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# DRM Technic

Suppliers of Gas Analysis Equipment

**CONTHOS 3E TCD Thermal  
Conductivity Analyser**

## CONTHOS 3E TCD THERMAL CONDUCTIVITY HYDROGEN GAS ANALYSER

The CONTHOS 3E TCD Thermal Conductivity Hydrogen Gas Analyser is an analytical instrument developed for on-line monitoring in process industry applications.



The 3E TCD is designed for 19" Rack Mounting. Other versions are available.

### FEATURES

**Up to 3 Switchable Ranges | Extremely Suppressed Ranges Up to 99.5-100%  
Ultra Fast Response Time  $T_{90} \leq 3$  sec | Highly Corrosion Resistant | High, Long-Term Stability  
Response Independent of Gas Flow | Automatic Self-Diagnosis | Optional Dynamic Interference Correction**

**Full Specifications for this Analyser can be Found Overleaf**

### MEASURING PRINCIPLE

In conventional Thermal Conductivity Analysers, a heated object is suspended in a volume containing the sample gas. Electrical energy is passed through the object, heating it up until it attains an equilibrium temperature primarily dependent upon the thermal conduction properties of the surrounding gas. This temperature is normally measured directly as a change in the electrical resistance of the heated object itself.

The CONTHOS' unique principle modifies this classical method by spatially and electrically decoupling the heated element from the temperature sensing element. The specially designed geometry of the TCD cell in conjunction with the decoupling effectively suppresses undesired competing thermal effects (i.e. free and forced convective effects).

The result is an instrument whose quick, stable response requires no compromise between gas flow and response time.

**For more information, please free to contact our sales department (contact details below)**

CONTACT US: DRM Technic, 4 Cherry Orchard, Newcastle-under-Lyme, Staffordshire, UK, ST5 2UB

Tel: +44 (0) 1782 638491 | Email: [sales@drmtechnic.com](mailto:sales@drmtechnic.com) | Web: [www.drmtechnic.com](http://www.drmtechnic.com)

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## SPECIFICATIONS

Product No.	CONTHOS 3E TCD Thermal Conductivity Hydrogen Gas Analyser
<b>Enclosure and Electrical Data</b>	
Housing	19" Mounting
Protection Class	IP40
Dimensions	133 x 483 x 427 mm
Weight	Approx. 10 kg
Power Requirements	100 - 240 V AC; 48-62 Hz
<b>Measuring Characteristics</b>	
Measuring Principle	Thermal Conductivity (TCD): Difference in Thermal Conductivity ( $\Delta\lambda$ ) of Various Gases
Measuring Ranges	Lowest: 0...0.5% H <sub>2</sub> in N <sub>2</sub> or 99.5 ... 100% H <sub>2</sub> in N <sub>2</sub>   Highest: 0 ... 100% H <sub>2</sub>
Calibration	Manual Zero / Span Calibration (automatic calibration available)
Warm-up Time	70 °C: Approx. 20 min   180 °C: Approx. 90 min
Response Time T <sub>90</sub>	≤ 3 sec (at 60 l/h gas flow and minimum signal dampening level)
Influence of Gas Flow	Between 3 - 30 l/h : < 0.5% of Range Span for a Gas Flow Change of ± 10 l/h Between 30 - 60 l/h: < 1% of Range Span for a Gas Flow Change of ± 10 l/h
Pressure Influence	Usually Negligible
Detection Limit	≤ 0.5% of Span (at signal dampening level: 1 sec)
Linearity / Accuracy	≤ 0.5% of Span
Reproducibility	≤ 0.5% of Span
Response Drift	Zero: ≤ 1% of Span per Week   Span: ≤ 1% of Span per Week
Ambient Temp.	5 ... 45 °C
<b>Data Display, Inputs and Outputs</b>	
User Interface	LCD-display (40 characters x 16 lines) + Bar Graph
Analog Signal Output	2 Outputs   Available Output Levels: 0-20 mA, 4-20 mA, plus Test Signal Levels
Digital Outputs	Instrument Status via Floating Contacts
Interference Correction	3 Correction Channels for Static and/or Dynamic Interference Correction

## OTHER AVAILABLE MODELS

<p><b>CONTHOS 3F TCD</b></p> <p>Field-Housing Version (IP65)</p> 	<p><b>CONTHOS 3F TCD Ex p</b></p> <p>ATEX version for Ex Zones 1 and 2</p> 	<p><b>CONTHOS 3F TCD HT</b></p> <p>High Temperature Version</p> 
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