



Hydro-Trans Thermal Conductivity Transmitter

Process Online Gas Analyzer

The Hydro Transmitter from Roscid Technologies sets the standard for thermal conductivity detector-based applications within the process control industry. As a rugged transmitter, packaged in a weatherproof housing, the Hydro Trans is suitable for use in harsh, hazardous outdoor environments. Using a novel, solid-state thermal conductivity sensor, this cost-effective transmitter can be configured to detect H_2 , He, N_2 , Ar, CO_2 or several other gases of interest in binary or multi-component sample gas mixtures.

☺ Features of the analyzer

- Unique, long-life, solid-state, TC sensor design
- No reference gas requirements
- Temperature controlled TCD providing excellent zero and span stability over a wide temperature range
- Intrinsically safe design allowing for use in hazardous areas
- Robust, weatherproof housing suitable for outdoor installations
- Linearized 4-20 mA signal output
- Small, space-saving, compact design
- Simple to install

☺ Applications

- Power plant: H_2 purity analysis on turbine generator purge gas
- Petrochemical plant: H_2 purity analysis on H_2 / HC recycle gas streams, redensulfurization, and tail gas treatment processes
- Air separation plant: Bulk gas purity monitoring and welding / diving / cal gas cylinder verification
- Heat treating: Annealing furnace blanket gas monitoring
- Electrolysis: H_2 purity analysis in O_2

- Fuel cell development: Methane feed gas purity analysis and reformer efficiency



☺ Sensor operating principle

The thermal conductivity sensor measures the concentration of a specific gas between a hot surface resistor and an ambient temperature reference resistor using the thermal conductivity coefficient of the gas itself.

☺ Sensor description

The sensor structure consists of an integrated heater located on a thin electrical and thermal insulating membrane. Two thin film resistors are used for heating and measuring the temperature of the membrane. Two resistors are integrated on the silicon beside the membrane for the compensation of the ambient temperature changes. Gases which have a lower density than air (CH_4) cause a decrease on the surface membrane temperature. On the other hand, gases with densities heavier than air (CO_2) increase the temperature of the measuring resistor.

☺ Features

- Stable long-term operation
- Physical method for gas concentration measurement
- Low power consumption



Specification

Range: 0 to 5%

Accuracy: $\pm 3\%$

Response time: T90, 2 sec

System operating temperature: 0 to 50° C

Sensor type: Silicon micro-machined thermal conductivity sensor

Signal output: 4 - 20 mA DC output signal, RS232 Alarm

Cell material: stainless steel

Max load impedance: 700 Ohms for current output

Reference gas: Not required

Connections: 6mm

Materials in contact with sample:
stainless steel wetted parts

Span drift: Typically, $\pm 1\%$ over 48 hours

Housing Wall mounted, NEMA 4X (IP66 rated);

Sample gas flow rate: 1 L/min

Power require: 10-35Vdc

Power consumption: 11 watts max

Warranty

Instrument is warranted for 1 year against defects in material or workmanship

NOTE: Specifications and features will vary with application. The above is established and validated during design but are not to be construed as test criteria for every product. All specifications and features are subject to change without notice.

Model #	Range
Hydro-Trans-1	0-5%