

*A World of Gases...*



*...A Single Transmitter.*



**INTERTECH RIO**  
CONTROLE DE PROCESSOS E INSTRUMENTAÇÃO

*UniSens*  
Universal 2-Wire Gas Transmitter

# ATI Presents A Simpler Approach To Toxic Gas Detection.

## One Transmitter Is All You Need.

Time was, monitoring multiple gases meant using different gas transmitters — each with its own maintenance problems, its own appetite for spare parts, its own installation headaches, and so on, and so on.

Never again, thanks to ATI. Our UniSens universal 2-wire gas transmitter handles 28 different gases, providing the most economical and flexible gas measurement system available today. Combining universal electronics, bench calibration capability, automatic sensor verification, fault detection and alarming, and superior sensor technology, UniSens is your best transmitter choice.

UniSens is designed for ambient gas monitoring in all kinds of industrial environments: gas storage areas, gas compressor rooms, process piping galleries, rail car sidings, analyzer shacks, gas cabinets, chemical process areas, and more.

In fact, the UniSens transmitter can be used most anywhere that hazardous gas conditions might develop either through leakage or through natural buildup.

## Unsurpassed Features:

- Interchangeable Sensing Modules
- Auto-Test Sensor Verification
- Non-Intrusive Magnetic Controls
- 28 Different Gases
- Off-Site Calibration
- Integral LCD Display
- Output Simulation
- CSA Approved
- Intrinsically Safe & Explosion Proof



## Smart Sensing Modules

ATI sensing modules consist of an electrochemical gas diffusion sensor and a solid state memory assembly. Developed and manufactured exclusively by ATI, our electrochemical sensors provide excellent response time, maximum selectivity, and superior temperature stability for reliable gas sensing in a wide range of environments. The companion memory assembly stores operational information and calibration constants, along with gas sensor identification, sensing module range, and software revision level. Complete sensing modules are housed in convenient snap-in packages that mate easily with UniSens transmitters.

This unique combination of sensor and memory lets you calibrate sensing modules with any UniSens transmitter. So instead of calibrating in the field, you can bench calibrate sensing modules with a spare transmitter; once the sensors are snapped into a field transmitter, their calibration constants upload automatically.



Gas	Standard Range	Min/Max Range
Ammonia*	0-100 PPM	50/500 PPM
Carbon Monoxide*	0-100 PPM	50-500 PPM
Hydrogen	0-4%	2000 PPM/10%
Nitric Oxide	0-50 PPM	25/500 PPM
Oxygen	0-25%	10/100%
Phosgene	0-1 PPM	1/100 PPM
Bromine*	0-1 PPM	1/100 PPM
Chlorine	0-10 PPM	1/100 PPM
Chloride Dioxide*	0-1 PPM	1/100 PPM
Fluorine*	0-1 PPM	1/100 PPM
Hydrogen Peroxide	0-10 PPM	10/100 PPM
Iodine*	0-1 PPM	1/100 PPM
Ozone*	0-1 PPM	1/100 PPM
Hydrogen Chloride*	0-20 PPM	10/200 PPM
Hydrogen Cyanide*	0-20 PPM	10/200 PPM
Hydrogen Fluoride*	0-20 PPM	10/200 PPM
Hydrogen Sulfide*	0-50 PPM	10/500 PPM
Nitrogen Dioxide*	0-20 PPM	5/200 PPM
Sulfur Dioxide*	0-20 PPM	10/200 PPM
Arsine	0-1000 PPB	1000 PPB/100 PPM
Diborane	0-1000 PPB	1000 PPB/100 PPM
Germane	0-1000 PPB	1000 PPB/100 PPM
Hydrogen Selenide	0-1000 PPB	1000 PPB/100 PPM
Phosphine	0-1000 PPB	1000 PPB/100 PPM
Silane	0-10 PPM	1000 PPB/100 PPM
Acid Gases*	0-10 PPM	10/100 PPM
Ethylene Oxide	0-20 PPM	20/200 PPM
Formaldehyde	0-20 PPM	20/200 PPM
Alcohol	0-500 PPM	500/2000 PPM

\* Indicates Auto-Test availability.



## Sensor Keeper

Powered by an ordinary C cell, the Sensor Keeper maintains sensors in stable operating

condition for up to 6 months. Sensor Keepers are useful not just for transporting sensors to and from the field, but for keeping calibrated spares on the shelf. They also let us calibrate sensors at the factory, and ship them for immediate installation and use.



## Universal Transmitter Module

The UniSens microcomputer-controlled transmitter provides a local digital display and a 4–20 mA analog output proportional to gas concentration. It works with any ATI sensing module, configuring its own display and output range automatically based on data read from the module's memory. Zero and calibration data is also read into memory, so the transmitter is automatically calibrated when it's connected to a calibrated module.

Magnetic controls on the front of the transmitter allow field calibration, manual activation of the Auto-Test feature (if installed), and review of sensing module data including gas type, range, and number of successful Auto-Tests. The transmitter can also act as an analog output simulator to facilitate complete loop testing. Outputs of 4.0, 12.0, and 20.0 mA are selectable via the front panel, along with a trouble signal of 3.6 mA.

The transmitter is housed in a durable cast-aluminum shell with an 11-pin octal base for easy installation and removal. And since UniSens transmitters are 100% interchangeable, one unit can serve as a backup for every type of gas in use.

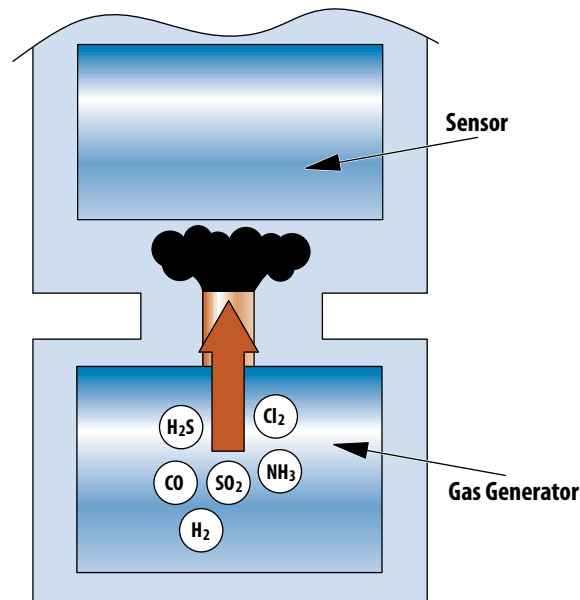


## Auto-Test, for Savings and Safety.

Until now, the manpower required for sensor testing has been the most expensive part of any toxic gas detection system. Available on many ATI sensing modules, our optional Auto-Test gas generator can cut testing costs dramatically by automatically verifying sensor response.

It's a simple system. The Auto-Test gas generator is coupled to the end of the sensor as an integral part of the sensing module. Every 24 hours, the transmitter activates the generator and monitors the sensor for response. If the sensor responds properly, the system reverts to normal operation; if it fails, output is driven to 3.6 mA to signal trouble. (During testing, the output signal is held at the pre-test value.)

The transmitter maintains a log of completed tests, and can display the time until the next scheduled test. An operator can manually activate Auto-Test, too.



## Typical Applications

	NH <sub>3</sub>	CO	H <sub>2</sub> S	SO <sub>2</sub>	Cl <sub>2</sub> Halogens	O <sub>2</sub>	H <sub>2</sub>	HCl	HF	HCN	NO	NO <sub>2</sub>	COCl <sub>2</sub>	O <sub>3</sub>	PH <sub>3</sub> Hydrides	H <sub>2</sub> O <sub>2</sub>
Chemical Processing	√	√	√	√	√	√	√	√	√	√	√	√	√		√	
Pulp & Paper	√		√	√	√	√										
R & D Labs	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√
Semiconductor Plants		√	√	√	√	√	√	√	√					√	√	
Refineries	√	√	√	√	√	√	√		√							
Pharmaceuticals		√	√		√	√		√						√		√
Food Processing	√			√	√	√								√		√
Aluminum Refining		√			√	√			√							
Breweries	√				√	√								√	√	
Metals Processing		√			√	√				√						
Water Treatment	√			√	√	√								√		
Wastewater Treatment	√		√	√	√	√				√				√		√
Electric Utilities	√	√		√	√	√	√				√	√				
Agricultural Chemicals	√					√									√	
Plastics Manufacturing		√			√	√	√	√	√	√			√	√		

## Specifications

### Gas Type:

Customer-selected from available list

### Range:

Supplied with standard range for each gas unless otherwise specified

**Display:** 4-1/2 digit LCD

### Accuracy:

Generally ±5% of value, but limited by available calibration gas accuracy

**Electronic Repeatability:** ±1%

**Electronic Linearity:** ±0.5%

### Zero drift:

Sensor dependent, but generally less than 2% of full scale per month, non-cumulative

### Span drift:

Application dependent, but generally less than 3% per month.

**Power:** 12–30 VDC

### Output:

Loop-powered 4-20 mA, 675 ohms maximum at 24 VDC

### Loop Simulation:

Operator selectable outputs of 4, 12, 20, and 3.6 mA (trouble indicator)

### Enclosure:

NEMA 4X and Explosion-proof cast aluminum, Class 1, Div. 1, Groups B, C, & D, CSA approved

### Controls:

Magnetic controls activated externally through glass window

### Operating Temperature:

-30° to +55°C (except oxygen, which is -10° to +55°C)

### Sensor:

Modular plug-in unit with calibration data, gas type, and range in sensor memory

### Sensor Life:

Average greater than two years

### Sensor Pressure Limits:

7–30 PSIA (0.5–2 Bar)

**Weight:** 4 lbs. (1.8 Kg.)

## Accessories

**Splash Guard:** Required for transmitters located outdoors or with Auto-Test, the clear polycarbonate splash guard provides protection against rain and high wind.

**Calibration Adapter:** This fitting slides into the bottom of the splash guard and allows easy connection of zero air and span gas.

**Flowcell Assembly:** For applications requiring sample draw systems, the flowcell seals the sensing module and permits the addition of inlet and outlet fittings to pipe sample into and out of the sensor.



Splash Guard and Flowcell Assembly

## How To Order

### Model A12-CC-DDDD-E-F UniSens Transmitter

**Suffix CC- Gas Type:** \*Indicates that Auto-Test is available for standard range.

10 – Bromine 0-1 (10) PPM*	26 – Nitrogen Dioxide 0-20 (100) PPM*
11 – Chlorine 0-10 (100) PPM*	27 – Sulfur Dioxide 0-20 (100) PPM*
12 – Chlorine Dioxide 0-1 (10) PPM*	28 – Arsine 0-1000 PPB (0-10 PPM)
13 – Fluorine 0-1 (10) PPM*	29 – Diborane 0-1000 PPB (0-10 PPM)
14 – Ozone 0-1 (10) PPM*	30 – Germane 0-1000 PPB (0-10 PPM)
15 – Ammonia 0-100 (500) PPM*	31 – Hydrogen Selenide 0-1000 PPB (0-10 PPM)
16 – Carbon Monoxide 0-100 (500) PPM*	32 – Phosphine 0-1000 PPB (0-10 PPM)
18 – Hydrogen 0-2000 PPM (0-4%)	33 – Silane 0-10 PPM (0-1000 PPB)
19 – Oxygen 0-25% (0-100%)	34 – Hydrogen Peroxide 0-10 (100) PPM
20 – Phosgene 0-1 (10) PPM	35 – Iodine 0-1 (10) PPM*
21 – Hydrogen Chloride 0-20 (100) PPM*	36 – Acid Gases 0-10 (100) PPM
22 – Hydrogen Cyanide 0-20 (100) PPM*	37 – ETO 0-20 (0-200) PPM
23 – Hydrogen Fluoride 0-20 (100) PPM*	38 – Formaldehyde 0-20 (0-200) PPM
24 – Hydrogen Sulfide 0-50 (100) PPM*	39 – Alcohol: Contact factory
25 – Nitric Oxide 0-50 (500) PPM	

#### Suffix D — Measurement Range

Code the measurement range using a 4-digit number representing the full scale value. For 0–10 PPM chlorine, the code would be 0010. For 0–100 PPM ammonia, the code would be 0100. The standard ranges are shown under Suffix C above. An alternate range is shown in parentheses. There is no added price for the alternate ranges.

#### Suffix E — Units of Measurement

1 – PPM	3 – %
2 – PPB	4 – %LEL

#### Suffix F — Auto-Test Option

- 1 – Sensor without Auto-Test Generator
- 2 – Sensor with Auto-Test Generator  
(Requires Splash Guard #45-0047)

#### Accessories

- 45-0047 – Splash Guard (Required for Auto-Test)
- 00-0249 – Flowcell Assembly
- 00-0210 – Sensing Module Keeper
- 00-0248 – Calibration Adapter (Requires 45-0047)

## Calibration Kits

To insure accurate measurement, gas transmitters should be calibrated every 3-4 months. ATI offers convenient calibration kits that can be used for either bench or field calibration. Kits contain span gas, zero air, and a combination pressure and flow regulator in a molded plastic carrying case. Contact ATI for details on available kits.



Web: [www.analyticaltechnology.com](http://www.analyticaltechnology.com)

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