

TF6812F-A00/WOF Explosion-proof combustible gas sensor specifications

Features:

- Explosion-proof design
- Linear output
- Small size
- Meets RoHS requirements

TF6812F-A00/WOF Explosion-proof catalytic combustion type gas sensors is produced by Tianjin Figaro, has high accuracy, good durability, stability, quick response, and linear output .

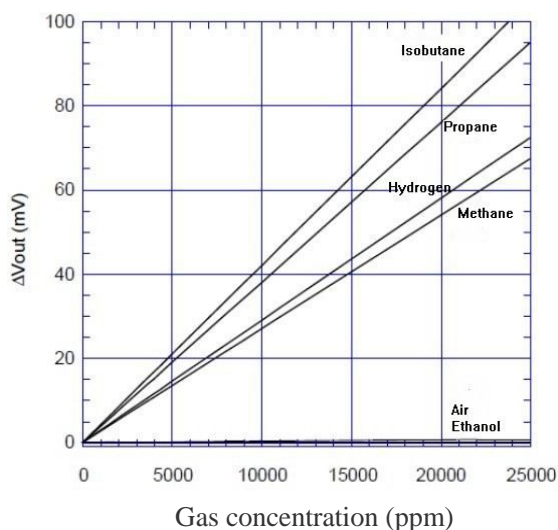
As the TF6812F-A00 sensor possesses an adsorbent inside its sensor cap, its cross sensitivity to alcohol and other organic solvents is much smaller than traditional catalytic type sensors, used for this type of interference with the gas situation (such as the kitchen, etc.) can greatly reduce the false alarm rate of detector. In addition, this sensor is more durable against silicone compounds than traditional catalytic type sensors.

TF6812F-WOF sensor without activated carbon filter can be used in ethanol, acetone and other vapor detection, but the sensor does not have anti-poisoning effect of silicon. So, if applied to the detection of hydrogen, methane and LPG applications is generally not recommended.

The figure below represents typical sensitivity Characteristics, all data having been gathered at standard test conditions. The Y-axis is indicated as sensor output sensitivity -- ΔV_{out} (mV):

$$\Delta V_{out} = V_{out \text{ in gas}} - V_{out \text{ in air}}$$

Sensitivity Characteristics (TF6812F-A00):



Electrical characteristics under standard test conditions

Applications:

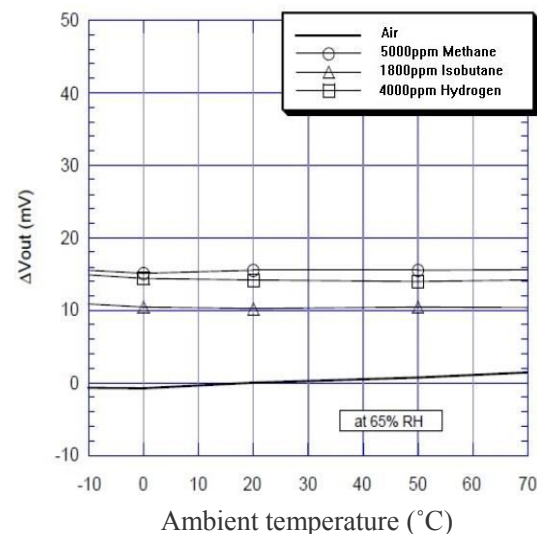
- Fixed installation for combustible gas and organic solvents leak detection at a Explosion-proof place



The figure below represents typical temperature dependency characteristics at 65%RH. Again, Y-axis is indicated as sensor output sensitivity -- ΔV_{out} (mV):

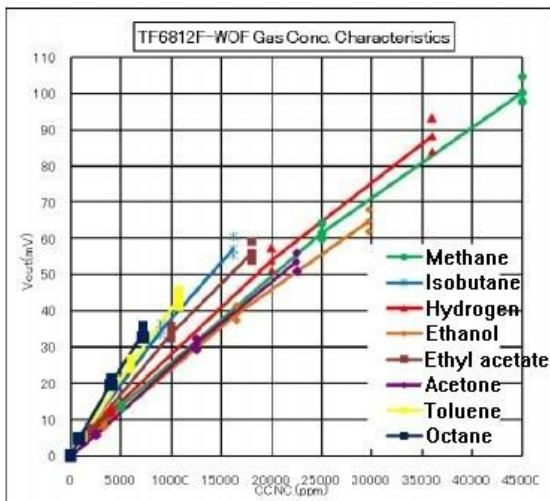
$$\Delta V_{out} = V_{out \text{ in gas}} - V_{out \text{ in air at } 20^{\circ}\text{C}}$$

Temperature Dependency:



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Sensitivity Characteristics (TF6812F-WOF):

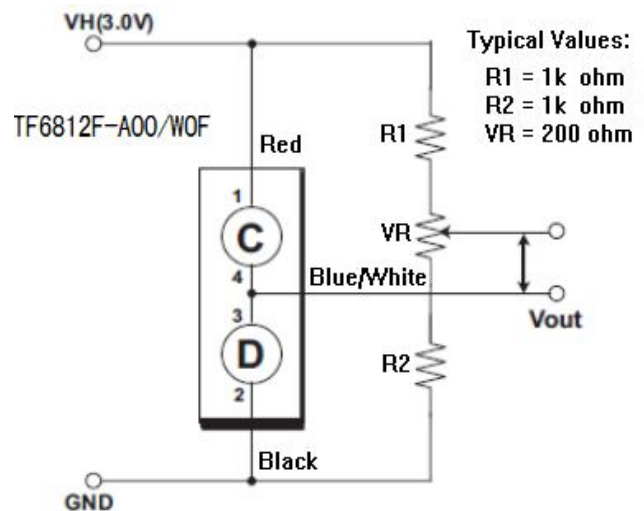


Relative sensitivity table (TF6812F-WOF):

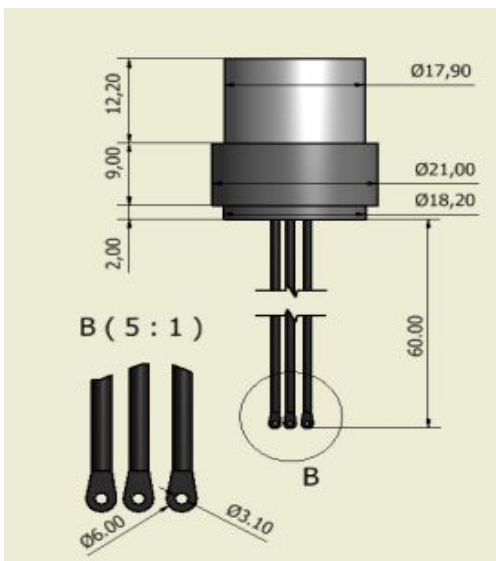
Gas type		LEL Concentration(%)	Relative sensitivity table TF6812F-WOF
Methane	CH ₄	5.0	100
Ethanol	C ₂ H ₅ OH	3.3	60
Ethyl acetate	CH ₃ COOC ₂ H ₅	2.0	52
Acetone	CH ₃ COCH ₃	2.5	43
Toluene	C ₆ H ₅ CH ₃	1.2	37
Octane	C ₈ H ₁₈	0.8	36
Isobutane	C ₄ H ₁₀	1.8	57
Hydrogen	H ₂	4.0	91

Basic Measuring Circuit:

The TF6812F-A00/WOF is comprised of two elements: 1) element (D) which sensitive to combustible gases; 2) a reference element (C) which is not sensitive to combustible gases. These elements are installed into a "Wheastone Bridge". A variable resistor should be adjusted so that the bridge will produce a stable baseline signal when in an environmnet free of combustible gases. When combustible gases are present, they will be combusted on the detecting element, causing its temperature to rise. Accordingly the resistance of this element will increase. This results in an "out-of-balance" signal across the bridge and a corresponding change in output voltage which can be measured.



Dimensions and lead color:



Type	TF6812F-A00	TF6812F-WOF
Lead		
Positive power	Red	Red
Negative power	Black	Black
Signal line	Blue	White

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Specifications:

Model number		TF6812F-A00	TF6812F-WOF	
Sensing element type		Catalytic		
Target gases		Hydrogen, methane, iso-butane	Ethanol, Acetone, Toluene and other organic solvents	
Typical detection range		0~100%LEL of each gas		
Explosion - proof grade		Exd II C Gb		
Standard circuit conditions	Operating Voltage	3.0±0.1V AC/DC		
Electrical characteristics under standard test conditions	Heater current	175mA (typical)		
	Heater power consumption	525mW (typical)		
	Zero offset	±35mV		
	Output sensitivity (ΔVout)	Hydrogen	12~18mV in 4000ppm	Ethanol
methane		12~18mV in 5000ppm	Acetone	7~13mV in 2200ppm
iso-butane		7~11mV in 1800ppm	Toluene	6~12mV in 1100ppm
Standard test conditions	Test gas conditions	20±2°C, 65±5%RH		
	Circuit conditions	3.0±0.05V AC/DC		
	Conditioning period	≤30 sec		
Gas Filter		HAVE, low sensitivity to alcohol and other organic solvents	Have not	
anti-poisoning of silicon		more durable against silicone compounds than traditional catalytic type sensors	Have not	
Operating conditions		-10~+70°C, ≤99%RH		
Storage conditions		-10~+80°C, ≤99%RH		

IMPORTANT NOTE:

Since each user's working conditions are different. Figaro strongly recommend consulting our technical staff before deploying APOLLO sensors in your application, In particular, when customer's target gases are not listed herein. APOLLO cannot assume any responsibility for any use of its sensors in a product or application for which sensor has not been specifically tested by APOLLO.

Impact should be avoided during use.

When customers use sensors should be based on GB3836.1-2010, GB3836.2-2010, GB3836.4-2010, GB3836.15-2000 and other standards' related requirements, select the appropriate installation method.

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