



ADOS
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Instrumentation and Control



LOWCOST GASTRANSMITTER

LCTR 903



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Application

The gas transmitter ADOS LCTR 903 is suitable for the detection of combustible gases, for example hydrogen, methane (natural gas) or propane / butane (LPG) in air in the LEL region.

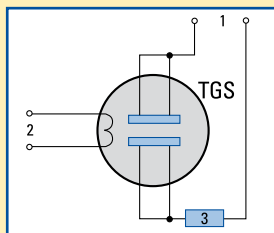
Fields of Application

- Gas fired boiler systems
- Gas distribution station
- Gas transfer station
- Battery-charging station

The TGS sensor

The TGS sensor contains a semiconductor sensor, which is constructed on SnO₂-sintered N-substrate.

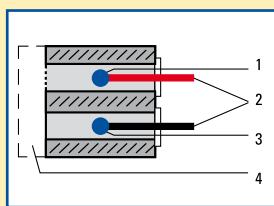
When combustible or reducing gases are absorbed by the surface of the sensor, the concentration of the test gas is determined by the change in conductivity.



- 1 = Circuit voltage
- 2 = Heating voltage
- 3 = Load resistor

The VQ sensor

The head of the VQ sensor functions on the principle of heat reaction. When combustible or reducing gases or vapours come in contact with the measuring element, they are subjected to catalytic combustion, which causes a rise in temperature. This rise causes a change in the resistance of the measuring element which is used as a measure of the component of gas being tested.



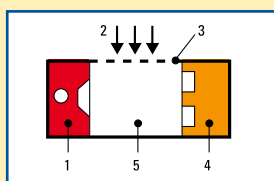
The inert element is for compensating the temperature and conductivity of the test gas.

- 1 = Catalyzer pellistor
- 2 = Electric connections
- 3 = Inert pellistor
- 4 = Diffusion filter

The IR sensor

The test gas flows through a measurement chamber that incorporates an IR radiating source and a two-channel infrared detector. The intensity of the infrared radiation is reduced as it passes through the gas molecules. The concentration of the gas can then be calculated by the magnitude of the reduction in intensity. Since only absorption of the wavelength (A) specific to the gas under test in relation to the wavelength (B) not absorbed by a test gas is

considered, interference due to dust, ageing etc., is almost fully compensated.



- 1 = Infrared-radiation source
- 2 = Test gas
- 3 = Diffusion filter
- 4 = Infrared-detector
- 5 = Measurement chamber

Technical Data

Type	TGS	VQ	IR
Measurement method:	Semiconductor	Heat reduction	Infrared
Measurement range:	ppm ranges to 0-100% LEL	ppm ranges to 0-100% LEL	0-100% LEL CH ₄ , C ₃ H ₈ , C ₂ H ₂ 0-100 Vol% CH ₄ 0-1, 2, 3, 4, 5 Vol% CO ₂
Percentage error of f.s.d.:	±5%	±5%	±3%
Linearity:	<15% of f.s.d.	<3% of f.s.d.	<3% of f.s.d.
Temperature range:	-20°C to +45°C	-20°C to +45°C	-20°C to +45°C
Temperature effect:	5%	2%	8%
Response time (t ₉₀):	approx. 20 sec.	approx. 20 sec.	< 30 sec.
Pressure effect:	1%	1%	1%
Mounting position:	optional	optional	optional
Application:	Poisonous, combustible and explosive gases in the LEL region	Poisonous, combustible and explosive gases in the LEL region	Poisonous, combustible and explosive gases in the LEL region
Expected operation time for sensor:	> 2 years	> 2 years	approx. 5 years
Supply voltage:	15V - 30V	15V - 30V	15V - 30V
Interface:	4-20 mA three-wire or LON® four-wire techniques (LCTR 404), galvanically isolated, data transmission 78 kbps	4-20 mA three-wire or LON® four-wire techniques (LCTR 404), galvanically isolated, data transmission 78 kbps	4-20 mA three-wire or LON® four-wire techniques (LCTR 404), galvanically isolated, data transmission 78 kbps
Protection class:	IP 30	IP 30	IP 30
Dimensions: (diameter x height)	80 x 80 mm	80 x 80 mm	80x80 mm
Weight:	500 g	500 g	500 g