

Hydrogen applications with electronic pressure sensors

WIKA data sheet IN 00.40

Description

Due to hydrogen permeation into the sensor structures, signal drift can occur over time. The time until the occurrence of a relevant signal drift and the extent of the signal drift depends mainly on factors such as the temperature of the hydrogen, hydrogen content in the medium and the diaphragm thickness of the pressure sensor used. The diaphragm thickness depends on the nominal pressure. It is recommended that users test the selected product version in their specific application environment for suitability.

Scope

This technical information is a supplement to the following data sheets with the corresponding restrictions with respect to measuring range:

Data sheet	Model	Measuring ranges
PE 81.58	IS-3	0 ... 25 to 0 ... 1,000 bar
PE 81.60	A-10	0 ... 25 to 0 ... 1,000 bar
PE 81.61	S-20	0 ... 25 to 0 ... 1,000 bar
PE 86.05	UPT-20	0 ... 60 to 0 ... 1,000 bar
PE 86.06	IPT-20	0 ... 60 to 0 ... 1,000 bar
PE 81.27	E-10	0 ... 40 to 0 ... 1,000 bar

Only available for non-flush process connection
Other measuring ranges on request.

Wetted parts

For wetted parts only those materials are used which are suitable for the permanent measurement of pressure for hydrogen. These are austenitic steels for the process connections and 2.4711 for the sensor elements. The sensor elements are welded to the process connection. The necessity of a sealing to the sensor element is eliminated.

Long-term drift (per IEC 61298-2)

In deviation from the specifications in the respective data sheet, a higher long-term drift can occur.

Typical: ≤ 1 % of span/year

Maximum: ≤ 3 % of span/year

Valid at a temperature of up to 30 °C.

For higher temperatures, the sensor must be tested by the customer for application suitability.