



'INTELLIGENT' PRESSURE AND LEVEL TRANSMITTERS

"Capacitive Ceramic sensor"



Series 3000

▶ **ALL STAINLESS HOUSING**

▶ **EASY CALIBRATION WITHOUT TESTPRESSURE**
by 3 pushbuttons and display

▶ **ACCURACY: 0.2% (Option: 0.1%)**

▶ **TURN DOWN 10:1**

▶ **ACTIVE TEMPERATURE COMPENSATION**

▶ **ALL INDUSTRIAL PROCESS CONNECTIONS**

▶ **OPTION: HART PROTOCOL**

HART
COMMUNICATION PROTOCOL

Description

The series 3000 is a complete line of Pressure and level transmitters with a Flush mounted **Capacitive Ceramic sensor**. The calibration and programming can be done very easy without testpressure by using **3 pushbuttons and the display**. The display can indicate a number of chosen engineering units. Zero and span are very easy adjustable without testpressure. Besides that a signal damping and a current simulation are adjustable. The series 3000 is temperature compensated and is available in the most common industrial process connections. HART protocol is available as an option.



Stainless steel housing

HART is a registered trademark of the HART Communication Foundation.

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Series 3000

Specifications

| | |
|-----------------------------|--|
| Accuracy | : 0.2% of adjusted span (option 0.1%) |
| Ranges | : 0-100 mbar to 0 – 50 bar |
| Turn down | : 10:1 |
| Adjustment | : by 3 pushbuttons and local display without testpressure |
| Output | : 4-20 mA (option: HART Protocol) |
| Supply | : 12 – 36 Vdc |
| Electrical connection | : PG 9 (Option: M20 or ½”NPTf) |
| Protection | : IP66 (option: IP68) |
| Process temperature | : -20°C to 80°C |
| Material sensor | : Ceramic (Al ₂ O ₃) 99,9% |
| Sensor Sealing | : Viton (standard) other o-ring on request |
| Material other wetted parts | : AISI 316L (option: Hastelloy C) |
| Electronics housing | : AISI 304 (option: AISI 316) |
| Process connections | : See ordercode at page 4 |

Pulp & Paper industry

Klay Instruments manufactures a wide range of Pressure and Level transmitters with a strong SS316L Flush diaphragm for the Pulp & Paper industry. However if you prefer a Ceramic sensor, we can offer our series 3000 with a Strong Capacitive Ceramic sensor and a wide range of process connections. All common Pulp & paper process connections are available. Below some examples.

The series 3000 will as standard be delivered with 2 closed covers, so the 3 pushbuttons and the standard display are behind the cover.

A transparent cover can be delivered as an option (I). In that case you can use the display as a local indicator.

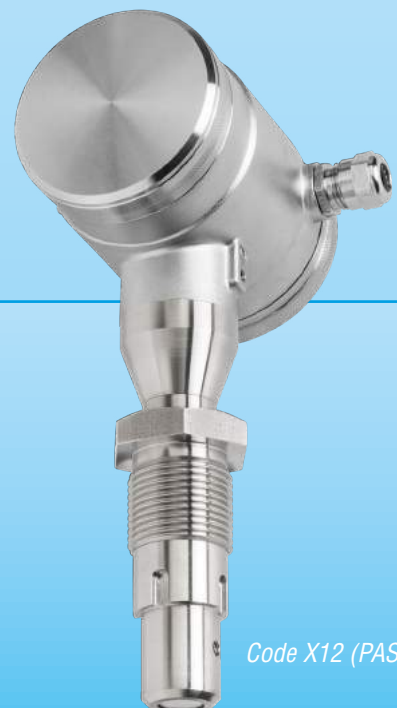
Easy Programmable



Adjustable points

| | |
|------|---|
| P101 | Zero adjustment (4 mA) |
| P102 | Span adjustment (20 mA) |
| P103 | Cancel mounting position effect |
| P104 | Adjustment pressure unit (see conversion table) |
| P105 | 4 - 20 mA * 20 - 4 mA (reverse output) |
| P106 | Damping adjustment (0 to 25 sec) |
| P107 | Indication of processtemperature (read out on display) |
| P108 | 0 = CELC °C * 1 = FAHR °F |
| P109 | Read out on display: 0 = current (4 - 20 mA) * 1 = pressure unit 2 = percent % |
| P110 | Current simulation (4 - 20 mA) |
| P111 | Linearisation (Various tankshapes) |

* = factory setting



Code X12 (PASVE)



Code S (1" BSP)



Code W33

Series 3000-SAN

Specifications

| | |
|-----------------------------|--|
| Accuracy | : 0.2% of adjusted span (option 0.1%) |
| Ranges | : 0-100 mbar to 0 – 50 bar |
| Turn down | : 10:1 |
| Adjustment | : by 3 pushbuttons and local display without testpressure |
| Output | : 4-20 mA (option: HART Protocol) |
| Supply | : 12 – 36 Vdc |
| Electrical connection | : PG 9 (Option: M20 or ½”NPTf) |
| Protection | : IP66 (option: IP68) |
| Process temperature | : -20°C to 100°C (140°C / 30min.) |
| Material sensor | : Ceramic (Al ₂ O ₃) 99,9% |
| Sensor Sealing | : Viton (standard) other o-ring on request |
| Material other wetted parts | : AISI 316L (option: Hastelloy C) |
| Electronics housing | : AISI 304 (option: AISI 316) |
| Process connections | : More than 40! See ordercode at page 4 |



Strong and polished ceramic sensor



Code W



IFM 1" BSP

Flanged Pressure / Level transmitters with Ceramic sensor

The series 3000-SAN is available as a flanged Pressure / level transmitter. All DIN and ANSI flange sizes are available. Please specify size in the ordercode mentioned on page 4.

Food industry:

Our Series 3000-SAN is available with all hygienic process connections for the Food industry (acc. to EHEDG and 3A). The Series 3000-SAN is completely temperature compensated. We also manufacture various lines of Pressure and Level transmitters with strong and hygienic SS316L flush diaphragms using the Klay Flush Diaphragm Technology. These transmitters **series 2000-SAN, 4000-SAN and 8000-SAN are all EHEDG and 3A certified.**

For ranges above 50 bar, please also ask for one of our other Transmitter lines: series 2000, 4000 or 8000. See page 4 for a short overview.

IP 68 transmitters:


Our Klay Pressure and Level transmitters are also available in an IP68 version. This can be either the series 3000 in a remote version or our type HydroCer with all electronics compact mounted in the sensor part. All process connections are available in this execution, see below as an example our IP68 Flanged level transmitter.







Type: HydroCer-I-Cable(..m)-range-(Process connection code.)
Always mention cable length, range and code for process connection.



IP68 Solution

Ordering codes Series 3000 and 3000-SAN

| | | | | | | | | |
|--|-------------------------|------------------------------|---|---|---|---|---|-----|
| SERIES 3000 | | Ordercode: 3000 - | | | | | | |
| | | Ordercode: 3000-SAN - | | | | | | |
| Adjustable span range (min. max.) | Max. overpressure (bar) | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ |
| 0 - 0.1 to 0 - 1 bar | 6 bar | 1 | | | | | | |
| 0 - 0.2 to 0 - 2 bar | 12 bar | 2 | | | | | | |
| 0 - 0.5 to 0 - 5 bar | 25 bar | 3 | | | | | | |
| 0 - 2 to 0 - 20 bar | 45 bar | 4 | | | | | | |
| 0 - 5 to 0 - 50 bar | 80 bar | 5 | | | | | | |
| PROCESS CONNECTIONS SERIES 3000: | | | | | | | | |
| G1" (1" BSP) threaded connection | | S | | | | | | |
| 1" NPT threaded connection | | N | | | | | | |
| Weld on nipple, diameter 33 mm (for Pressure on pipelines in Pulp & Paper) | | W33 | | | | | | |
| M44 x 1.25 (Equal to Vega, Rosemount, PMC) (Pulp & Paper) | | X2 | | | | | | |
| PASVE 1" connection (Satron / Valmet) | | X12 | | | | | | |
| PROCESS CONNECTIONS SERIES 3000-SAN: | | | | | | | | |
| Klay Weld-on nipple (diameter 85 mm) for tankmounting. Other diameters on request | | W85 | | | | | | |
| Flange DIN DN 25, 40, 50 or 80 or ANSI 11/2" , 2" or 3" (Specify size) | | F.. | | | | | | |
| Tri-clamp 11/2" , 2" or 3 " (Specify size) | | L.. | | | | | | |
| Milkcoupling DIN 11851, DN 25 DN40 or DN50 (Specify size) | | M.. | | | | | | |
| G11/2" (11/2"BSP) threaded connection | | X3 | | | | | | |
| Varivent connection (GEA) | | X4 | | | | | | |
| Vega 'LA' DN40 | | X13 | | | | | | |
| 11/2" NPT threaded connection | | X20 | | | | | | |
| IFM Sanitary G1" (1"BSP) threaded connection | | X117 | | | | | | |
| Other process connections, specify X code (Ask for Klay X code list) | | X.. | | | | | | |
| O-RING MATERIAL, SENSOR SEALING: | | | | | | | | |
| Viton (FKM) Standard | | S | | | | | | |
| EPDM | | E | | | | | | |
| Kalrez FFKM | | K | | | | | | |
| OPTIONS | | | | | | | | |
| Transparent cover, display functions as a local indicator | | | | | | I | | |
| HART Protocol (Hart 7)  | | | | | | | H | |
| Vacuum ranges (specify Relative V(r) or Absolute V(a). Specify Calibrated range (example: -1 to +1 bar)) | | | | | | | | V |
| Other span range (lower range or wider span) please consult factory | | | | | | | | G19 |

| | | | |
|-----------------------------|--|--|---|
| Transmitter Overview |  |  |  |
| Type | 8000 | 2000 | 4000 |
| Process Connections | <ul style="list-style-type: none"> - Hygienic connection (More than 40!) Flush mounted diaphragms - Pulp & paper process connections - Flanges DIN and ANSI sizes - Threaded connections: G1/2" , G1" , G11/2" and G2" (Also available in NPT threads) | | |
| Accuracy | 0.2% | 0.1% | 0.075% |
| Turn down | 4 : 1 | 10 : 1 | 20 : 1 |
| Span min max | 0.1 350 bar | 0.04 700 bar | 0.04 100 bar |
| Output | 4 - 20 mA | 4 - 20 mA +  | 4 - 20 mA +  |
| Diaphragm material | Flush diaphragm materials: SSL316L (standard). Hastelloy C, Titanium, Tantalum, | | |
| Approvals | Ex: ATEX  and IECEx II 1G Ex ia IIC T4 Food: EHEDG and 3A | | |

We reserve the right for technical modifications without prior notice.