

Reliable Performance,



Unmatched Security.

Auto-Test
Combustible Gas Detector

Combustible Gas Detection

Just Got Safer.

Now sensor response can be verified every 24 hours automatically.

Combustible Gas Detectors are used in a wide variety of industrial plants to detect gas leakage or buildup before it reaches explosive levels. These detectors rely on thermal oxidation of any combustible gas or vapor on the surface of a heated catalyst. In other words, they simply burn the gas and measure the heat released in the combustion process.

While this type of sensor is generally stable and reliable, it is also subject to poisoning by silicon vapor, lead compounds, and other environmental contaminants. To detect loss of sensitivity, most users test combustible sensors either weekly or biweekly to

ensure response. The procedure is simple, but requires manpower to perform the test.

ATI's Auto-Test Combustible Gas Transmitter eliminates the need for frequent response checks. This transmitter performs an automatic gas test on the sensing element every 24 hours. The result is a combustible gas detector system with a level of reliability beyond that of any other system available. This daily sensor response verification is as close to a fail-safe detection system as you can find, with the added benefit of greatly reduced manual testing.



Transmitter Features

- **Integral Display:** Transmitters contain an LCD display indicating LEL values locally.
- **Non-intrusive Calibration:** Magnetic transmitter controls allow adjustments without removing enclosure cover.
- **Manual Auto-Test:** The hydrogen generator may be activated manually on command to observe sensor response, if desired.
- **Auto-Test Log:** The result of each Auto-Test is logged in transmitter memory. Operators may review the number of passes and fails from the LCD.
- **Signal Simulation:** The 4-20 mA output from the transmitter may be manually set to 3, 4, 12, or 20 mA in order to test external alarm devices.
- **Plug-in Design:** Electronic transmitters are modular, plugging into a standard relay base for ease of service.
- **Dual Condulet Option:** Where installations require the sensor be located remote from transmitter electronics, sensors may be supplied with an explosion-proof junction box and a remote gas feed system to facilitate calibration.



Plug-in Transmitter



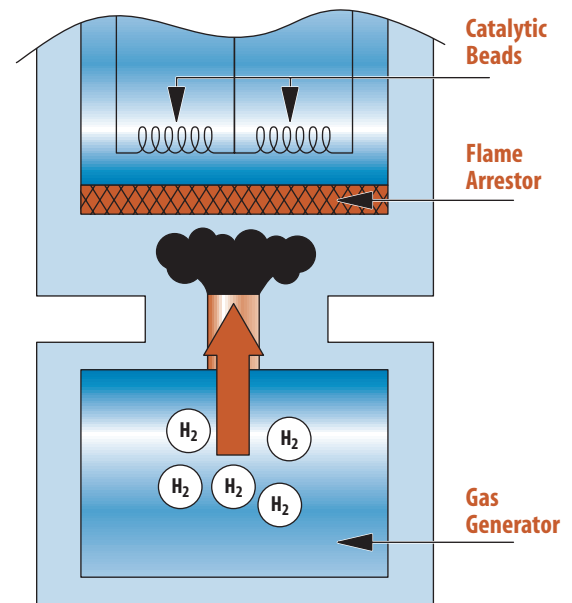
Gas Sensor/Generator Assembly

Auto-Test System Operation

Combustible gas sensors are made up of two matched sensing elements, one active and one passive. Both are electrically heated and form two legs of a Wheatstone bridge circuit. When combustible gas contacts the sensor, the active element catalyzes the oxidation of gas, heating the active element and changing its resistance. The passive element remains unchanged, resulting in a change in the bridge circuit that is proportional to the gas concentration. As long as the active element remains in good condition, the sensor will respond rapidly to the presence of combustible gas.

The Auto-Test sensor is actually a combination of a gas sensor and an electrochemical hydrogen gas generator (patent pending) integrated into an explosion-proof stainless steel housing. When activated by the electronic transmitter, the generator produces hydrogen that diffuses to the gas sensor through the flame arrestor protecting the sensor. If the sensor responds properly, the transmitter will

show a "Pass" indication. Should the sensor not respond properly, an "Auto Test Fail" message will activate at the transmitter and the 4-20 mA output from the transmitter will drop to 3 mA, providing for remote fault indication.



Specifications

Gas Type:	Calibrated for methane unless otherwise specified	Output:	Powered 4-20 mA, 1000 ohms maximum at 24 VDC
Range:	0-100% LEL	Power:	12-30 VDC, 125 mA maximum
Response Time: (T90)	10 seconds	Enclosure:	Explosion-proof, Class 1, Div 1, Groups B, C, & D
Accuracy:	Generally $\pm 5\%$ of value, but limited by available calibration gas accuracy.	Sensor:	316 stainless steel
Electronic Repeatability:	$\pm 1\%$	Sensor Auto-Test:	Hydrogen gas generator integral to gas sensor housing
Electronic Linearity:	$\pm 0.5\%$	Control:	4 magnetic switches on front of transmitter
Zero Drift:	Less than 2% full scale per month	Operating Temperature:	-40°F to +70°C
Span Drift:	Less than 3% per month	Weight:	4 lbs (1.8 kg)

Ordering Information

Model A12 - 17 - DDD - E - F

Suffix DDD - Range

Code the measurement range using a 4-digit number. The standard range for a combustible gas system is 0-100% LEL, so the code is normally 0100. However, systems used for hydrogen are sometimes displayed in %, with a range of 0-4 percent (code 0004). If a range other than 0-100% LEL or 0-4% is required, consult factory for availability and **add \$100 for the special range.**

Suffix E - Units of Measurement

- 3 - %
- 4 - % LEL

Suffix F - Sensor Style

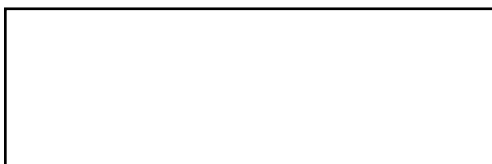
- 1 - Sensor without Auto-Test
- 2 - Sensor with Auto-Test
- 3 - Remote sensor with junction box
- 4 - Remote sensor with junction box and Auto-Test

Accessories

- 00-0261 Splash guard/remote calibration adapter for standard sensor
- 00-0258 Calibration adapter for standard sensor
- 00-0261 Splash guard for Auto-Test sensor (required for Auto-Test sensor)



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