

Thermal Conductivity Gas Analyser TCD 200 TG



available options:
pressure reducer
Inert gas purging for preventing
electronical flowmeter
sample gas pump
different housing

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

The Measuring principle:

The sensor of the Thermal Conductivity Analyser TCD 200 TG 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 is available for wall mounting, IP 65, or in an electronic housing IP 20. 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 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 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.

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

Technical Data

Measuring system	TCD 200 TG
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 , H ₂ / Ar
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 value alarms, 1 analyser status Potential free contact relays, max. load 24 VDC / 0,5 A
Gas connections	Inlet / Outlet 3 (6) / 6 mm ferrule pack
Gas sampling (not for panel housing)	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 20 / electronics unit, 28 TE / 3HU IP 65 / wall mounting housing / ca. 300 x 260 x 130 mm (hxbxt) IP 54 / portable housing 42 TE / 3 HU IP 54 / panel mounting 144 x 144 mm
Weight	2-5 kg
Options	inert gas purging for preventing hazardous atmosphere inside housing pressure reducer (max 10 bar in, 50 mbar out) Sample gas pump electronic flow monitoring /-alarm
Version: TCD200TG E V-2022-01	

Specification subject to change.