



Combustible Gas Detector Catalytic Bead

UNI-TRAN SERIES

The Uni-Tran SC1100 micro-controller based LEL gas detector provides fast, accurate, continuous and cost effective monitoring of combustible gases in harsh industrial environments.

The SC1100 is a proven, poison resistant, pellistor sensor utilizing active and reference catalytic beads in a Wheatstone Bridge configuration. The Wheatstone Bridge generates a temperature compensated differential voltage, that is proportional to a gas concentration when exposed to a wide range of hydrocarbon gases.

The use of advanced micro-controller technology provides a user interface, that is comprehensive yet very simple to use. The full text LED display of the Premium version gives the user complete instructions for routine operation, calibration and relay configuration with no tools. Pellistor type, catalytic sensors are highly reliable, but in conventional systems the sensing element is damaged when exposed to high concentrations of combustible gas. SensorGuard is a proprietary technology that provides effective protection against this type of damage, thus reducing the need for frequent calibration and enhancing reliability.



FEATURES



Widely proven **Poison Resistant** Catalytic Bead sensor technology

[†]SensorGuard software based protection

Low power consumption that works with 12 or 24VDC systems

Easy, non-intrusive one person calibration**

Sensor can be remotely mounted up to 75 feet from the display module

Scrolling alpha-numeric LED display available in English, French or Spanish***

Gas specific colour coded enclosure

Microprocessor based smart transmitter

Conformal coated circuit boards

[†]SensorGuard is a proprietary firmware feature that protects the pellistor sensor from the damage and/or response shift commonly caused by exposure to high concentrations of combustible gas. With this feature, repeated or lengthy exposure to high gas concentrations has negligible effect on sensor performance. Sensor life is prolonged and calibration frequency is reduced. This does not eliminate the necessity of periodic sensor response checks which should be performed as part of an effective maintenance schedule.


**Standard, Premium and Premium Plus versions only

***Premium and Premium Plus versions only



Combustible Gas Detector

Catalytic Bead

SENSOR SPECIFICATIONS

Operating Temperature Range	-40°C to +85°C (-40F to +185F)
Range of Detection	0 to 100% LEL of most hydrocarbons and hydrogen
Accuracy	±3% LEL up to 50% LEL ±5% LEL above 50% LEL
Response Time	<10 seconds to T50 <30 seconds to T90
Linearity /Repeatability	±3% LEL / ±2% LEL
Enclosure Material	Anodized / Powder coated aluminum (optional stainless steel)
Certifications	 CSA and NRTL/C certified for hazardous locations. Class I, Division 1, Groups B, C, D. IEC Rating Ex d IIB+H2T5. NEMA 3R. Performance certified to CSAC22.2 No. 152
Weight	0.1 Kg (0.2 lb)

CONTROLLER SPECIFICATIONS

UNI-TRAN	BASIC	STANDARD	PREMIUM	PREMIUM PLUS
Operating Voltage Range	10.5 to 32 VDC			
Power Consumption (at 24 VDC)	Nominal (100 mA, 2.4 Watts)	Maximum (200 mA, 4.8 Watts)		Nominal (160 mA, 3.8 Watts) Maximum (190 mA, 4.5 Watts)
Operating Temperature Range	-40°C to +85°C (-40F to +185F)			
Humidity Range	0 to 100% Relative humidity non condensing			
Enclosure Material	Painted copper free cast aluminum	Powder coated Copper Free Cast Aluminum		
Weight	0.9 Kg (2.0 lb)	2.3 Kg (5.0 lb)		3.2 Kg (7.0 lb)
Certifications	 CSA and NRTL/C certified for hazardous locations. Class 1, Division 1, Groups B, C and D. Nema 4X and 7 rated.  IEC Rating Ex d IIB+H2T5			
	NOTE: Electronics only - CSA and NRTL/C certified for hazardous locations Class1, Division 2 Groups A, B, C and D. NOTE: For Basic model - CSA and NRTL/C certified for hazardous locations. Class1, Division 1, Groups C and D. IEC Rating Ex d IIB+H2T5			
SensorGuard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Current Output (1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Relay Output (2)				<input type="checkbox"/>
4 digit alpha-numeric display			<input type="checkbox"/>	<input type="checkbox"/>
Non-intrusive Calibration		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- (1) 4 to 20 mA into a maximum loop impedance of 800 Ohms at 32 VDC or 150 Ohms at 10.5 VDC. Isolated or non-isolated loop supply (Basic and Premium Plus versions have non-isolated loop supply only)
- (2) Form C contacts rated 1Amp at 30 VDC, 0.5Amp at 125 VDC. Selectable energized/de-energized, latching/non-latching. Configurable Low and High alarms. Fault relay is factory set as energized, non-latching and cannot be modified.

ORDERING INFORMATION

UNI-TRAN MODEL	SENSOR	OPTIONS
UT	B (Basic)	SP- Spanish Language
	S (Standard)	FR- French Language
	P (Premium)	SEP- Sensor Separation
	P+ (Premium Plus)	CCS-1- Splashguard/Rainshield

Example: UT-P-SC1100-100-SEP Uni-Tran premium version Combustible gas detector with poison resistant sensor Sensor separation option included.

NOTE: Specify gas to detect when ordering



Millennium II BASIC “Smart” Gas Detector



MILLENNIUM II BASIC

“Smart” Gas Detector

SIL 2
RATED

- Low Cost Solution
- Market Leading Sensor Warranties
- Reduction in Spare Parts
- Low Power
- Fastest H₂S Response on the Market
- Non-intrusive, One Man Calibrations
- Visual LED Indication
- Built In Selectable Gas Curves
- Long Range (+2000ft.) Sensor Separation
- Optional “HART” Communication

next generation detector, the Millennium II BASIC is a robust, reliable, and low-cost safety solution delivering highly accurate detection and protection. Our state-of-the-art “Smart” technology provides a cost-effective detector solution that includes all the features you demand with complete ease-of-use and operation.

Smart Sensor Technology

The transmitter can be fitted with a wide range of toxic and/or combustible gas sensors. Each sensor is pre-calibrated and easily connects to the transmitter which instantly recognizes a newly fitted sensor and automatically uploads it's specific configuration profile.

Enhanced Communications

The Millennium II Basic comes equipped with optional Analog, Relay, RS485 Modbus® RTU, or HART® communications, making integration with external safety equipment seamless.

Easy to Use and Cost Effective

The Millennium II BASIC comes equipped with easy-to-read, low-power LED indicators for power and status. Plug-in sensor replacement capability and non-intrusive “one-man” calibration greatly reduce and simplify maintenance.

Proven Sensor Technologies

All of our sensors are engineered to be fast and reliable with field-proven designs. These include solid state sensors that “do not fall asleep”; poison-resistant catalytic bead technology with *SensorGuard*, which prolongs catalytic bead 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 electro-chemical toxic gas sensors.

Global Certifications

The Millennium II Basic is certified for use worldwide and is compliant with FM, CSA, SIL2 and ATEX safety and performance standards.

Market Leading Warranties

All Transmitters – 3 Years
Catalytic Bead and Infrared Sensors – 5 Years
Solid State and Electro-Chemical Sensors – 2 Years

Millennium II BASIC “Smart” Gas Detector

MILLENNIUM II BASIC CONTROLLER

Electrical

Power Consumption	@ 24 Vdc Up to 200 mA with a single sensor (will vary depending on sensor types and quantities)
Voltage Range	10.5 – 32.0 Vdc
RFI, EMI Immunity	RFI: 150 to 170 MHz and 450 to 470 MHz, 5W FM radio 1 meter away EMC: IEC 61000-1-4 and IEC 61000-4-3 Severity Level 2

Visual Indicator Power and Status LED's (Indicates Normal, Alarm, Fault)

Environmental

Temperature	Certified to -55°C to +85°C (-67°F to +185°F)
RH	0-99% RH non condensing

Enclosure

Metallurgy	Aluminum or 316 SS
IP/Nema	IP67 Nema 4X
Conduit Opening	3/4" NPT 3X

Mounting Surface Mount / 2" Pipe Mount

Outputs Analog 4-20mA Standard | Optional Three 5 Amp Form C Relays, R5485 Modbus®, HART®

Approvals Class I, Div I Grps BCD; Class I, Zone 1 AEx/EEEx d IIB+H2, T5, IP67, Type 4X, Certified -55°C to +85°C



FM ATEX: 1725 II 2G, Ex d IIB+H2, T5, IP67, Certified -55°C to +85°C.
 Certified to FM 6320, CSA-C22.2 No. 152, ISA-92.0.01, EN61779-4

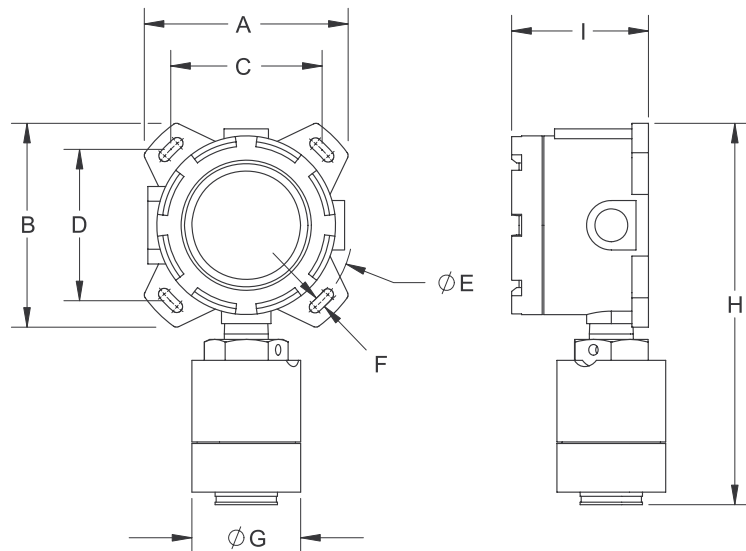
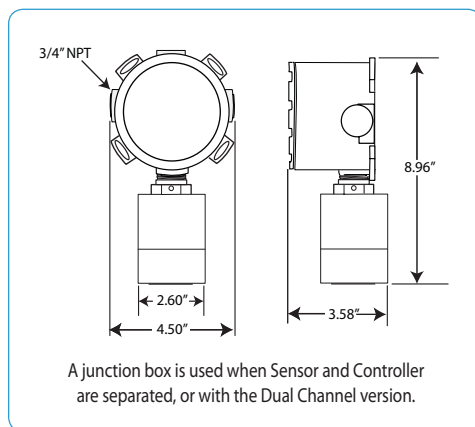
Warranty 3 years

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

Weight Approx. 2.0 kg (4.4 lbs.)


Dimensions See below


Millennium Basic & Separation Kit Dimensions (inches)								
	A	B	C	D	E	F	G	H
Millennium Basic & Sensor (Aluminium)	4.8	4.8	3.6	3.6	5.1	0.3	2.6	9.0
Millennium Basic & Sensor (Stainless Steel)	4.7	4.7	3.6	3.6	5.1	0.3	2.6	8.9
Separation Kit & Sensor (Aluminium)	4.8	4.8	3.6	3.6	5.1	0.3	2.6	9.0
Separation Kit & Sensor (Stainless Steel)	4.7	4.7	3.6	3.6	5.1	0.3	2.6	8.8





Millennium II Sensors “Smart” Sensor Technology

SENSOR	SOLID STATE H ₂ S	SOLID STATE NH ₃	ELECTROCHEMICAL H ₂ S (ATEX only)
PERFORMANCE			
• Response Time	T50 ≤ 7 sec T90 ≤ 22 sec (50ppm range)	T20 ≤ 3 sec T50 ≤ 6.2 sec (300ppm range)	T90 < 30 sec (50 ppm range)
• Accuracy	50ppm range +/- 2ppm full scale	+/- 5ppm full scale	(+/-) 3 ppm full scale
• Zero drift	2ppm full scale over 6 months	2ppm full scale over 6 months	2ppm full scale over 6 months
• Repeatability	Greater of 1ppm or 5% full scale	1ppm full scale	< 5 % full scale
ENVIRONMENTAL			
• Temperature	Operational to -40°C to +65°C (-40°F to 149°F)	Operational to -40°C to +60°C (-40°F to 140°F)	Operational to -50°C to +50°C (-58°F to 122°F)
• RH	0-95% RH non condensing	0-99% RH non condensing	0-95% RH non condensing
ENCLOSURE			
• Metallurgy	Aluminum or 316 SS	Aluminum or 316 SS	Aluminum or 316 SS
APPROVALS 	Performance certified to ISA-92.0.01	Performance certified to ISA-92.0.03	
	Class I, Div I, Groups B,C, D; Class I, Zone 1 AEx/EEx d IIB+H2, T5. FM ATEX: 0575 II 2G, EEx d IIB-H2, T5.		
SENSOR SEPARATION	Up to 2000 feet/600 meters	Up to 2000 feet/600 meters	Up to 2000 feet/600 meters
WARRANTY	2 years	2 years	2 years
SPECIAL FEATURES	<ul style="list-style-type: none"> • Enhanced Sensor Diagnostics • Sensor Will Not Fall Asleep 	<ul style="list-style-type: none"> • Enhanced Sensor Diagnostics • Sensor Will Not Fall Asleep 	<ul style="list-style-type: none"> • Enhanced Sensor Diagnostics

SENSOR	IR COMBUSTIBLE	CATALYTIC BEAD	ELECTROCHEMICAL O ₂ (ATEX only)
PERFORMANCE			
• Response Time	T50 ≤ 4.3 sec T90 ≤ 11 sec	T50 < 6sec T60 < 7sec T90 < 13sec (100% LEL)	T95 < 15 sec
• Accuracy	(+/-) 2% < 50% (+/-) 5% > 50%	(+/-) 3% up to 50% (+/-) 5% above 50%	n/a
• Range of Detection	0 to 100% LEL	0 to 100% LEL	0 to 25% Oxygen
• Zero Drift	2% full scale per year	2% full scale over 6 months	1% full scale over six months
• Repeatability	+/- 2% full scale	< 1 % full scale	n/a
ENVIRONMENTAL			
• Temperature	Operational to -55°C to +85°C (-67°F to 185°F)	Operational to -55°C to +85°C (-58°F to 185°F)	Operational to -20°C to +50°C (-4°F to 122°F)
• RH	0-99% RH non condensing	0-99% RH non condensing	0-99% RH non condensing
ENCLOSURE			
• Metallurgy	Aluminum or 316 SS	Aluminum or 316 SS	Aluminum or 316 SS
APPROVALS 	Performance certified to FM 6310, 6320 Performance certified to ISA-12.13 CSA 22,2#152, EN 61779-1, EN 61779-4	Performance certified to FM 6310, 6320 Performance certified to ISA-12.13 CSA 22,2#152, EN 61779-1, EN 61779-4	
	Class I, Div I, Groups B,C, D; Class I, Zone 1 AEx/EEx d IIB+H2, T5. FM ATEX: 0575 II 2G, EEx d IIB-H2, T5.		
SENSOR SEPARATION	Up to 2000 feet/600 meters	Up to 2000 feet/600 meters	Up to 2000 feet/600 meters
WARRANTY	5 years	5 years	2 years
SPECIAL FEATURES	<ul style="list-style-type: none"> • Calibration Required Only Once Per Year • Enhanced Sensor Diagnostics • Dual Beam Technology • Flame Arrestor Beam Protector • “Quick” Calibration Option 	<ul style="list-style-type: none"> • Enhanced Sensor Diagnostics • SensorGuard Technology • Poison Resistant • Custom K-factor Input 	<ul style="list-style-type: none"> • Enhanced Sensor Diagnostics