

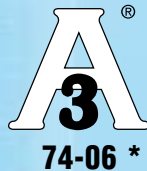


# PRESSURE AND LEVEL TRANSMITTERS

## For the Food, Beverage and Dairy Industries

### Series 8000-SAN "Conventional"

### Series 2000-SAN "Intelligent"



- ◀ "All Stainless Steel" ▶
- ◀ Hygienic design ▶
- ◀ 3A and EHEDG certified ▶
- ◀ Temperature compensated ▶
- ◀ Accuracy 0.2% ▶

#### Additional Features on Series 2000-SAN:

- ▶ Accuracy 0.1%
- ▶ Easy calibration without test pressure
- ▶ 3 push buttons + display
- ▶ 4-20 mA + HART® Protocol
- ▶ Tank linearisation



#### DESCRIPTION

Klay Instruments offers a complete line of "All Stainless Steel" process instrumentation for the Food, Dairy, Brewing and Beverage industries. The Pressure and Level transmitters from series 8000-SAN (Conventional) and series 2000-SAN ('Intelligent') are both available in more than 20 sanitary process connections and are CIP and SIP cleanable. For easy retrofit in existing tank spuds, many process connections from other brands are available. Both series get an **active temperature compensation** and have strong, highly polished flush diaphragms. Our Stainless Steel Levelswitches and Temperature Sensors (see page 4) are also available in many different sanitary process connections.

HART® is a registered trademark of the HART Communication Foundation

Manufactured by:

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# Specifications Series 8000-SAN

Accuracy	: 0.2% of adjusted span
Measuring ranges	: 0-1.45 psi to 0-1160 psi (0 - 0.1 to 80 bar)
Output signal	: 4-20 mA / 2-wire
Adjustment	: Zero and span internally
Power supply	: 12 - 36 Vdc (Ex: 13 - 26.5 Vdc)
Electrical connection	: ½" NPTf, M20x1.5 or PG9
Protection grade	: Nema 4X, IP66 (Option IP68)
Process temperature	: -4°F to + 212°F (-20°C to + 100°C) (293°F/45 min.)
Process connections	: More than 20 sanitary connections
Wetted parts	: AISI 316L (standard), other materials on request
Electronic housing	: AISI 304 (standard), AISI 316 on request

Specifications can change without notice



### Remote electronics

Both series 8000-SAN and 2000-SAN are available with remote electronics.

To order the codes are:

8000-SAN-cable(...m)-range-...

2000-SAN-cable(...m)-range-...

The required cable length must be specified in the order code.

All ranges mentioned in this brochure on page 2 and 3 are available.



Code W: sanitary weld spud



Code L

# Ordering Code Series 8000-SAN

Order code	8000-SAN-					
Order code with cable	8000-SAN-Cable (...m)-					
Adjustable range	Max. Overpressure					
<b>Min. Span ... Max. Span</b>		↑	↑	↑	↑	↑
0 - 1.45 to 0 - 5.8 psi (100 to 400 mbar)	93 psi (6.4 bar)	B				
0 - 5.8 to 0 - 10 psi (400 to 700 mbar)	93 psi (6.4 bar)	C				
0 - 10 to 0 - 22 psi (0.7 to 1.5 bar)	150 psi (10.5 bar)	D				
0 - 14.5 to 0 - 58 psi (1 to 4 bar)	232 psi (16 bar)	E				
0 - 36 to 0 - 145 psi (2.5 to 10 bar)	435 psi (30 bar)	F				
0 - 100 to 0 - 232 psi (7.5 to 16 bar)	870 psi (60 bar)	G				
0 - 232 to 0 - 725 psi (16 to 50 bar)	1740 psi (120 bar)	H				
0 - 580 to 0 - 1160 psi (40 to 80 bar)	2900 psi (200 bar)	I				
<b>PROCESS CONNECTIONS:</b>						
-Sanitary Weld spud, diameter 3.35" (85 mm) Other diameters on request						W
-Tri-clamp connection: 1", 1½", 2" or 3" (specify size)						L..
-Milkcoupling DIN 11851, DN25 (Ranges E till I) DN40 and DN 50 (all ranges)						M..
-Universal adapter E+H (code 00)						X1
-GEA Tuchenhagen Varivent 2" (65 mm)						X4
-DRD flange						X7
-SMS 1½" or 2" (specify size)						X9
<b>OPTIONS:</b>						
- Digital local Indicator 4½ digit, programmable						I
- Vacuum Ranges (Specify relative or absolute). Compound range available (example -1 / +1 bar)						V
- Intrinsic safe: ATEX  II 1 G Ex ia IIC T4 Ga						Ex
- Special versions: example: Hastelloy C Diaphragm (G7)						G



Code X1



Code X4



# Specifications Series 2000-SAN

*Easy to Program*



Display with 3 push buttons (Standard)



Code X1

- Accuracy : 0.1% of adjusted span
- Measuring ranges : 0-0.6 psi to 0-1450 psi (0 - 0.04 to 100 bar)
- Output signal : 4-20 mA / 2-wire  
HART® protocol (option)
- Adjustment : by 3 push buttons or H.H.T.
- Power supply : 12 - 36 Vdc (Ex: 13 - 26.5 Vdc)
- Electrical connection : ½" NPTf, M20x1.5 or PG9
- Protection grade : Nema 4X, IP66 (Option IP68)
- Process temperature : -4°F to + 212°F (293°F/45 min.)
- Wetted parts : AISI 316 L (standard)
- Electronic housing : AISI 304
- Process connections : See ordering code.  
Many others available

Specifications can change without notice

### Local Indicator

The series 2000 is delivered with 2 closed covers, so the 3 push buttons and the standard display are protected behind the cover.

A transparent cover is an option (I). Using a transparent cover allows you to use the display as a local indicator.

### 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 process temperature (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 settings

# Ordering Code Series 2000-SAN

Order code	2000-SAN-							
Order code with cable	2000-SAN-Cable (...m)-							
Adjustable range	Max. Overpressure		↑	↑	↑	↑	↑	↑
<b>Min. Span ... Max. Span</b>								
0 - 0.6 to 0 - 6 psi (0.04 to 0.4 bar)	93 psi (6.4 bar)	1						
0 - 1.7 to 0 - 17 psi (0.12 to 1.2 bar)	150 psi (10.5 bar)	2						
0 - 14.5 to 0 - 145 psi (1 to 10 bar)	435 psi (30 bar)	3						
0 - 72.5 to 0 - 435 psi (5 to 30 bar)	1450 psi (100 bar)	4						
0 - 290 to 0 - 1450 psi (20 to 100 bar)	2900 psi (200 bar)	5						
<b>PROCESS CONNECTIONS:</b>								
-Sanitary Weld spud, diameter 3.35" (85 mm) Other diameters on request			W					
-Tri-clamp connection: 1", 1½", 2" or 3" (specify size)			L..					
-Milkcoupling DIN 11851, DN25 (Ranges E till I) DN40 and DN 50 (all ranges)			M..					
-Universal adapter E+H (code 00)			X1					
-GEA Tuchenhagen Varivent 2" (65 mm)			X4					
-DRD flange			X7					
-SMS 1½" or 2" (specify size)			X9					
<b>OPTIONS:</b>								
- Transparent cover, display functions as a local indicator			I					
- Vacuum ranges (Specify relative or absolute) Compound ranges available (example -1 / +1 bar)			V					
- Intrinsic safe: ATEX  II 1 G Ex ia IIC T4 Ga and/or II 1 D EX ia IIIC T100°C Da IP6X			Ex					
- HART® Protocol				H				
- Special versions: example Hastelloy C diaphragm (G7)								G



Code L



Code M

# LEVEL SWITCH Series "VIBRA-SWITCH"

## Type VSC



### Description:

The "Vibra-Switch" is a vibrating point level switch available in a compact version with connector, type VSC or with a **complete Stainless Steel electronics housing**, type VSS. Both versions are based on the vibration principle. They are available in various sanitary process connections such as Tri-clamp (1½", 2" or 3"), threaded versions, etc. Insertion lengths vary from 47 mm till extended versions of 2 meter. Both types are CIP and SIP cleanable.

### Applications VSC / VSS:

- Liquid level detection (high / low) in storage, balance, mixing, CIP and receiving tanks
- Pump protection (dry run) on pipes

### Specifications:

Power supply: 12 – 40 Vdc  
Output: PNP  
Process temp.: -4°F to + 212°F (-20°C to + 100°C)  
Max. pressure: 40 bar  
Max. viscosity: 10.000 mm<sup>2</sup>/s (cSt)  
Material probe: SS 316L (Ra<1.5µm)  
Protection: Nema 4X, IP66  
Process connection: Tri-Clamp 1½", 2" or 3", 1" NPT or BSP, Milkcoupling. Others on request.

## Type VSS



# RTD TEMPERATURE SENSORS



### Description:

For temperature measurement in pipes and vessels we offer a wide range of RTD temperature sensors (PT-100) with different sanitary process connections according to 3-A and EHEDG.

All sanitary process connections are available, such as: Tri Clamp (1", 1½", 2" and 3"), Varivent, threaded, etc.

### Fast response design and vibration resistance are standard.

The connection head is made from Stainless Steel (Nema 4X, IP66). We offer single or dual elements and as an option, we supply head mounted transmitters with an output 4-20 mA or HART<sup>®</sup> protocol.



### Head mounted transmitter

- Input RTD (PT-100) 3-wire
- Output: 4-20 mA / 2-wire (Option: HART<sup>®</sup>)
- Power supply: 8 – 35 Vdc
- Accuracy: 0.1%
- Adjustable range



**A**<sup>®</sup>  
**3**  
74-03