GC-TCD

Portable-Process-Gaschromatograph
Type: meta GC-TCD / 3HU

Construction	Sample Injection	Measuring Parameters
19" housing as rack or table version with 3 height units (3HU)	**Sample injection:** - automatic - manual (optional)	Organic and inorganic hydrocarbons
Detector: TCD - Thermal Conductivity Detector	**Signal processing:** - PC / Laptop with evaluation software	**Examples:** oxigen O_2 carbon monoxid CO carbon dioxid CO_2
Column: packed or capillary	**Signal output:** - 0...1V - RS 232 (optional)	methane CH_4 hydrogen H_2 helium He
Oven: Isothermal temperatur control with Version 1: 40, 60 or 120°C as well Version 2: 5, 10 or 20°C		argon Ar krypton Kr and other substances depends on the kind of column and the carrier gas
Carrier gas: Hydrogen (H_2), Nitrogen (N_2) or Helium (He)		

Technical specifications

Power supply:	230VAC / 50Hz
Power consumption:	0,5 kW
Humidity:	0 - 90% rel. humidity, none condensing
Operating temperature:	0 - 40°C
Protection class:	IP 20 / DIN 40050
Environmental condition:	dust-free

Description of the GC-TCD

The gas chromatograph GC-TCD enables manual and automatic samplings and analysis. The application areas are the online analysis of emission / immission / soil air / exhaust air / process and waste water. Control functions are possible through the connection of other devices, for example an measuring multiplexer.

Detector - TCD - (Thermal Conductivity Detector)

The TCD can basically be used for all substances which not destroyed him by corrosion. He is not useful for trace analysis, than his detection limit is to high. The TCD is mostly used for permanent gases.

TCD:	Thermal Conductivity Detector
Carrier gas:	N_2, H_2 or He (selection depends on your measuring task)

TCD - functions

The TCD consists of two measuring cells with exactly the same construction. In each cell is clamped a platin-wire. The gas, which comes out of column, streams through the cell and through the other cell goes a dosed stream of pure gas. Both wires will be heated by electric current. The temperature and by association the resistors of both wires is depend on the heat conductivity of on-rushing gas. When the gas, which goes trough the measuring cell, change in the composition, than the temperature and resistor in platin-wire is changing. When we have a difference in resistor of both cells, we receive a signal and the software writes a chromatogram.

Injector

- split / splitless samplings
- manual sampling by means of septum in the injector block (optional)
- automatic sampling by means of time controlled sample loop

Oven

Column:	steel or quartz capillare - selection depends on your measuring task
Standard:	steel capillary, type meta OV 101
Temperature:	isothermal with 5, 10, 20°C or 40, 60, 120°C
	(optional: temperature program)

Implementation of Analysis

The system cyclically starts the measurement. From sampling up to the evaluation, all steps are performed automatically. A single measurement can be performed, also a re-analysis.
The system has a minimal cycle time of 3min (methane) for single channel. The normal cycle time is 5...30min (It depends from your measurement task), that means 48...288 measurements per day are possible.

Process control and data-storage
The evaluation software stores all measurements and external signals (optional) on hard-disk of attached Computer.
Reports from these data can be created daily, weekly or monthly (MS-EXCEL) with min. / max. limits.