

# 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 and process connection:

Data sheet	Model	Measuring ranges	Process connections
PE 81.54	P-30, P-31	0 ... 25 to 0 ... 1,000 bar	Non-flush process connections
PE 81.58	IS-3	0 ... 25 to 0 ... 1,000 bar	Non-flush process connections
PE 81.60	A-10	0 ... 25 to 0 ... 1,000 bar	Non-flush process connections
PE 81.61	S-20	0 ... 25 to 0 ... 1,000 bar	Non-flush process connections
PE 86.05	UPT-2x	0 ... 25 to 0 ... 1,000 bar	Non-flush process connections

Measuring ranges below 25 bar and above 1,000 bar 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 Elgiloy® for the sensor elements. The sensor elements are welded with 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.