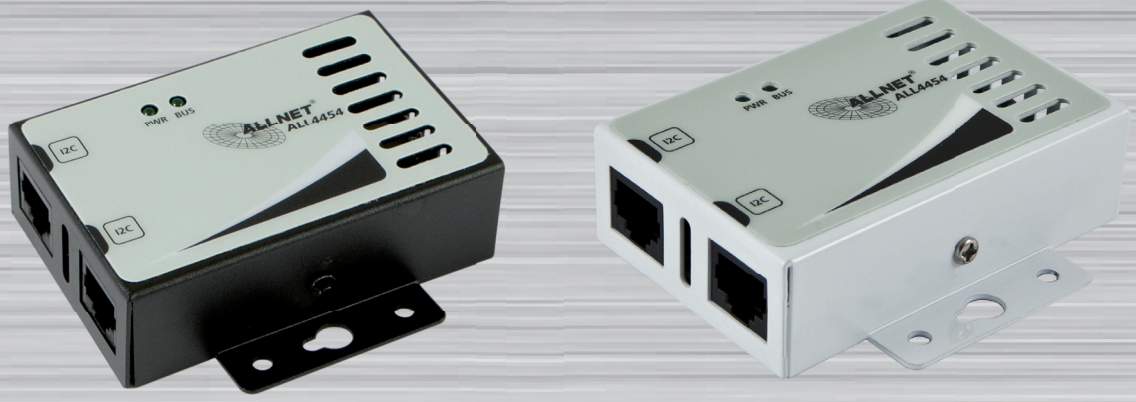


ALLNET ALL4454

Smoke detector / Gas sensor for ALL3418v2/3500/3692/4500/5000

- *new compact aluminum desktop- / wallmounting case*
- *I2C Bus for multiplexing use*
- *either black or white available*
- *angle fixings for wall mounting*

Measure, control and regulate automatically and independently

ALLNET for years been pursuing the concept of intelligent control of processes in building over network and Internet. Intelligent building not only offers comfort, but actively promotes the reduction of energy costs.

Centrally managed and via network / internet accessible the ALLNET Home Automation products allow intelligent building automation regardless of time and location.

The ALL4454 smoke detector/ sensor can also be used for detection of gases.

Art.-Nr. 102435(sw) / 96689(w)

Note: Product specification is subject to change without notice.

Smoke detector/ Gas sensor in desktop-/ wallmounting case

- reports smoke and gas
- Aluminum housing with bracket for wall mounting
- Multiple multiplexing = multiple modules on one line
- Interfaces: 2x RJ45

Item	Specification
Sensor type	Smoke-/ Gas detector
measuring range:	0 to 100
Chip	ADS1100A3 „AD" + TGS822 Figaro „GAS-Sensor"
Interfaces:	2x RJ45 (I2C Bus)
Multiplexing:	pay attention about the same types of sensors on the port! - see note below
LED Indicators:	1x PWR, 1x BUS
Housing:	metal case
Environment:	Temperature operating: -45 ~ 90 °C Humidity operating: 0% ~ 100% (non condensed) Temperature storage: -20 ~ 60 °C Humidity storage: 5% ~ 90% (non condensed)
Certificates:	CE, RoHS
Dimension:	79 x 50 x 24 mm (Length x Width x Height)
Weight:	230 Grams (only device)
Warranty:	36 months
package content:	1x ALL4454 smoke detector / Gas sensor 1x connection cable

Multiplexing - Note to the operation of several sensors on one sensor port

Basically, it is for the ARM and MIPS-based systems possible, unlike to the ALL3000/4000 to operate more than one sensor on a physical port.

Standard hardware requirement is that the sensors are equipped with 2 RJ45 connectors so that the sensor signal can be continued to the next sensor. The total cable length of 100 m does not increase thereby.

So that the sensors can be uniquely identified by the devices, it is necessary that these sensors have different software-I2C chip addresses and IDs. Sensors with the same address and adjustable chip ID can be combined. For sensors without adjustable ID address only one type of sensor can be connected per port.

FIGARO

PRODUCT INFORMATION

TGS 822 - for the detection of Organic Solvent Vapors

Features:

* High sensitivity to organic solvent vapors such as ethanol
* High stability and reliability over a long period
* Long life and low cost
* Uses simple electrical circuit

Applications:

* Breath alcohol detectors
* Gas leak detectors/alarms
* Solvent detectors for factories, dry cleaners, and semiconductor

The sensing element of Figaro gas sensors is a tin dioxide (SnO_2) semiconductor which has low conductivity in clean air. In the presence of a detectable gas, the sensor's conductivity increases depending on the gas concentration in the air. A simple electrical circuit can convert the change in conductivity to an output signal which corresponds to the gas concentration.

The **TGS 822** has high sensitivity to the vapors of organic solvents as well as other volatile vapors. It also has sensitivity to a variety of combustible gases such as carbon monoxide, making it a good general purpose sensor. Also available with a ceramic base which is highly resistant to severe environments as high as 200°C (model# TGS 823).

The figure below represents typical sensitivity characteristics, all data having been gathered at standard test conditions (see reverse side of this sheet). The Y-axis is indicated as sensor resistance ratio (Rs/Ro) which is defined as follows:

Rs = Sensor resistance of displayed gases at various concentrations

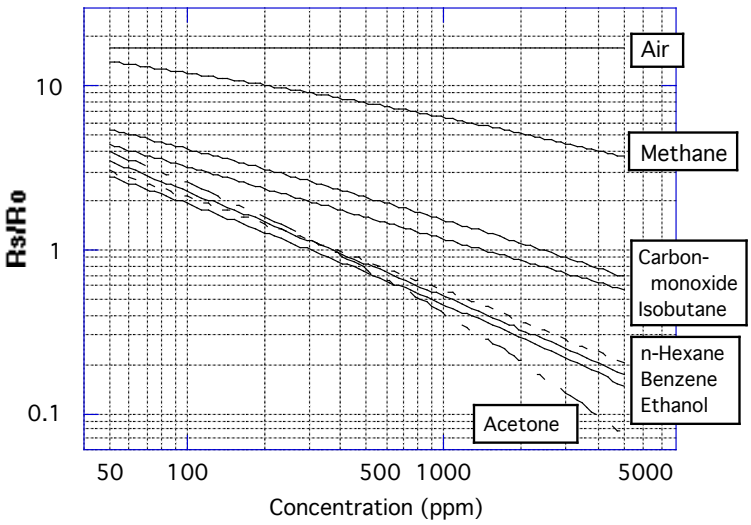
Ro = Sensor resistance in 300ppm ethanol

The figure below represents typical temperature and humidity dependency characteristics. Again, the Y-axis is indicated as sensor resistance ratio (Rs/Ro), defined as follows:

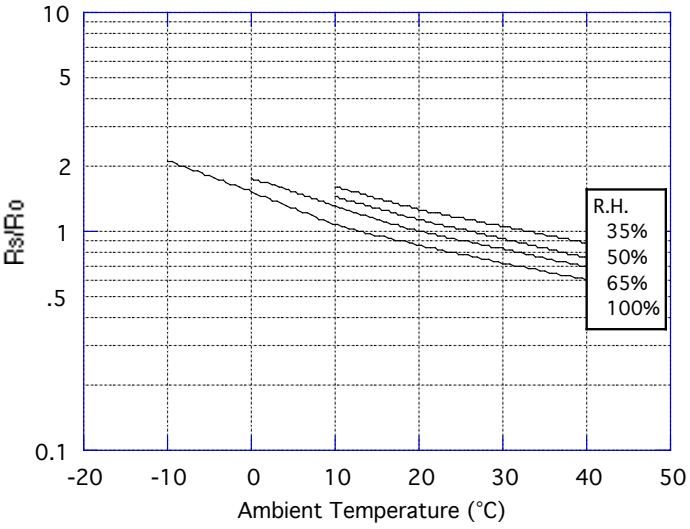
Rs = Sensor resistance at 300ppm of ethanol at various temperatures/humidities

Ro = Sensor resistance at 300ppm of ethanol at 20°C and 65% R.H.

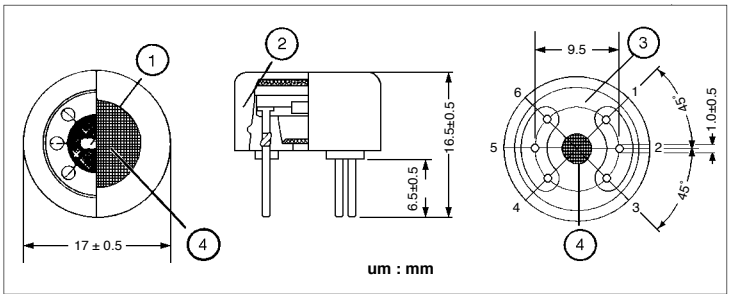
Sensitivity Characteristics:



Temperature/Humidity Dependency:



Structure and Dimensions:



(1) Sensing Element:
SnO_2 is sintered to form a thick film on the surface of an alumina ceramic tube which contains an internal heater.

(2) Cap:
Nylon 66

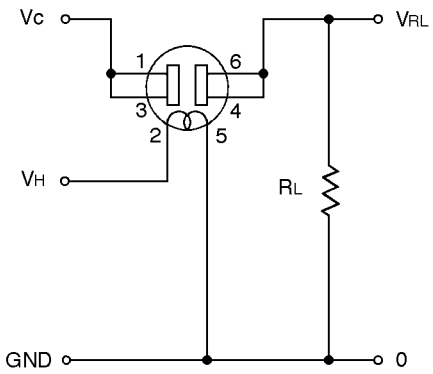
(3) Sensor Base:
Nylon 66

(4) Flame Arrestor:
100 mesh SUS 316 double gauze

Pin Connection and Basic Measuring Circuit:

The numbers shown around the sensor symbol in the circuit diagram at the right correspond with the pin numbers shown in the sensor's structure drawing (above). When the sensor is connected as shown in the basic circuit, output across the Load Resistor (V_{RL}) increases as the sensor's resistance (Rs) decreases, depending on gas concentration.

Basic Measuring Circuit:



Standard Circuit Conditions:

Item	Symbol	Rated Values	Remarks
Heater Voltage	V_H	5.0±0.2V	AC or DC
Circuit Voltage	V_C	Max. 24V	DC only Ps≤15mW
Load Resistance	R_L	Variable	0.45kΩ min.

Electrical Characteristics:

Item	Symbol	Condition	Specification
Sensor Resistance	Rs	Ethanol at 300ppm/air	1kΩ ~ 10kΩ
Change Ratio of Sensor Resistance	Rs/Ro	$\frac{Rs(\text{Ethanol at 300ppm/air})}{Rs(\text{Ethanol at 50ppm/air})}$	0.40 ± 0.10
Heater Resistance	R_H	Room temperature	38.0 ± 3.0Ω
Heater Power Consumption	P_H	V_H=5.0V	660mW (typical)

Standard Test Conditions:

TGS 822 complies with the above electrical characteristics when the sensor is tested in standard conditions as specified below:

Test Gas Conditions: 20°±2°C, 65±5%R.H.
Circuit Conditions: V_C = 10.0±0.1V (AC or DC),
V_H = 5.0±0.05V (AC or DC),
R_L = 10.0kΩ±1%
Preheating period before testing: More than 7 days

Sensor Resistance (Rs) is calculated by the following formula:

$$Rs = \left(\frac{V_C}{V_{RL}} - 1\right) \times R_L$$

Power dissipation across sensor electrodes (Ps) is calculated by the following formula:

$$Ps = \frac{V_C^2 \times Rs}{(Rs + R_L)^2}$$

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For information on warranty, please refer to Standard Terms and Conditions of Sale of Figaro USA Inc.

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