

DIWICON-G DW 85 GEx

EXPLOSION-PROOF GAS DETECTOR

The DW 85 GEx gas sensor offers technical safety protection at industrial facilities, pharmaceutical plants, and oil and gas industry sites. It has been designed to be safely used in explosion hazard zones. The sensor is equipped with a voltage output and is primarily optimized to detect gas in closed areas.

FEATURES

- Measurement of gas concentrations in air in closed areas
- Optimized for the detection of methane, butane, ethanol, and hydrogen
- Short reaction time
- Fast signal reception
- Voltage output

SPECIAL CHARACTERISTICS

- Explosion-proof design
- Compact construction
- Corrosion resistant

INDUSTRIAL DESIGN

- Operational temperature range: -35°C to +60°C
- Protection: IP65 (IEC 529 conform)
- ATEX certification

APPLICATION

The DW 85 GEx is typically used where the release of gas can occur, resulting in dangerous environmental conditions. In such facilities, the monitoring of gas concentrations is justified by the high levels of health, economic, and environmental risk. By continuously monitoring gas concentration levels, the safety of the workers and equipment in explosion hazard zones can be ensured.

The DW 85 GEx sensor produces a voltage signal for evaluation and processing. To perform these actions and generate the appropriate warning and alarm signals, the sensor must be connected to a DW 628 GEx type field controller.



TECHNICAL DATA

OPERATIONAL CHARACTERISTICS	ENVIRONMENTAL CHARACTERISTICS
Detection Method: Catalytic absorption	Environmental temp.: -35°C to +60°C
Integrated sensor: FIGARO TGS	Humidity: 15-90 RH%
Voltage: 3.3 ± 0.2 VDC	Air Pressure: 900 - 1100 hPa
Max. current: 120 mA	
Max. consumption: 420 mW	
Shock protection: FELV (IEC364-4-41)	
Measurement Range: 0 - 100 ARH%	
	ELECTRICAL OUTPUT
	Outgoing signal: 0 - 3.3 V DC
	Voltage/concentration: ca. 300 mV / vol.%
	Ex protection: IIC G EEx d IIB +H2 T5
	Certificate number: BK1 07 ATEX 005X

THE DETECTION PROCESS

When the semiconductor is heated, an electrical current is produced at it's particle limit.

If this takes place in the presence of clean air (free of dangerous gases), the oxygen in the air absorbs the freed electrons on the surface of the semiconductor. This creates a potential barrier and increases the electrical resistance.

If the sensor comes into contact with reduction gases, the gas molecules absorb on the semiconductor which results in oxidation. The oxidation reduces the potential barrier, and thus also the electrical resistance.

This process depends greatly on the material composition of the semiconductor used and the catalytic temperature applied. The DW 85 GEx detector is optimized especially for the detection of methane, butane, ethanol, and hydrogen.

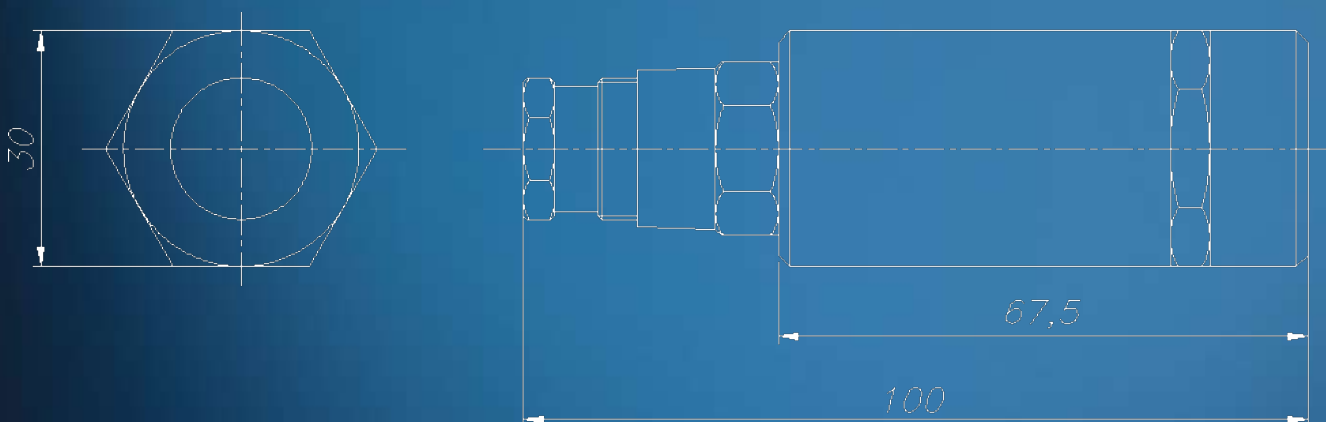
ELECTRONIC OPERATION

The signal processing and control unit makes use of the rise and fall in the electrical resistance described above.

The signal is produced on a comparator using a resistor bridge. One branch of the resistor bridge is used for temperature compensation. The other branch is sensitive to the measured gases. The resulting signal reflects the gas concentration independent of temperature.

INSTALLATION

The sensor may only be installed and operated horizontally or vertically with the sinter steel filter facing outwards or downwards. If this is not the case, the device will not operate properly, resulting in dangerous gas concentration levels, which will not be registered as such because of the improper installation.



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