

## OTHER SENSORS AND RELATED PRODUCTS

### Product List

Application	Products	Model
Carbon dioxide gas detection	Carbon dioxide sensor	TGS4160
Oxygen monitoring	Oxygen sensors	KE-25, KE-50
Air quality control	Microprocessor	FIGARO 93619A
	Precalibrated modules	AMS800, AMS2100, AMS2600
	Evaluation module	AM-1
Carbon dioxide gas detection	Evaluation module	AM-4
Combustible gas detection	Precalibrated modules	LPM2610, NGM2611
Carbon monoxide gas detection	Evaluation module	COM2442
	Test unit	SR1
	Test box	SR3
	Sensor sockets	SR4, SR5, SR6
	Thermistors	5KD-5, 8KD-5

### Carbon Dioxide Sensor

Model			TGS4160
Sensing element type			Solid electrolyte
Target gas			Carbon dioxide
Typical detection range			300~5, 000ppm
Electrical characteristics	Heater resistance	RH	11.5Ω at room temp.
	Heater current	IH	approx. 250mA
	Heater power consumption	PH	approx. 1.25W
	Heater voltage	VH	5.0±0.2V(DC)
Sensor characteristics	Response time(90%)		approx. 2 min.
	Measurement accuracy		approx. ±20% at 1000ppm CO <sub>2</sub>
Operating conditions			-10~50°C, 5~95%RH
Storage conditions			-20~60°C, 5~90%RH
Life time			approx. 10 years in normal conditions

Remarks: Life time depends on operating and storage conditions.



The Figaro TGS4160 is a new solid electrolyte type sensor which offers miniaturization and long life. The TGS4160 displays high selectivity to carbon dioxide. Also, the TGS4160 displays good long term stability and, through the application of innovative technology, shows excellent durability against the effects of high humidity.

### Oxygen Sensor

Model		KE-25	KE-50
Sensing element type		Galvanic cell	
Target gas		Oxygen	
Typical detection range		0 ~ 100% O <sub>2</sub>	
Sensor characteristics	Response time(90%)	approx. 12 sec.	approx. 60 sec.
	Measurement accuracy	±1%	±2%
Operating temperature		5~40°C	
Storage temperature		-20~60°C	
Life time		approx. 5 years in normal conditions	approx. 10 years in normal conditions

Remarks: Life time depends on operating and storage conditions.



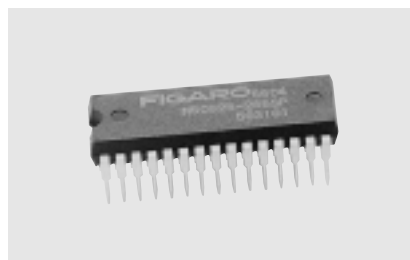
Model KE-series oxygen sensors are galvanic cell type sensors. By using acid electrolyte, the sensor has an exceptionally long life and excellent chemical durability.

# Air quality control

## Microprocessor

The microprocessor calculates the average value of the sensor resistance in ambient air over a certain period and renews the base level.

Model	<b>FIGARO 93619A</b>
Function	Signal processing ON / OFF signal for ventilation Enables output signal for pollution level indicators with minimal development time.



## Precalibrated module

Output voltage has been pre-adjusted within a narrower range to fit it with a microprocessor. Designed for easy assembly in production of air cleaners or ventilation systems.

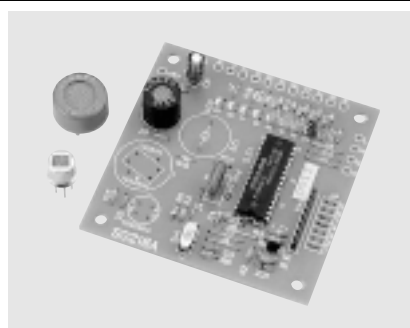
Model	AMS800	AMS2100	AMS2600
Gas sensor	TGS800	TGS2100	TGS2600
Target gas	General air contaminants		
Operating voltage	5±0.2V DC		
Dimensions	PCB: 37 × 22 × 16.5(mm) Lead wire length: 300±10mm		



## Evaluation module

Unit includes a microprocessor that renews the base level of sensor resistance for detection of low concentrations of air pollution.

Model	AM-1-800	AM-1-2100	AM-1-2600
Gas sensor	TGS800	TGS2100	TGS2600
Target gas	General air contaminants		
Operating voltage	5±0.2V DC		
Output	3 level open drain output (20mA max.)		
Dimensions	70 × 70 × 15 (mm)		



# Carbon dioxide gas detection

## Evaluation module

CO<sub>2</sub> concentration is measured by calculating the difference in sensor response from a base level representing clean air. The base level is periodically updated through automatic re-calibration. Output voltage is proportional to gas concentration.

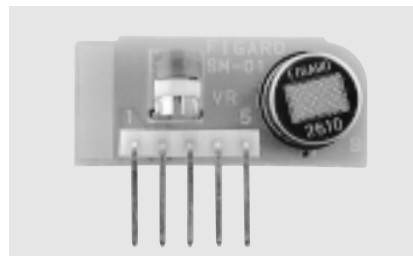
Model	<b>AM-4</b>
Gas sensor	TGS4160
Target gas	Carbon dioxide
Operating voltage	5±0.2V DC
Output	0-3V DC
Dimensions	140 × 45 × 40(mm)



# Combustible gas detection

## Precalibrated module

This factory calibrated module includes a precisely adjusted load resistor and a temperature compensation circuit which uses a built-in thermistor. By simply inserting this module into a mother board of a gas detector, reliable alarm setting will be achieved without calibration using combustible gases - one of the most important, yet most difficult processes in the production of products designed to meet BS7348, UNI CEI-70028, and / or UL1484.

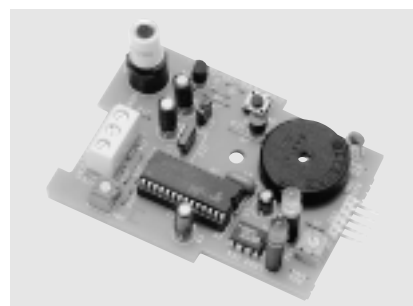


Model	NGM2611	LPM2610
Target gas	Methane	LP Gas
Gas sensor	TGS2611	TGS2610
Operating voltage	5±0.2V DC	5±0.2V DC
Power consumption	280mW	280mW
Output	Vout : Min.2.0V, Max.3.0V DC at 10% L.E.L. of target gas Vref : Vout±0.5V at standard test conditions	
Alarm threshold range	7-15% L.E.L. of target gas (at standard test conditions) 5-20% L.E.L. of target gas (in operating conditions) The alarm threshold is the gas concentration level where Vout voltage has reached the Vref voltage level.	
Response time	30 sec. Max	
Operating conditions	-10~40°C, Max.95%R.H.	
Dimensions and weight	27 × 12.5(mm), approx. 2.5g	

# Carbon monoxide gas detection

## Evaluation module

A complete evaluation module with basic functions required for a gas detector as well as pseudoanalog voltage output to facilitate evaluation of the sensor. Designed to meet the UL2034 standard.



Model	COM2442
Target gas	Carbon monoxide
Gas sensor	TGS2442
Operating voltage	9-12V DC
Power consumption	approx. 250mW
Power indication	Green LED
Visual indication for warning	1st level : Red LED blink (1Hz) at or over 30 ppm CO 2nd level : Red LED blink (2Hz) over 70 ppm CO 3rd level : Red LED blink (4Hz) over 150 ppm CO
Audible alarm	TWA below 10%CO Hb
Alarm output	0V: Audible alarm level, 5V: Normal and warning level
Recorder output	0-5V DC Sensor output voltage
Test/ hush switch	Test : Red LED and audible alarm Hush : Stop audible alarm and alarm output for 3 minutes
Operating conditions	0~52°C, Max.95%R.H.
Dimensions and weight	27 × 12.5(mm), approx. 30g

### SR-D1 - Test Unit

Provides essential circuitry necessary for evaluating the performance of Figaro 8 series sensors.  
Power supply: 100V AC  
Dimensions: 130x77x55(mm)



### SR3 - Test Box

This is a simple and handy gas test chamber for evaluating Figaro 1 and 8 series sensors. Includes fan to thoroughly mix injected gas.  
Power supply: 117V or 220V AC.  
Dimensions: 235x180x210(mm)  
Effective inner capacity: 5400cc  
5cc syringe included.



### SR4 - Durable Sensor Socket for 1, 8-series sensors

Highly reliable 6-pin socket designed to withstand as many as 6,000 repeated insertion cycles. Suitable for preheating rack, testing and calibrating, and other preproduction applications.



### SR5 - Standard Sensor Socket for 1, 8-series sensors

Recommended socket for 1 and 8 series sensors in finished products. These sockets are designed to be soldered into printed circuit boards.



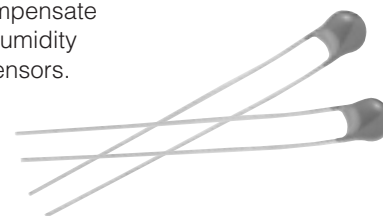
### SR6 - Durable Sensor Socket for 24, 26-series sensors

Reliable socket for 24 and 26 series sensors. Specially designed for preheating racks, testing and calibration fixtures, and other preproduction applications.



### 5KD-5, 8KD-5 - Thermistors

These thermistors compensate for temperature and humidity variations of Figaro Sensors.



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