

Thermal Conductivity Gas Analyser TCD 200 TG Ex



available options:

pressure reducer
sample gas pump
electronical flowmeter

The Application:

The measuring principle of Thermal Conductivity uses the different thermal conductivity of gases. The gas analysis through thermal conductivity for the measurement of gas components is a common method since the early 20th. Century. Typical applications are the measurement of:

- Hydrogen in Nitrogen
- Hydrogen in Helium
- Argon in Nitrogen or Oxygen
- Carbon dioxide in Nitrogen or Oxygen
- Carbon dioxide in Methan

The Measuring principle:

The sensor of the Thermal Conductivity Analyser TCD 200 TG Ex is consisting of a silicium micro-mechanic. Due to the extremely low thermal mass of the sensor very fast response times can be achieved. Typical T90-Times are < 10 Seconds. For every thermal conductivity sensor a specific calibration matrix has to be generated, taking into account the specifics of the application. This has the positive side-effect, that due to the stability of the thermal conductivity sensors at the span, only the Zero-Point has to be calibrated in the field. Complex and therefore expensive calibration gas mixtures are no longer necessary.

The Measuring system:

The Thermal Conductivity Analyser TCD 200 TG Ex is available for wall mounting IP54 / 65. The micro-processor controls the electronics and the display. Calibration and maintenance sequences can be controlled from the analyser main menu. Via the keyboard of the TCD 200 TG Ex the settings of the alarm boundaries, the analogue signal port and the analyser display can be made conveniently. Automated components allow remote control of the Thermal Conductivity Analyser TCD 200 TG Ex from the control room. For use of the Thermal Conductivity Analyser TCD 200 TG in hazardous areas classified as Zone 2, the system can be equipped with continuous inert gas purging.

The Measuring System for suitable use in Ex-Zone 2:

The thermal conductivity analyser TCD 200 TG Ex, which is installed into a wall mounting enclosure IP54 /65 is over pressure encapsulated with a certified purge unit. That means all components within the enclosure are bathed by Inertgas usually nitrogen as instrument air. In this way no hazardous atmosphere can entering the enclosure and thus can't lead to an explosive gas mixture within the enclosure. A failure of the purge unit / flushing medium shut down all electrical consumers within the sealed enclosure.

Important Notice: Gas mixtures which are led into the Thermal Conductivity Analyser TCD 200 TG Ex must not be flammable by themselves!

Technical Data

Measuring system	TCD 200 TG Ex
Ex-classification	ATEX II 3G for Zone 2
Measuring principle	Thermal Conductivity
Measuring range	Depending on gas composition i. e. H ₂ / N ₂ , CO ₂ / N ₂ , CH ₄ / N ₂ , Ar / N ₂
Analogue output port	(0) 4 ... 20mA or 0... 10 V
Reproducibility	≤ 1 % of measuring range
Resolution	0,1 % of measuring range, or 0,01 Vol. % depending on gas concentration
T-90 Time	≤ 10 Sec. at a flow of 50 NI / h
Longterm drift	< 1 % of the smallest measuring range per month
Display	2 x 16 digit LCD Display
Messages	2 freely programmable messages with reference to the gas concentration
Gas connections	Inlet / Outlet 3 (6) / 6 mm ferrule pack
Gas sampling	integrated gas inlet valve Gas flow meter
Sample gas flow	min. 20 NI/h, max. 50 NI/h
Sample gas pressure	min. 1,01 bar abs., max. 2 bar abs.
Sample gas temperature	5 °C bis + 45 °C
Ambient temperature	5 °C bis + 60 °C
Relative humidity	0 ... 99 % not condensing
Power supply	24 VDC
Protection class / Housing / Dimensions	IP 65 / Wall mounting housing / 600 x 380 x 210 mm
Weight	appr. 40 kg
Options	electronic flow monitoring /-alarm pressure reducer (max 10 bar in, 50 mbar out) Sample gas pump
Version: TCD200TG Ex E V-2022-01	

Specification subject to change.