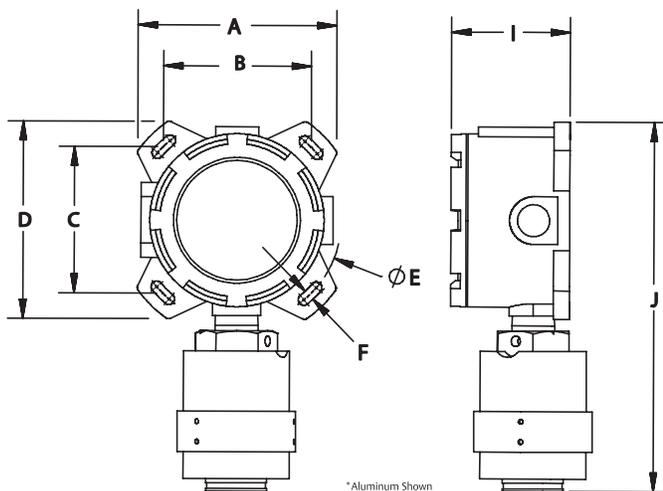
M2B-A-S (Transmitter - Output - Enclosure Material)

SPECIAL FEATURES

- Non-intrusive one man calibration (magnetic switch)
- Field selectable toxic gas ranges
- Field selectable combustible gas curves
- Sensor Enable / Disable option from menu

ACCESSORIES

- HART Port Adaptor
- 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	<p>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</p> <p>ATEX ⊕ II 2 G Exd IIB+H2 T5 IP64 IEC61779-1/4</p> <p>IECEX (pending)</p> <p>INMETRO BR-Ex d IIB+H2 T5 IP64</p> <p>GOST-R</p>	<p>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</p> <p>ATEX ⊕ II 2 G Exd IIB+H2 T5 IP64 IEC61779-1/4</p> <p>IECEX (pending)</p> <p>INMETRO BR-Ex d IIB+H2 T5 IP64</p> <p>GOST-R SIL2 Rated</p>
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 [H ₂ S] (ELECTROCHEMICAL) P/N: ST320(A/S)-100-ASSY	CARBON MONOXIDE [CO] (ELECTROCHEMICAL) P/N: ST360(A/S)-1000-ASSY	SULPHUR DIOXIDE [SO ₂] (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	<ul style="list-style-type: none"> 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 [O ₂] (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 [H2S] (SOLID STATE NE-MOS) P/N: ST321(A/S)-100-ASSY	AMMONIA [NH3] (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	<p>North American Class I, Division 1, Groups BCD; Class I, Zone 1, Group IIB+H2 Type 4X, IP64</p> <p>ATEX II 2 G Exd IIB+H2 T5 IP64</p> <p>IECEX (pending)</p> <p>INMETRO BR-Ex d IIB+H2 T5 IP64</p> <p>ANSI/ISA-S 92.0.01</p> <p>SIL2 Rated</p>	<p>North American Class I, Division 1, Groups BCD; Class I, Zone 1, Group IIB+H2 Type 4X, IP64</p> <p>ATEX II 2 G Exd IIB+H2 T5 IP64</p> <p>IECEX (pending)</p> <p>INMETRO BR-Ex d IIB+H2 T5 IP64</p> <p>ANSI/ISA-S 92.03.01</p>
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:

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