



## 'INTELLIGENT' TANK LEVEL TRANSMITTERS (shell types) With extended flush mounted diaphragms



### Series 2000-SAN

- ▶ ALL STAINLESS HOUSING
- ▶ EASY CALIBRATION  
BY 3 PUSH BUTTONS AND DISPLAY  
(NO PRESSURE SOURCE REQUIRED)
- ▶ ACCURACY: 0.1%
- ▶ TURN DOWN 10:1
- ▶ ONE RANGE FOR ALL SILOS!
- ▶ FLUSH DIAPHRAGM TECHNOLOGY
- ▶ ALL SANITARY PROCESS CONNECTIONS
- ▶ OPTION: HART PROTOCOL 

**A<sup>®</sup>**  
**3**  
74-06



### Description

For **Level measurement in insulated tanks / silos in the Food & dairy industry** Klay Instruments offers a High accurate line of Level transmitters with a strong extended flush diaphragm. The series 2000-SAN are Intelligent Level transmitters with a polished Stainless steel electronics housing. The calibration / programming can be done very easy without reference pressure by using the 3 pushbuttons and the standard display. Using the Klay Flush Diaphragm Technology the transmitters are fully Temperature compensated with a strong flush diaphragm. **All common shell type transmitter connections are available for use in insulated tanks** i.e. King Gage 6" or 8", Anderson short or Long (6"), E+H long (6"), Rosemount spud 2" or 6" and Tank Mate (6"). All our transmitters are CIP and SIP cleanable and meet the 3A sanitary standards. HART protocol is available as an option.

HART<sup>®</sup> is a registered trademark of the HART Communication Foundation.



*Stainless steel electronics housing*

**KLAY-INSTRUMENTS**

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# Series 2000-SAN

## Specifications

Accuracy	: 0.1% of adjusted span
Ranges	: 0-16 inH <sub>2</sub> O to 0 – 3900 inH <sub>2</sub> O (145 psi)
Turn down	: 10:1
<b>Adjustment</b>	<b>: by 3 pushbuttons and local display without reference pressure</b>
Output	: 4-20 mA (option: HART Protocol)
Supply	: 12 – 36 Vdc
Electrical connection	: M12 or ½"NPTf)
Protection	: NEMA 4X Option: NEMA 6P
Process temperature	: -4°F to 212°F (293°F/45 min.)
Material wetted parts	: AISI 316L (option: Hastelloy C)
Electronics housing	: AISI 316 (Polished)
Process connections	: More than 40! See ordercode at page 4

## Active Temperature Compensation:

All Klay transmitters with a flush diaphragm are equipped with the unique Klay Flush Diaphragm Technology. These transmitters are fully temperature compensated with a very strong Flush diaphragm and limited oil filling. (Detailed information available).



## Separate (remote) electronics:

Series 2000-SAN is also available with remote electronics.

Type: **2000-SAN-Cable(...ft)-range-...**

Always specify the cable length, range and process connection. (See ordercode on page 4).

With remote electronics the sensor has a NEMA 6P / IP69K protection.

## Adjustable points

P101 Zero adjustment (ZERO / 4 mA)
P102 Span adjustment (SPAN / 20 mA)
P103 Cancel mounting position effect
P104 Adjustment pressure unit
P105 Output 4-20 mA* or 20-4 mA
P106 Damping adjustment (0 - 25 sec.)
P107 Indication Process temperature (Read out on display)
P108 FAHR °F* or CELC °C
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

*Easy Programmable*

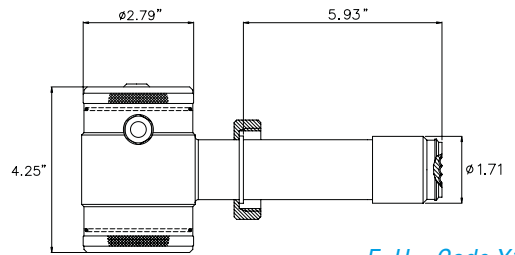
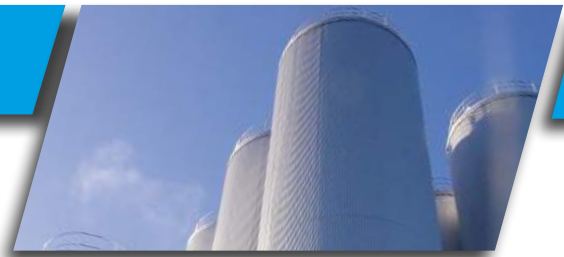


*Display with 3 pushbuttons  
(Standard)*

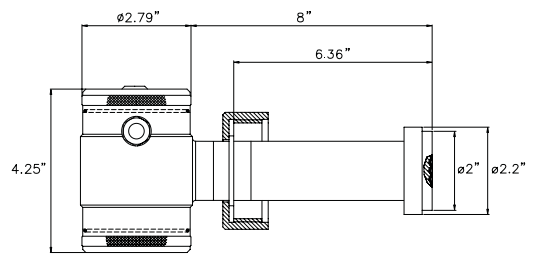
The series 2000 will as standard be delivered with 2 closed covers, so the 3 pushbuttons and the standard display are behind the cover.

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

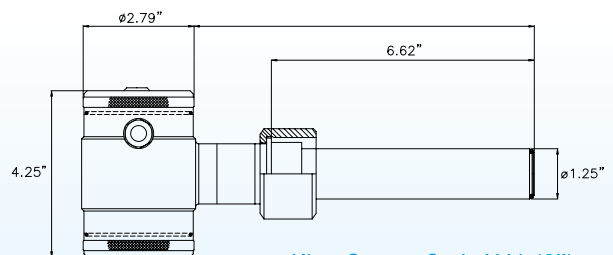
# Features and Benefits



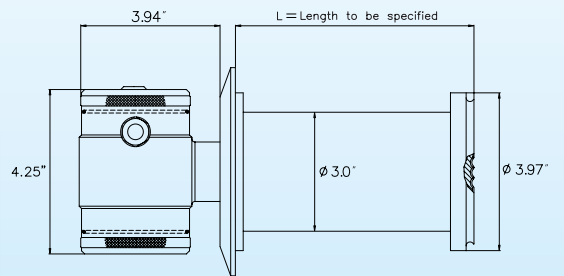
*E+H = Code X1 (6")*



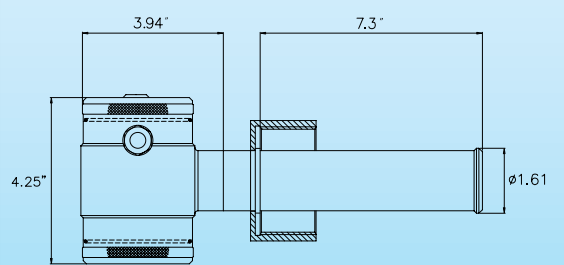
*Anderson Negele = Code X25 (6")*



*King Gage = Code X41 (6")*



*Rosemount = Code X132 (6")*









*Tank Mate = Code X144 (6")*

## Features and Benefits:

- ▶ **Easy calibration** with 3 pushbuttons and standard display  
No reference pressure required
- ▶ **Stainless Steel housing (polished)**
- ▶ **Rotatable display (360°)**
- ▶ **Strong Flush diaphragms**
- ▶ **Limited oil filling.** Less temperature sensitivity !
- ▶ **Perfect long term stability**
- ▶ **Large turn down:** One range for All silos !

# Ordering codes Series 2000-SAN

<b>SERIES 2000-SAN</b>		Orderingcode for compact transmitter: <b>2000-SAN -</b>						
		Orderingcode with remote electronics: <b>2000-SAN-Cable ( ....ft) -</b>						
<b>Adjustable span range:</b>	<b>Max. overpressure (PSI)</b>		↑	↑	↑	↑	↑	↑
0 - 16 to 0 - 160 inH <sub>2</sub> O (0.6 to 6 psi)	90 psi		<b>1</b>					
0 - 47 to 0 - 470 inH <sub>2</sub> O (1.7 to 17 psi)	150 psi		<b>2</b>					
0 - 390 to 0 - 3900 inH <sub>2</sub> O (14.5 to 145 psi)	435 psi		<b>3</b>					
0 - 160 to 0 - 1600 inH <sub>2</sub> O (6 to 58 psi)	232 psi		<b>0</b>					
<b>PROCESS CONNECTIONS:</b>								
– E+H Universal adapter Short version (code 00)			<b>X1</b>					
– E+H Universal adapter with Long 6" extension (code 57).			<b>X1(6")</b>					
– Anderson Negele Type SL Flush mount <b>Short</b>			<b>X25</b>					
– Anderson Negele Type SL Flush mount <b>Long</b>			<b>X25(6")</b>					
– King Gage Short			<b>X41</b>					
– King Gage Standard (6" extension)			<b>X41(6")</b>					
– King Gage Long (8" extension)			<b>X41(8")</b>					
– Rosemount sanitary spud 2"			<b>X132(2")</b>					
– Rosemount sanitary spud 6"			<b>X132(6")</b>					
– Tank Mate Medium (6" extension)			<b>X144(6")</b>					
– Tri-Clamp 1", 1 1/2", 2" or 3" (Specify size)			<b>L..</b>					
– Other process connections, specify X code (Ask for Klay X code list)			<b>X..</b>					
<b>OPTIONS:</b>								
– Transparent cover, display functions as a local indicator				<b>I</b>				
– Vacuum Ranges (Specify Relative or Absolute) Compound ranges available (example -15 / + 15 PSI)					<b>V</b>			
– High Temperature version with cooling fins (only Short types) Always specify Process Temperature					<b>HT</b>			
– HART Protocol						<b>H</b>		
– Electrical connection: 1/2"NPTf cable entry							<b>G1</b>	
– Electrical connection: M12 connector							<b>G107</b>	
– Hastelloy C flush diaphragm							<b>G7</b>	
– Other options available, ask for Klay G-code list								

<b>Transmitter Overview</b>			
<b>Type</b>	<b>8000</b>	<b>9000</b>	<b>4000</b>
<b>Process Connections</b>	<ul style="list-style-type: none"> <li>- Hygienic connections (More than 40!) Flush mounted diaphragms</li> <li>- Pulp &amp; paper process connections</li> <li>- Flanges DIN and ANSI sizes</li> <li>- Threaded connections: 1/2", 1", 1 1/2" and 2" NPT (Also available in BSP threads)</li> </ul>		
<b>Accuracy</b>	0.2%	0.2% or 0.1%	0.075%
<b>Turn down</b>	4 : 1	10 : 1	20 : 1
<b>Span / Ranges min .... max</b>	40 inH <sub>2</sub> O ..... 5000 psi	16 inH <sub>2</sub> O ..... 1160 psi	16 inH <sub>2</sub> O ..... 1450 psi
<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.

D/E/US/2000-SHELL/06-18/00