



Experts in hydrogen measurement

TCD3000 Screw-In Transmitter

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The compact and robust TCD3000 SI (Screw-In) transmitter 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 H₂ and O₂.

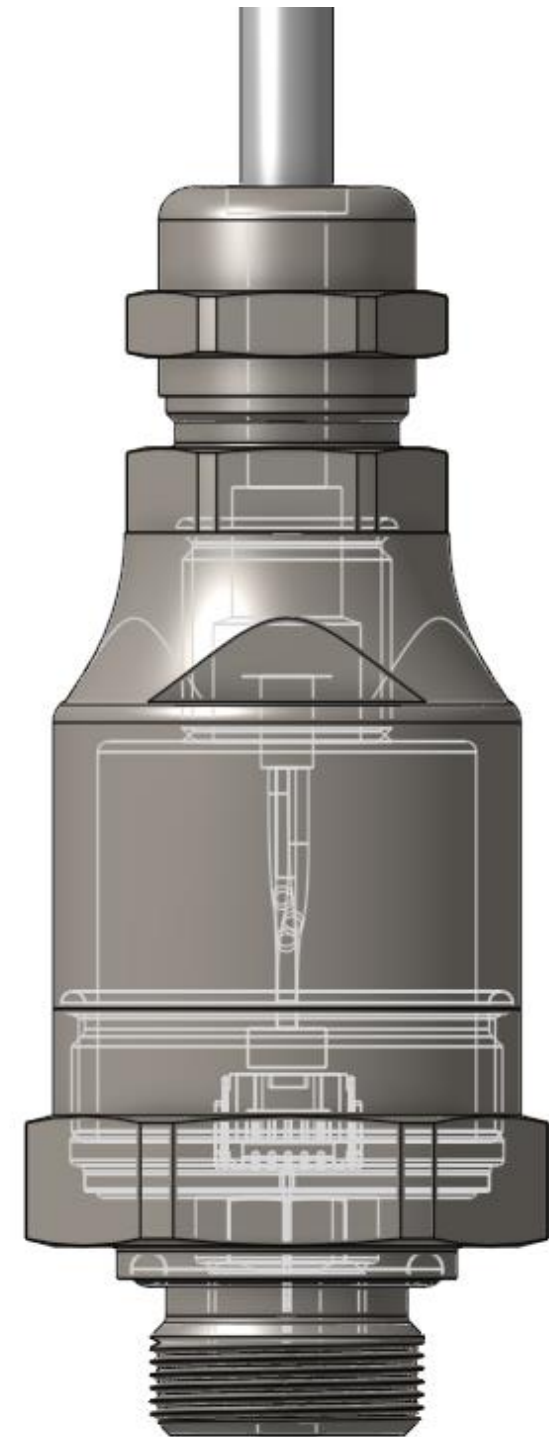
Our Advantages:

- 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%**, specially developed for the new requirements of the hydrogen infrastructure in the energy sector and process industry.
- Unrivalled robustness for demanding environments: Our devices **resist condensate and water without damage**, provide precise measurements up to a pressure of **700 bar**, and are optimized for use in humid environments – ideal for electrolyzers, 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**. A cost-efficient solution that surpasses the competition in terms of price and performance.

TCD3000 SI SPECIFICATIONS

Dimensions with connections; Weight	H=80 mm, D=40 mm; G1/2"; SW36; ~250g
Power Supply	12 – 36 VDC, 12 W
Digital Output	RS485, Baud rate 38400 / Data 8bit
Analog Output	4-20 mA, 3-wire connection
Ambient temperature range	-20°C ... 80°C
Warm-up Time	<. 1 Min.
Flow Rate	0 ... 10 m/s
Gas Pressure (absolute)	0.8 ... 200 Bara / 700 Bara on request
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 10l/h
Pressure Dependency (above 800 hPa)	< 50 ppm per 10hPa

All data refer to the measuring range 0.5 vol.% H₂ in N₂



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: SF₆, NO₂, Neon, Krypton, Xenon, Deuterium etc.

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

GENERAL APPLICATION AREAS

APPLICATION EXAMPLES



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

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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