



KLAY 'INTELLIGENT' PRESSURE- AND LEVEL TRANSMITTERS For all industries

SERIES 2000

- MICROPROCESSOR BASED
- **EASY CALIBRATION WITHOUT TEST PRESSURE BY 3 PUSH BUTTONS**
- ACCURACY 0,1%
- 4-20 mA AND HART® PROTOCOL
- 'ALL STAINLESS' DESIGN
- WIDE RANGEABILITY
- LOCAL DISPLAY
- ADJUSTABLE DAMPING
- MORE THAN 40 DIFFERENT PROCESS CONNECTIONS
- PROFIBUS-PA



'All stainless' electronic housing

Description:

The Series 2000 is a complete range of microprocessor based pressure and level transmitters with local display and adjustment by three pushbuttons. The buttons are used to set Zero and Span. Test pressures are not required for calibration. The display which can indicate a number of chosen engineering units is also used during programming to assist the operation. Process temperatures can be shown and damping times adjusted from 0 to 25 secs. A 4-20 mA Current Simulation can be performed.

The Series 2000 is fully temperature compensated. Over 40 different process connections are available including many flush diaphragm designs. Options include CENELEC approval for intrinsically safe applications, HART® protocol or PROFIBUS-PA output.

HART® is a registered trademark of HART Communication Foundation

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SERIES 2000

Description

The series 2000 pressure transmitter has been specially designed for measuring pressure in pulp- and paper mills and similar industries where plugging is a problem. The transmitters are fully temperature compensated, and have very strong, flush mounted diaphragms. Zero and span can be *adjusted without test-pressure* by 3 pushbuttons or by a hand-held-terminal (HART®, option).

Specifications

Accuracy	: 0,1% of adjusted span
Measuring ranges	: 0 - 0,1 bar to 0 - 60 bar
Output signal	: 4 - 20 mA / 2-wire HART® protocol (option) PROFIBUS-PA (option)
Adjustment	: by 3 pushbuttons or H.H.T.
Power supply	: 12 - 40 Vdc
External load	: 600 Ohm / 24V to 1400 Ohm / 40V
Protection grade	: IP66
Process temperature	: -20 °C to +80 °C
Temperature effect	: ±0,015% / K
Wetted parts	: AISI 316 (standard)
Electronic housing	: AISI 304
Process connections	: See below. Also available: PMC, Valmet, Valcom connections. Code: X



PROCESS CONNECTIONS



Code W

Weld-on nipple diam. 33 mm.



Code WTB or WTN

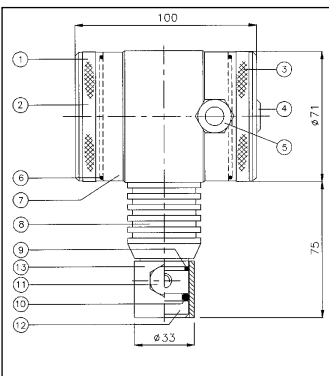
Threaded nipple 1" BSP or NPT



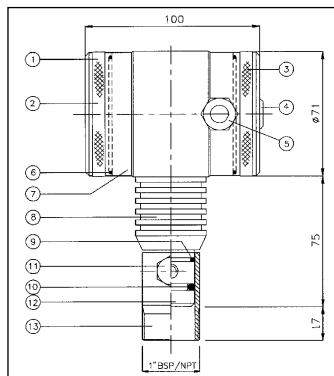
Code S or N

1" BSP or 1" NPT

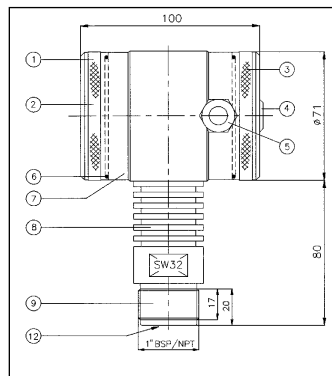
DIMENSIONS (MM)



Code W



Code WTB/WTN



Code S or N

Parts description:

- 1 Cover
- 2 Push buttons / display (behind cover)
- 3 Cover with venting
- 4 Venting
- 5 PG9 cable gland
- 6 O-ring
- 7 Electronic housing
- 8 Foot with cooling fins
- 9 O-ring (code S = 1" BSP)
- 10 O-ring
- 11 M8 Bolt
- 12 Diaphragm and ring
- 13 Weld-on nipple \varnothing 33 mm (WTB = 1" BSP)

See page 6 for ordering code and ranges.

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PERAMIC 'S'

SERIES CER-2000

Description

The Peramic 'S', series CER-2000, is a 'all stainless' pressure transmitter based on a *ceramic measuring cell*. The CER-2000 series is fully temperature compensated and is made for all pressure applications in liquids, gases and vapours. The ceramic measuring cell *can withstand high overpressures*, and is sealed by an o-ring (viton as standard, other materials on request). Zero and span can be *adjusted without testpressure* over wide ranges, by 3 pushbuttons or by a hand-held terminal (HART®, option).



Specifications

Accuracy	: 0,1% of adjusted span
Measuring ranges	: 0 - 0,2 bar to 0 - 320 bar
Output signal	: 4 - 20 mA / 2-wire HART® protocol (option) PROFIBUS-PA (option)
Adjustment	: by 3 pushbuttons or H.H.T.
Power supply	: 12 - 40 Vdc
External load	: 600 Ohm / 24V to 1400 Ohm / 40V
Protection grade	: IP66
Process temperature	: -20°C to 100°C
Temperature effect	: ±0,015% / K
Measuring sensor	: ceramic (Al ₂ O ₃ / 96%)
Sensor sealing	: viton o-ring (standard) other materials on request
Other wetted parts	: AISI 316 (standard)
Material housing	: AISI 304

PROCESS CONNECTIONS



Code R
1/2" BSP (DIN 16288)

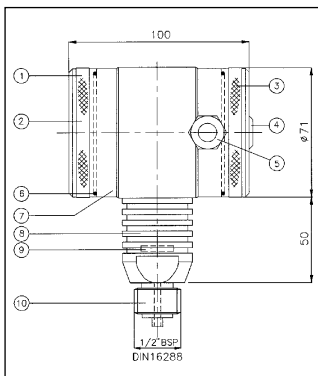


Code S
1/2" BSP M / 1/4" BSP F

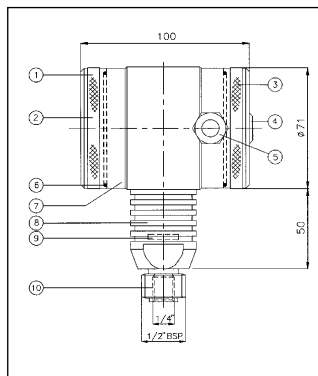


Code N
1/2" NPT M / 1/4" NPT F

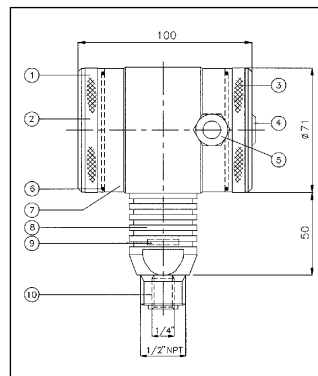
DIMENSIONS (MM)



Code R



Code S



Code N

Parts description:

- 1 Cover
- 2 Push buttons + display (behind cover)
- 3 Cover with venting
- 4 Venting
- 5 PG9 cable gland
- 6 O-ring
- 7 Electronic housing
- 8 Foot with cooling fins
- 9 Ceramic sensor
- 10 Process connection

See page 6 for ordering code and ranges.

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SERIES 2000-SAN

Description

The 2000-SAN series are designed for all pressure and level measurements in the food and beverage, chemical and pharmaceutical industries. **All hygienic process connections are available, a lot of them are according to the EHEDG and 3-A approvals.** The transmitters are fully temperature compensated, and have very strong, flush mounted diaphragms. Zero and span can be *adjusted without testpressure*, over wide ranges, by 3 pushbuttons, or a hand-held-terminal (HART®, option).



Specifications

Accuracy	: 0,1% of adjusted span
Measuring ranges	: 0 - 0,04 bar to 0 - 60 bar
Output signal	: 4 - 20 mA / 2-wire HART® protocol (option) PROFIBUS-PA (option)
Adjustment	: by 3 pushbuttons or H.H.T.
Power supply	: 12 - 40 Vdc
External load	: 600 Ohm / 24V to 1400 Ohm / 40V
Protection grade	: IP66
Process temperature	: -20 °C to +100 °C (135° / 30 min)
Temperature effect	: ±0,015% / K
Wetted parts	: AISI 316 (standard)
Electronic housing	: AISI 304
Process connections	: See below (all standard process connections available)

PROCESS CONNECTIONS



***More than 30 different process connections available (Tri-clamp, SMS, IDF, 1 1/2" BSP, Varivent, etc)**



Code M
Milkcoupling (DN 25, 40 or 50)

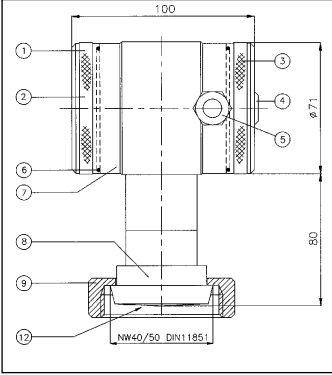


Code F
Flange (DIN or ANSI)

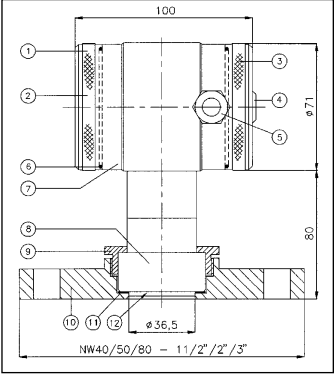


Code W
Weld-on nipple diam. 85 mm.

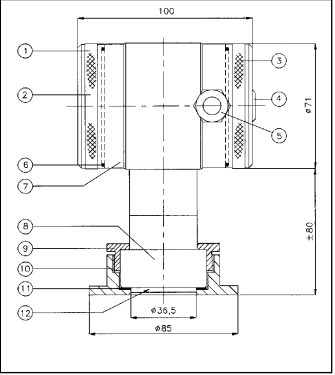
DIMENSIONS (MM)



Code M



Code F



Code W

- Parts description:**
- 1 Cover
 - 2 Push buttons / display (behind cover)
 - 3 Cover with venting
 - 4 Venting
 - 5 PG9 cable gland
 - 6 O-ring
 - 7 Electronic housing
 - 8 Foot
 - 9 Lockring
 - 10 Weld-on nipple (W) or Flange (F)
 - 11 Packing
 - 12 Diaphragm

See page 6 for ordering code and ranges.

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Calibration:

The standard Series 2000 Transmitter is equipped with 3 pushbuttons and a display. Both the measured and the calibrated value can be read locally. A full calibration can be completed using the three pushbuttons or with the optional handheld terminal (HART®), or with special software from Klay Instruments.



Standard adjustable points are:

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

Zero and span can be calibrated very easy, WITHOUT A TESTPRESSURE, also in vacuumranges. Special linearisation can be made for horizontal tanks (P111). For all other adjustable points see table left.

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

A cover with transparant plastic can be delivered as an option. In that case you can use the display as a local indicator.

Easy Programmable



Local display with 3 pushbuttons (standard)

Temperature compensation:

All pressure- and leveltransmitters from Klay Instruments are fully temperature compensated. A temperature sensor, which monitors the process temperature, is mounted directly behind the diaphragm. The output of this sensor is used to compensate the transmitter for temperature variations.

RFI/EMC/CE

Klay Instruments manufactures all pressure- and leveltransmitters according to the new RFI/EMC and CE rules. All transmitters are equipped with RFI filters as standard.



Intrinsic safe certificate

The 2000 series will be available with the Intrinsic safe certificate acc. to CENELEC, EEx ia IIc T4



Profibus PA

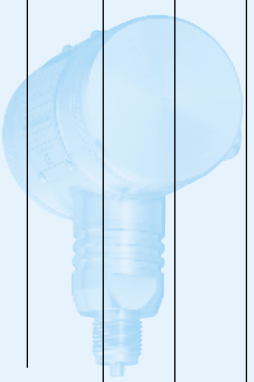
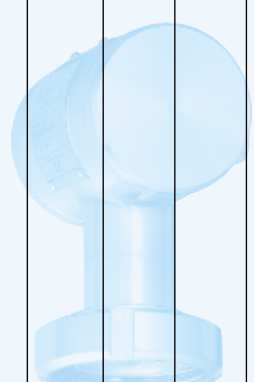
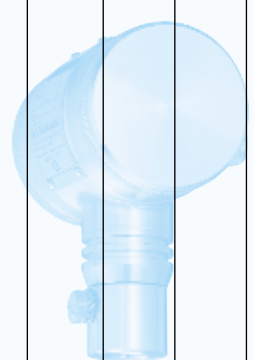
The complete 2000 series are available with PROFIBUS-PA output (option).



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ORDERING CODES 2000 SERIES

SERIES 2000 (info on page 2)				SERIES 2000 -									
Ranges (bar)		Max. overpressure (bar)		Adjustable span range:				▲	▲	▲	▲	▲	▲
0 - 0,1	...0,4	6,4		0 - 0,1 to 0 - 0,4 bar				1					
0 - 0,3	...1,2	10,5		0 - 0,3 to 0 - 1,2 bar				2					
0 - 1	...10	30		0 - 1 to 0 - 10 bar				3					
0 - 5	...30	100		0 - 5 to 0 - 30 bar				4					
0 - 20	...60	120		0 - 20 to 0 - 60 bar				5					
PROCESS CONNECTIONS:													
<ul style="list-style-type: none"> - Weld-on nipple diam. 33 mm. with viton o-ring and M8 lock screw (flush diaphragm) - Threaded nipple 1" BSP (WTB) or 1" NPT (WTN), instead of weld-on nipple diam. 33 mm (specify) - 1" BSP connection (flush diaphragm) - 1" NPT connection (flush diaphragm) - Other process connections: i.e. PMC, Valmet, Valcom, Vega, Rosemount, etc. (specify) 								W					
								WTB					
								S					
								N					
								X					
OPTIONS:													
- Cover with transparant plastic, display functions as local indicator								I					
- Vacuum Ranges (Specify Relative or absolute) Compound ranges available (example -1 / +1 bar)									V				
- Intrinsically safe: CENELEC EEx ia IIc T4											Ex		
- HART® Protocol													H
- PROFIBUS-PA output													P
SERIES 2000-SAN (info on page 3)				SERIES 2000 SAN -									
Ranges (bar)		Max. overpressure (bar)		Adjustable span range:				▲	▲	▲	▲	▲	▲
0 - 0,04	...0,4	6,4		0 - 0,04 to 0 - 0,4 bar				1					
0 - 0,12	...1,2	10,5		0 - 0,12 to 0 - 1,2 bar				2					
0 - 1	...10	30		0 - 1 to 0 - 10 bar				3					
0 - 5	...30	100		0 - 5 to 0 - 30 bar				4					
0 - 20	...60	120		0 - 20 to 0 - 60 bar				5					
PROCESS CONNECTIONS:													
<ul style="list-style-type: none"> - Milk coupling DIN 11851, DN 25 (only ranges 3 and 4), DN 40, DN 50 (all ranges) - Hygienic weld-on nipple diam 62 mm or 85 mm (specify) - Tri-clamp 1", 1 1/2" or 2" (specify size) - Flange: DN 40, 50 or 80 (DIN) of 1", 2", 3" (ANSI) (specify size) - Other process connections: 1 1/2" BSP, DRD, SMS, IDF, etc (please specify) 								M..					
								W..					
								L..					
								F					
								X					
OPTIONS:													
- Cover with transparant plastic, display functions as local indicator								I					
- Vacuum Ranges (Specify Relative or absolute) Compound ranges available (example -1 / +1 bar)									V				
- Intrinsically safe: CENELEC EEx ia IIc T4											Ex		
- HART® Protocol													H
- PROFIBUS-PA output													P
SERIES CER-2000 (info on page 4)				SERIES CER-2000 -									
Ranges (bar)		Max. overpressure (bar)		Adjustable span range:				▲	▲	▲	▲	▲	▲
0 - 0,02	...0,8	5		0 - 0,2 to 0 - 0,8 bar				1					
0 - 0,8	...2	10		0 - 0,8 to 0 - 2 bar				2					
0 - 2	...10	50		0 - 2 to 0 - 10 bar				3					
0 - 10	...40	120		0 - 10 to 0 - 40 bar				4					
0 - 40	...200	350		0 - 40 to 0 - 200 bar				5					
0 - 150	...320	600		0 - 150 to 0 - 320 bar				6					
PROCESS CONNECTIONS:													
<ul style="list-style-type: none"> - G 1/2" (1/2" BSP) manometer (gauge) connection DIN 16288 - G 1/2" (male) and G 1/4" (female) - 1/2" NPT (male) and 1/4" NPT (female) 								R					
								S					
								N					
OPTIONS:													
- Cover with transparant plastic, display functions as local indicator								I					
- Vacuum Ranges (Specify Relative or absolute) Compound ranges available (example -1 / +1 bar)									V				
- Intrinsically safe: CENELEC EEx ia IIc T4											Ex		
- HART® Protocol													H
- PROFIBUS-PA output													P



We reserve the right for technical modifications without prior notice.