

ZIROX- Hydrogen Sensor TCS

Properties

The hydrogen concentration is measured by the **T**hermal **C**onductivity **S**ensor.

For this measurement the much higher thermal conductivity of hydrogen in contrast to other gases is utilized. The TCS gives a voltage which depends linearly on the hydrogen concentration (ideally; actually the characteristic line follows a complicated mathematical function established by complex calibrations).

The TCS can also be used for surface treatment equipment (e.g. case hardening under vacuum conditions).

For this purpose a special software is needed. For exact measuring results the customer must inform the manufacturer about the process pressure before delivery.

Applications

The ZIROX hydrogen sensor TCS serves the continuous measuring of the hydrogen concentration in industrial and protective gases. Deviations from a set-point can be signalized or production processes with use of hydrogen can be monitored by the TCS.



ZIROX Hydrogen Sensor TCS

Sensoren und Elektronik GmbH



Technical Data

Measuring range	0...100 vol%	
Accuracy	Relative error < 5 %	
Response time	t_{90} (sensor) ca. 180 s	Depends on gas distribution at measuring chamber
Sensor temperature	50 °C	prethermostatted, controlled electronically
Dimensions (BxHxD)	80 mm x 125 mm x 83 mm	
Signal output	Analog output 0/4 - 20 mA (scaling by software) and serial interface RS232	0 – 5/10 V on request
Power supply	24 VDC \pm 20 %, approx. 20 W	
Display	None, operation via software	
Protection degree	IP 65	
Ambient temperature	0...50 °C, 0...95 % rH	
Storage temperature	-20...60 °C, 0...95 % rH	
Gas connection	Via DIN40KF	Others on request
Gas supply	Via diffusion (Gas distribution at measuring chamber)	Suction mechanism on request
Ambient pressure	950...1100 hPa (underpressure application needs special calibration)	Measuring value depends on pressure
Warm-up	10 min	
Calibration	First calibration (characteristic line determination) by manufacturer. Customer must do a 2-point-calibration approx. every 3 month	Process pressure must be known and given to the manufacturer
Mounting	No requirements	
Cross sensitivity	Gases with high thermal conductivity falsify the measuring result	

Plug assignment (Type 423 6pol., Fa. Binder, Best.-Nr.: 99-5622-15-06):

1	rt	+ 24 V
2	sw	GND
3	gn	+ Iout
4	ge	- Iout
5	br	Ready contact (potential-free)
6	ws	