



PRESSURE AND LEVEL TRANSMITTERS

For the Food, Beverage and Dairy Industries

Series 8000-SAN "Conventional"



- ◀ "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

Series 2000-SAN "Intelligent"



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:

 **KLAY-INSTRUMENTS B.V.**

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Our representative in your area is:

Specifications Series 8000-SAN

| | |
|-----------------------|--|
| Accuracy | : 0.2% of adjusted span |
| Measuring ranges | : 0 - 40 inH ₂ O to 0-1160 psi |
| 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, M12 or M20 |
| Protection grade | : Nema 4X, IP66 (Option NEMA 6P) |
| Process temperature | : -4°F to + 212°F (-20°C to + 100°C) (293°F/45 min.) |
| Process connections | : More than 40 sanitary connections |
| Wetted parts | : AISI 316L (standard), other materials on request |
| Electronics 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(...ft)-range-...
 2000-SAN-cable(...ft)-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 (...ft)- | | | | | |
| Adjustable range | Max. Overpressure | ↑ | ↑ | ↑ | ↑ | ↑ |
| Min. Span ... Max. Span | | | | | | |
| 0 - 40 to 0 -158 inH ₂ O (1.45 to 5.8 psi) | 93 psi | B | | | | |
| 0 - 158 to 0 - 275 inH ₂ O (5.8 to 10 psi) | 93 psi | C | | | | |
| 0 - 275 to 0 - 590 inH ₂ O (10 to 22 psi) | 150 psi | D | | | | |
| 0 - 400 to 0 - 1600 inH ₂ O (14.5 to 58 psi) | 232 psi | E | | | | |
| 0 - 36 to 0 - 145 psi | 435 psi | F | | | | |
| 0 - 100 to 0 - 232 psi | 870 psi | G | | | | |
| 0 - 232 to 0 - 725 psi | 1740 psi | H | | | | |
| 0 - 580 to 0 - 1160 psi | 2900 psi | I | | | | |
| PROCESS CONNECTIONS: | | | | | | |
| - Sanitary Weld spud, diameter 3.35" (85 mm) Other diameters on request | | W | | | | |
| - Tri-clamp connection: 1", 1½", 2" or 3" (specify size) | | L... | | | | |
| - Universal adapter E+H (code 00) | | X1 | | | | |
| - GEA Tuchenhagen Varivent 2" (65 mm) | | X4 | | | | |
| - Anderson Negele Type SL Flush mount Short | | X25 | | | | |
| - Cherry - Burell I-Line 2" (other dimensions on request) | | X147 | | | | |
| - Other process connections, specify X code (Ask for Klay X code list) | | X... | | | | |
| OPTIONS: | | | | | | |
| - Digital local Indicator 4½ digit, programmable | | I | | | | |
| - Vacuum Ranges (Specify relative or absolute). Compound range available (example -14.5 / +14.5 psi) | | V | | | | |
| - Intrinsic safe: ATEX and IECEx II 1 G Ex ia IIC T4 Ga | | Ex | | | | |
| - Special versions: example: Hastelloy C Diaphragm (G7) M12 connector (G107), ask for Klay list. | | G | | | | |



Code X1



Code X4

Specifications Series 2000-SAN

Easy to Program

- Accuracy : 0.1% of adjusted span
- Measuring ranges : 0 - 16 inH₂O to 0 - 1450 psi
- 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, M12 or M20
- Protection grade : Nema 4X, IP66 (Option NEMA 6P)
- Process temperature : -4°F to + 212°F (293°F/45 min.)
- Wetted parts : AISI 316 L (standard)
- Electronics housing : AISI 304
- Process connections : See ordering code.
Many others available more than 40!

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 1 = FAHR °F *
0 = 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 settings



Display with 3 push buttons (Standard)



Code X1

Ordering Code Series 2000-SAN

| Order code | | 2000-SAN- | | | | | | | |
|--|---|-------------------------|--|---|---------|---|---|---|---|
| Order code with cable | | 2000-SAN-Cable (...ft)- | | | | | | | |
| Adjustable range | | Max. Overpressure | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ |
| Min. Span ... | Max. Span | | | | | | | | |
| 0 - 16 | to 0 - 160 inH ₂ O (0.6 to 6 psi) | 93 psi | | 1 | | | | | |
| 0 - 47 | to 0 - 470 inH ₂ O (1.7 to 17 psi) | 150 psi | | 2 | | | | | |
| 0 - 14.5 | to 0 - 145 psi | 435 psi | | 3 | | | | | |
| 0 - 72.5 | to 0 - 435 psi | 1450 psi | | 4 | | | | | |
| 0 - 290 | to 0 - 1450 psi | 2900 psi | | 5 | | | | | |
| PROCESS CONNECTIONS: | | | | | | | | | |
| - Sanitary Weld spud, diameter 3.35" (85 mm) Other diameters on request | | | | | W | | | | |
| - Tri-clamp connection: 1", 1½", 2" or 3" (specify size) | | | | | L... | | | | |
| - E+H Universel adapter Short. (code 00) | | | | | X1 | | | | |
| - E+H Universal adapter Long (6"extension) | | | | | X1(6") | | | | |
| - GEA Tuchenhausen Varivent 2" (65 mm) | | | | | X4 | | | | |
| - Anderson Negele Type SL Flush mount Short | | | | | X25 | | | | |
| - Anderson Negele Type SL Flush mount Long (6"extension) | | | | | X25(6") | | | | |
| - King Gage Short (X41), King Gage Standard X41(6"), King Gage Long X41(8") | | | | | X41... | | | | |
| - Rosemount Sanitary spud Short 2" Code X132(2") Long 6" Code X132(6") | | | | | X132.. | | | | |
| OPTIONS: | | | | | | | | | |
| - Transparent cover, display functions as a local indicator | | | | | I | | | | |
| - Vacuum ranges (Specify relative or absolute) Compound ranges available (example -14.5 / +14.5 psi) | | | | | V | | | | |
| - Intrinsic safe: ATEX and IECEx II 1 G Ex ia IIC T4 Ga | | | | | Ex | | | | |
| - HART® Protocol | | | | | | | H | | |
| - Special versions: example Hastelloy C diaphragm (G7) M12 connector (G107), ask for Klay G-code list. | | | | | | | | | 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 mm²/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.

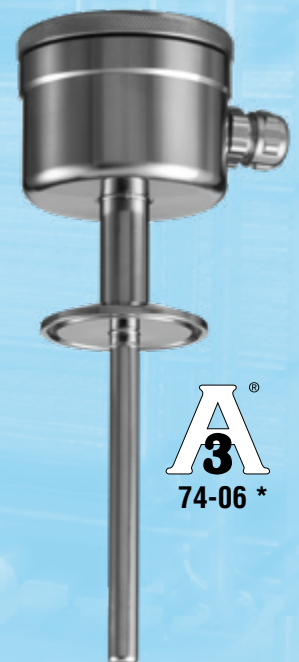
Fast response design and vibration resistance are standard.

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[®] protocol.



Head mounted transmitter

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



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