



## '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 demping 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.

HART is a registered trademark of the HART Communication Foundation.



Stainless steel housing

**KLAY-INSTRUMENTS B.V.**  
[www.klay-instruments.com](http://www.klay-instruments.com)

Nijverheidsweg 5  
7991 CZ Dwingeloo  
The Netherlands

T: +31 521 - 591 550  
M: info@klay.nl

# Series 3000

## Specifications

Accuracy	: 0.2% of adjusted span (option 0.1%)
Ranges	: 0-100 mbar to 0 – 50 bar
Turn down	: 10:1
<b>Adjustment</b>	<b>: by 3 pushbuttons and local display without testpressure</b>
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 <sub>2</sub> O <sub>3</sub> ) 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 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
<b>Adjustment</b>	<b>: by 3 pushbuttons and local display without testpressure</b>
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 <sub>2</sub> O <sub>3</sub> ) 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	: <b>More than 40!</b> See ordercode at page 4



*Strong and polished ceramic sensor*

## 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.

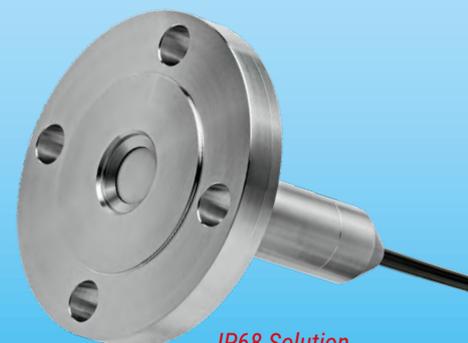
Type: HydroCer-I-Cable(..m)-range-(Process connection code).  
Always mention cable length, range and code for process connection.



*Code W*



*IFM 1" BSP*



*IP68 Solution*

# Ordering codes Series 3000 and 3000-SAN

<b>SERIES 3000</b>		Ordercode: <b>3000 -</b>						
		Ordercode: <b>3000-SAN -</b>						
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						
<b>PROCESS CONNECTIONS SERIES 3000:</b>								
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 Rosemount, PMC) (Pulp & Paper)		X2						
*PASVE® 1" connection (Satron / Valmet)		X12						
<b>PROCESS CONNECTIONS SERIES 3000-SAN:</b>								
Klay Weld-on nipple (diameter 85 mm) <b>for tankmounting</b> . 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						
'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..						
<b>O-RING MATERIAL, SENSOR SEALING:</b>								
Viton (FKM) Standard		S						
EPDM		E						
Kalrez FFKM		K						
<b>OPTIONS</b>								
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

\* PASVE® is a registered trade name of Satron Instrument

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

We reserve the right for technical modifications without prior notice.