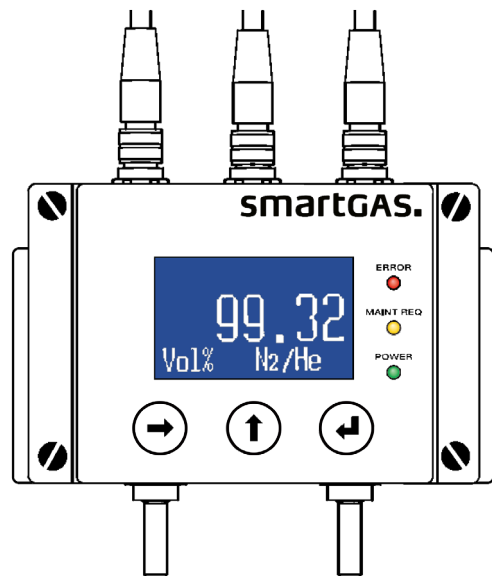


smartGAS TCDM & GD TCD Thermal Conductivity Detectors

Ambitioned to make
earth a safer place.



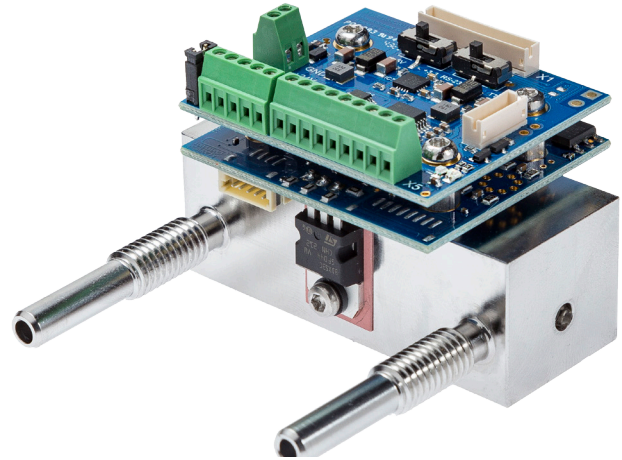
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Thermal Conductivity Gas Detector Module: smartGAS TCDM

The **smartGAS TCDM** is a highly precise and stable Thermal Conductivity Detector (TCD). It is designed for the use as an OEM detector.

For indication of the signal analog as well as digital output is provided. For internal calibration, configuration and digital indication of the signal a TTL-level RS232 communication device is required.

In given cases, a cross sensitive gas may be measured separately and the signal of this measurement is fed into **smartGAS TCDM** where an internal routine compensates the cross sensitivity.



Basic parameters

Measurement Technology	Thermal conductivity
Connection	6mm pipe
Dimensions	75x64x45 (WxHxD in mm)
Pressure-proof to	10 bar absolute
Power supply	21V to 30V DC / 1000mA(max)/ 500mA(typ)
Interface	UART 3.3/5V TTL, RS 232, Analog
Ambient temperature range	-20° C to 50° C
T90 time at 60l/h	< 1sec
Calibration on site	Yes

Options:

Flow measurement	Yes
Multi Gas Mode	Yes
Protection against corrosion	Yes
Protection against condensate and dust	Yes
Moisture measurement	Yes
Cross-sensitivity compensation	Yes, external signal required

Specifications gas analysis :

Noise	< 1% of smallest range
Drift at zero point per week	< 2% of smallest range
Repeatability	< 1% of smallest range
Non-linearity	< 1% of range
Measuring error with ambient temperature change per 10° K	< 1% of smallest range
Flow influence between 60l/h and 90l/h per 10l/h	< 1% of smallest range
Fault with measurement gas change (Pabs > 800 hPa) per 10 hPa	< 1% of smallest range

Thermal Conductivity Gas Detector: smartGAS GD TCD

The **smartGAS GD TCD** is the new generation of our thermal conductivity analyzers.

The **smartGAS GD TCD** includes a low noise technologie. This is particularly crucial for measurements in the trace range.

New measurement tasks can be realized with the **smartGAS GD TCD**. In particular, the possibility of cross-sensitivity compensation using external signals in real time. The data access is possible via an RS232 interface.



Basic parameters

Measurement Technology	Thermal conductivity
Sampling	Analyzer extractive
Connection	6mm pipe
Dimensions	145x80x85 (WxHxD in mm)
Protection class	IP 65
Pressure-proof to	20 bar absolute
Power supply	18V to 36V DC / 700mA
Interface	UART 3.3/5V TTL, RS 232, Analog
Ambient temperature range	-20° C to 50° C (Lowest -10° C when filled with glass beads)
Weight to	1800g
T90 time at 60l/h	< 1sec

Communication:

RS232	Yes
Current output	1x, 0/4-20 mA
Voltage input	2x, 0-10V
Display	Yes
Relays	3x
Calibration on site	Yes

Options:

Multi Gas Mode	Yes
Protection against corrosion	Yes
Protection against condensate and dust	Yes
Suitable for inflammable gases	Yes
Cross-sensitivity compensation	Yes, external signal required
Protection against Condensate and Dust	Yes
Protection against Corrosion	Yes
Integrated Pressure compensation	Yes
Integrated Humidity measurement	Yes
Integrated Flow measurement	Yes
Glass bead filling for combustible gase	Yes

Specifications gas analysis :

Noise	< 1% of smallest range
Drift at zero point per week	< 2% of smallest range
Repeatability	< 1% of smallest range
Linearity Error	< 1% of range
Measuring error with ambient temperature change per 10° K	< 1% of smallest range
Flow influence between 60l/h and 90l/h per 10l/h	< 1% of smallest range
Fault with measurement gas change ($P_{abs} > 800$ hPa) per 10 hPa	< 1% of smallest range



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Typical Gas Ranges both models

Measuring Gas	Carrier Gas	Basic range	Smallestrange	Smallest range atend
H ₂	He	20%-100%	20%-40%	85%-100%
H ₂	CH ₄	0%-100%	0%-0.5%	98%-100%
H ₂	N ₂ or air	0%-100%	0%-0.5%	98%-100%
H ₂	Ar	0%-100%	0%-0.4%	99%-100%
H ₂	CO ₂	0%-100%	0%-0.5%	98%-100%
He	N ₂ or air	0%-100%	0%-0.8%	97%-100%
He	Ar	0%-100%	0%-0.5%	98%-100%
CH ₄	N ₂ or air	0%-100%	0%-2%	96%-100%
CH ₄	Ar	0%-100%	0%-1.5%	97%-100%
O ₂	N ₂	0%-100%	0%-15%	85%-100%
O ₂	Ar	0%-100%	0%-2%	97%-100%
NH ₃	H ₂	0%-100%	0%-5%	95%-100%
N ₂	Ar	0%-100%	0%-3%	97%-100%
N ₂	CO ₂	0%-100%	0%-3%	97%-100%
CO	H ₂	0%-100%	0%-2%	99%-100%
Ar	N ₂ or air	0%-100%	0%-3%	97%-100%
Ar	CO ₂	0%-100%	0%-50%	80%-100%
CO ₂	N ₂ or air	0%-100%	0%-3%	96%-100%
CO ₂	Ar	0%-100%	0%-20%	50%100%
SF ₆	N ₂ or air	0%-100%	0%-2%	96%-100%

About smartGAS

smartGAS Mikrosensorik GmbH is a dynamic German company specializing in the development and production of innovative gas sensors. Our products are based on various technologies such as Non Dispersive Infrared technology (NDIR) or Photoacoustic Spectroscopy (PAS), which enable selective detection of a gas and precise determination of its concentration.

Our sensors are used in various areas such as air and emission monitoring, workplace safety, leakage monitoring of cooling systems and high voltage insulations,

industrial process control, analytical devices for medical gas supply and monitoring, as well as monitoring the ripening processes of fruits and vegetables in storage.

The goal of smartGAS is to simplify the measurement and monitoring of gases through innovative technologies. We are committed to environmental protection and the safety of people, as well as resource optimization in processes, thus actively reducing greenhouse gas emissions. We offer both standard products and custom solutions to achieve the best possible solution with our customers.

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