

# HT-H2 Pressure sensor



**Storage  
Fuel Cells**

**Chemical Engineering**

**Gas Engineering**

**Automotive**

Durable & rugged industrial pressure transmitter  
Up to 1000 bar  
Designed for used with Hydrogen gases  
Adapted piezo-resistive measuring cell prevents embrittlement

## DESCRIPTION

The piezoresistive stainless steel measuring cell has especially been adapted to suit the chemical and physical properties of hydrogen. The entire sensing element is made from of a single piece without welds, which is designed to prevent embrittlement of the metal surface by ionised hydrogen. It is also completely vacuum tight and elastomer free.

Leaks caused by material fatigue on internal seals are thus eliminated from the outset. It has no disturbance due to pressure transfer fluid and no large pressurised surfaces.

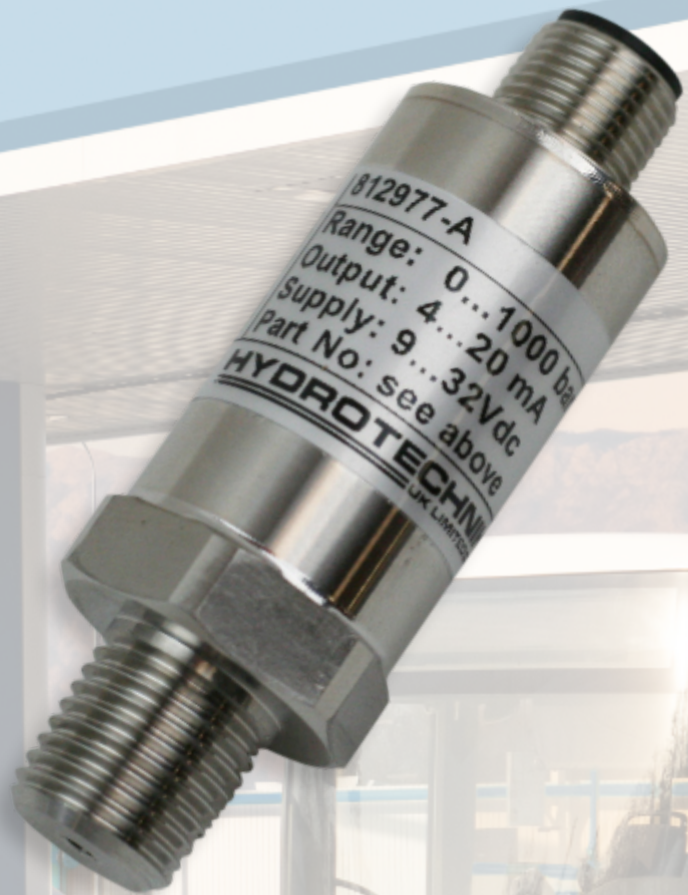
The link into the connection pins are made by wedge wedge bonding and is therefore completely stable even at low temperatures, or when subject to shocks or vibrations. The measuring bridge evaluates the pressure via a mixed signal ASIC. The HT-H2 can also be used for other critical media.

# Hydrogen

## HYDROGEN PRESSURE TRANSMITTER

**Stainless steel single piece measuring cell**

- Suitable for Hydrogen
- Measuring cell, free from welds & seams
- Elastomer seal free
- Long term durability & accuracy



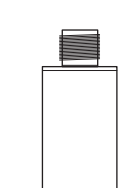
## TECHNICAL PARAMETER OVERVIEW

- Vacuum and 1 bar to 1,000 bar
- relative pressure, sealed reference
- (0)4...20 mA, 0...(5)10 V, ratiometric and more
- M12x1, Packard Metri-Pack, AMP and many more
- precision < 0,5 % FS (limit-point calibration)
- medium-contacting parts of stainless steel 1.4404/316L
- response time < 1ms
- optionally with EX protection (ATEX, IECEx, CSA)

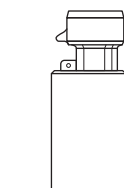
## TECHNICAL DATA

| Input parameters  |  |                        |               |
|---|--|------------------------|---------------|
| Pressure measuring ranges available between 0...1000 bar                      | P <sub>nominal</sub>   | -1...1 to -1...600 bar | -1...1000 bar |
|   | P <sub>overload</sub>  | 2x                     | 1.5x          |
|   | P <sub>burst</sub>   | 3x                     | 2x            |
| Type of pressure  | Relative pressure  |                        |               |
| Measuring principle   | Piezoresistive (semiconductor on stainless steel)  |                        |               |
| Medium contacting parts   | Stainless steel 1.4404 (316L)<br>(others on request)   |                        |               |
| Internal seals  | None (single piece solid stainless steel measuring cell)   |                        |               |
| Pressure-transmitting medium  | None (dry stainless-steel measuring cell)  |                        |               |
| Housing material  | 1.4301 / AISI 304  |                        |               |
| Process connections *   | 1/4" and 1/2" NPT, 9/16"-18 UNF-2A with sealing cone, 9/16"-18 UNF-2A HF 4 G1/4" BSP and G1/2" BSP acc. to EN 837 (manometer nipple) or to ISO 228-1   |                        |               |
| Electrical connections *  | Plug connectors acc. to EN 175301-803 Form A and C, M12x1, Packard Metri-Pack, AMP Superseal, German, field housing, wire output port  |                        |               |
| Mass  | Approx. 120g   |                        |               |
| Output signal, supply voltage and load resistance *                           | 4...20 mA, 2-wire RA ≤ (UB-10V) / 20mA (supply 10...32VDC)<br>0...10V, 3-wire RL> 5kΩ (supply 12...2VDC)<br>0...5 V, 3 -wire RL> 2.5kΩ (supply 7...2VDC)<br>0.5...4.5V ratiometric, 3 Leiter RL> 4.7kΩ (supply 5VDC +/-10%)  |                        |               |
| Response time (T90)   | < 1 ms   |                        |               |
| Total error **  | ≤ 0.5%FS after limit-point calibration (≤ 0.35% FS BFSL)<br>acc.to DIN EN 61298-2 (incl. non-linearity, zero offset, hysteresis and repeatability) in the compensated range  |                        |               |
| Non-linearity   | ≤ 0.2% FS after limit-point calibration (≤ 0.1% FS acc. to BFSL)   |                        |               |
| Non-repeatability   | ≤ 0.10% FS   |                        |               |
| Hysteresis  | ≤ 0.15% FS   |                        |               |
| Medium TK of the offset   | ≤ 0.15% FS / 10K   |                        |               |
| Medium TK of the range  | ≤ 0.15% FS / 10K   |                        |               |
| Long-term durability  | ≤ 0.1% FS per year in referential conditions   |                        |               |
| Permissible temperatures  |  |                        |               |
| Temperature of the medium   | -40...+125°C   |                        |               |
| Ambient temperature   | -40...+105°C   |                        |               |
| Storage Temperature   | -40...+125°C   |                        |               |
| Compensated Range   | 0...+80°C  |                        |               |
| CE-conformity   | EC Directive 89 / 336 / EEC 2014/  |                        |               |
| ATEX option   | II 2G Ex ia IIC T4 Gb  |                        |               |
| Pressure devices  | 68/EU  |                        |               |
| EMC directive   | 2004 / 108 / EC acc. To EN 61326g  |                        |               |
| Shock resistance  | 1000 acc. to IEC 60068-2-32 g 20   |                        |               |
| Vibration resistance  | Acc. to IEC 60068-2-6  |                        |               |
| Weight  | ~ 50g  |                        |               |
| Electrical protection   |  |                        |               |
| Dielectric strength   | 350VDC   |                        |               |
| Short circuit resistance  | Out+ / UB- (for 1s)  |                        |               |
| Reverse polarity protection   | UB+ / UB in place  |                        |               |
| IP ratings *  | plug connections acc. to EN 175301-803 IP65, M12 x 1, Packard Metri-Pack, AMP, Deutsch DT04-3P and 4P IP67/IP6K9K.<br>The IP types specified in the data sheets generally apply to a mating plug connected. An aerated counter plug and / or wire is usually required for relative transmitters to enable atmospheric pressure balance. From a pressure range of 60 bar, no ventilated mating connector and / or cable is necessary. |                        |               |
| * Others on request;  |  |                        |               |
| ** Special custom made solutions with optionally higher precision on request. |  |                        |               |

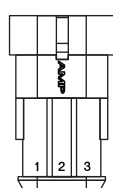
## ELECTRICAL CONNECTIONS EXAMPLES



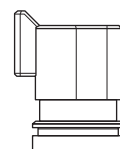
Binder M12x1 4P



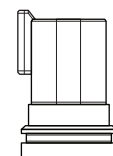
Packard Metri-Pack



AMP Superseal

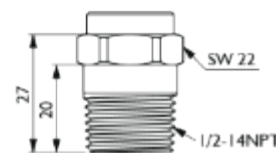
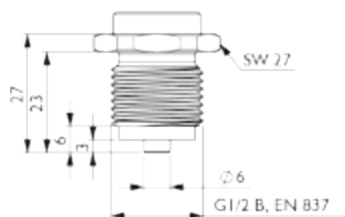
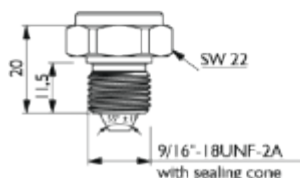
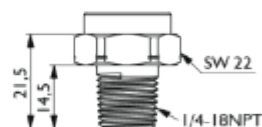
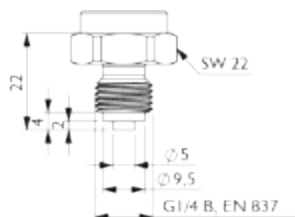
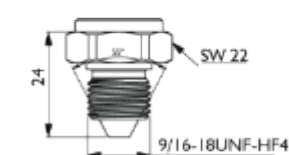


Deutsch DT04-3P



Deutsch DT04-4P

## PROCESS CONNECTIONS EXAMPLES



## ORDERING CODE

**HT-H2-A-BB-CCCC-DD-EE-FF**

Replace **A** with the code for the approval required

- 0** = No approvals
- H** = EC 79/2009 (4 up to 600 bar)
- X** = ATEX (4...20mA only)

Replace **BB** with the code for output signals required

- UR** = 0.5...4.5V (ratiometric)
- UI** = 0...10V
- I2** = 4...20mA (2 wire)
- U5** = 1...5V

Replace **CCCC** with the required pressure range (bar OR PSI)  
Examples below for illustration

- 0001** = 0...1
- 0130** = 0...130
- 0600** = 0...600
- 1000** = 0...1000

See DD to specify bar or psi

Other configurations available on request.

Replace **FF** with the process connections required

- 01** = 9/16-18 UNF-HF4
- 02** = 9/16-18 UNF-2A
- 03** = G1/4 B, EN 837
- 04** = G1/2 B, EN 837
- 05** = 1/4-18 NPT
- 06** = 1/2-14 NPT

Other connections available on request

Replace **EE** with the code for electrical connections required

- 01** = Binder M12x1 4P
- 02** = Packard Metri-Pack
- 03** = AMP Superseal
- 04** = Deutsch DT04-3P
- 05** = Deutsch DT04-4P

Other connections available on request

Replace **DD** with the code for unit required

- 01** = bar
- 16** = psi

Other units available on request

## ORDERING EXAMPLE

**HT-H2-H-UR-0600-01-05-01**

HT-H2 with EC 79/2009 approval, 0.5...4.5V (ratiometric) output signal, 0...600 bar pressure range, Binder M12x1 (plastic); 4P electrical connections and G1/4"A form E.