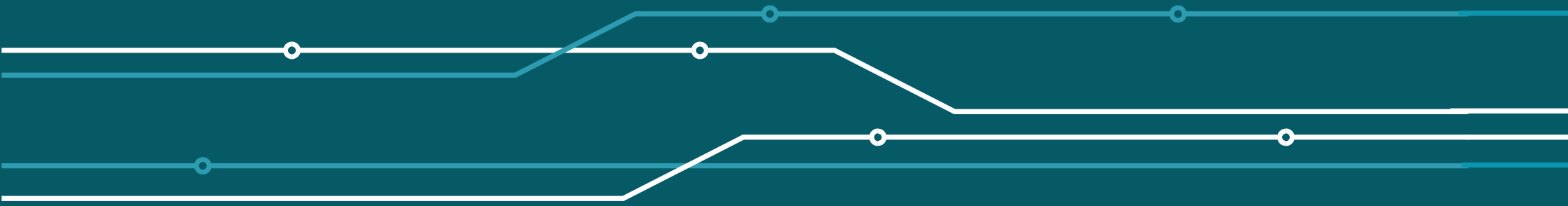
ARCHIGAS

Leader in hydrogen measurement

TCD3000 Si



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TCD3000 Si

The compact and robust TCD3000 SiA (Screw-in) is ideally suited for precise, fast, and sensitive measurement of (quasi-)binary gas mixtures. The measurement is based on the principle of thermal conductivity. This technology is ideal for measuring gases with significantly different thermal conductivities, such as H_2 and O_2.

Our Advantages:

- Revolutionary precision in hydrogen concentration measurement: Discover our gas measuring devices with industry-leading **response time of 30 ms** and a measurement range from a **few ppm to 100 vol. %**
- Unrivalled robustness for demanding environments: Our devices **resist condensate and water without damage**, provide precise measurements up to a pressure of **200 bar**, and are optimized for use in humid environments – ideal for electrolysers, fuel cells, and other hydrogen applications.
- Maximum safety, minimal maintenance: Increase your work safety with our **fast and reliable explosion level monitoring**. Our devices are a long-term investment with a **lifespan of up to 10 years**.
- Adaptability meets economy: **Save costs and space** with our versatile gas measuring devices that can measure a wide variety of gas mixtures **without additional sample preparation.**

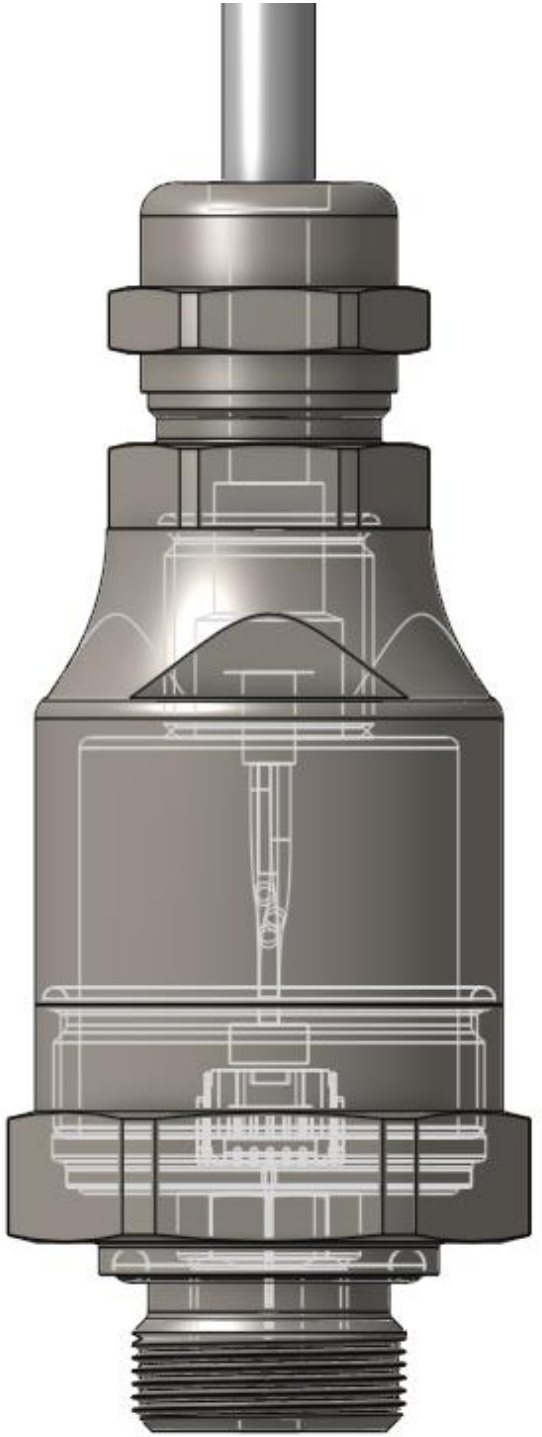
Also available as **TCD3000 SiA** suitable for **ATEX Zone 1**

II 2 G Ex db IIC T4/T3 Gb, -40°C < Ta < +90°C / +125°C

TCD3000 Si SPECIFICATIONS

Dimensions with connections; Weight	H=80 mm, D=40 mm; G1/2"; SW36; ~250g
Power Supply	24 VDC ±25 %, 5 W
Digital Output	RS485, Baud rate 38400 / Data 8bit
Analog Output	4-20 mA, 3-wire connection
Ambient temperature range	-40°C – +90°C (+125°C)
Warm-up Time	< 1 min.
Flow Rate	0 – 10 m/s
Gas Pressure (absolute)	0,8 – 200 Bara
T90-Time	< 1 s
Noise	< 50 ppm
Drift at zero point	< 100 ppm per week
Repeatability	< 50 ppm
Error due to change of ambient temperature	< 50 ppm per 10°C
Flow Influence	< 50 ppm per 1 m/s
Pressure Dependency (above 800 hPa)	< 50 ppm per 10hPa

All data refer to the measuring range 0.5 vol.% H_2 in N_2



MOST REQUESTED MEASUREMENT COMPONENTS AND RANGES

Measuring gas	Carrier gas	Basis range	Smallest range
Hydrogen (H_2)	Oxygen (O_2)	0 – 100 % *	0 – 0,5 %
Oxygen (O_2)	Hydrogen (H_2)	0 – 100 % *	0 – 1,0 %
Hydrogen (H_2)	Nitrogen (N_2) or air	0 – 100 %	0 – 0,5 %
Nitrogen (N_2)	Hydrogen (H_2)	0 – 100 %	0 – 2,0 %
Hydrogen (H_2)	Argon (Ar)	0 – 100 %	0 – 0,5 %
Hydrogen (H_2)	Helium (He)	20 – 100 %	–
Hydrogen (H_2)	Methane (CH_4)	0 – 100 %	0 – 0,5 %
Hydrogen (H_2)	Carbon dioxide (CO_2)	0 – 100 %	0 – 0,5 %
Helium (He)	Nitrogen (N_2) or air	0 – 100 %	0 – 0,8 %
Helium (He)	Argon (Ar)	0 – 100 %	0 – 0,5 %
Methane (CH_4)	Nitrogen (N_2) or air	0 – 100 %	0 – 2,0 %
Methane (CH_4)	Argon (Ar)	0 – 100 %	0 – 1,5 %
Oxygen (O_2)	Nitrogen (N_2)	0 – 100 %	0 – 15,0 %
Oxygen (O_2)	Argon (Ar)	0 – 100 %	0 – 2,0 %
Oxygen (O_2)	Carbon dioxide (CO_2)	0 – 100 %	0 – 3,0 %
Nitrogen (N_2)	Argon (Ar)	0 – 100 %	0 – 3,0 %
Carbon dioxide (CO_2)	Nitrogen (N_2) or air	0 – 100 %	0 – 3,0 %
Carbon dioxide (CO_2)	Argon (Ar)	0 – 60 %	0 – 10,0 %
Argon (Ar)	Carbon dioxide (CO_2)	40 – 100 %	–
Argon (Ar)	Oxygen (O_2)	0 – 100 %	0 – 3,0 %

TCD technology also allows to perform the measurements of the following industrial gases: SF_6, NO_2, Neon, Krypton, Xenon, Deuterium etc.

* correspondent safety measures must be taken by the client in the application with explosive gas mixtures

GENERAL APPLICATION AREAS

- Oil & gas, petrochemicals, chemicals and synthetics
- Gas chromatographs
- Air separators and pure gas production
- Detection of gas leakages
- Pharmacy
- Food industry
- Metals, minerals, pulp and paper
- Power generation
- Environmental technology

APPLICATION EXAMPLES

Hydrogen measurement in electrolysis	O_2 in H_2	Upper Explosion Limit (UEL)
Oxygen measurement in electrolysis	H_2 in O_2	Lower Explosion Limit (LEL), with high moisture content
H_2 contamination in electrolysis, fuel cells, and semiconductor industry	H_2	99-100 vol.%, H_2 Quality 4.0
Exhaust gas measurement in fuel cells	H_2 in Air	LEL monitoring with very high water content
H_2 injection into the natural gas network	H_2 in Natural Gas	0-100 vol.%, mixing control
Decomposition and synthesis of ammonia	H_2 in N_2 + NH_3	0-100 vol.%, process control
Turbogenerators in power generation	H_2 in Luft, H_2 in CO_2 (Ar), CO_2 (Ar) in Air	Monitoring of UEL, draining and filling process
Pure gas production and incoming goods inspection	H_2, He, CH_4, O_2, N_2, CO_2, Ar	Identification of the quality of produced and delivered gases
Industrial applications	H_2 in N_2	0-10 vol.%, systems for the production and monitoring of forming gas
Safety monitoring	H_2 in Air	UEL, analysis of hydrogen dispersion in facilities and buildings

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