KROHNE

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“Intelligent” Pressure- and Level Transmitters Series 2000

“Intelligent” Pressure- and Level Transmitters 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
- EHEDG and 3A
- Wide rangeability
- Local display
- Adjustable damping
- More than 40 different process connections
- PROFIBUS-PA

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 form 0 ... 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

All stainless electronic housing

The responsibility as to the suitability, intended use and corrosion-resistance of the materials used in their construction rests solely with the purchaser.

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 a hand held terminal (HART®, option).

Specifications

Accuracy	: 0.1 %
Measuring ranges	: 0 - 0.1 ... 0 - 30 bar
Output signal	: 4 ... 20 mA /2-wire HART® protocol (option)
Adjustment	: by 3 pushbuttons or HHT
Power supply	: 12 ... 40 V DC
External load	: 600 Ohms / 24 V ... 1400 Ohm / 40V
Protection category	: IP 67
Process temperature	: -20° ... +80°C
Temperature effect	: ± 0.015%/K
Wetted parts	: AISI 316 (standard)
Electronic housing	: AISI 304
Process connections	: See below

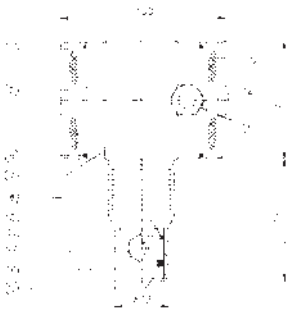
Process connections

Code W
Weld-on nipple diam. 33 mm.

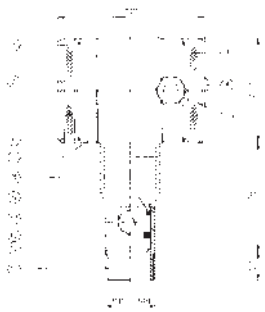
Code WTB or WTN
Threaded nipple 1" BSP or NPT

Code S or N
1" BSP or 1" NPT

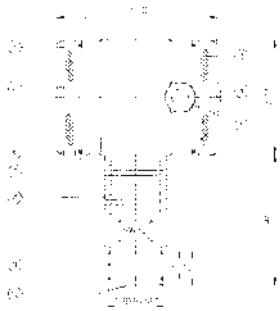
Dimensions (mm)



Code W



Code WTB/WTN



Code S or N

Parts Description:

1 Cover
2 Pushbuttons /display (behind cover)
3 Cover with venting
4 Venting
5 PG9 cable gland
6 O-ring
7 Electronics 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 ø33 mm (WTB = 1" BSP)

Series 2000 - Sanitary

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, according to the EHEDG and 3A 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 %
Measuring ranges	: 0 - 0.4 ... 0 - 30 bar
Output signal	: 4 ... 20 mA /2-wire HART® protocol (option)
Adjustment	: by 3 pushbuttons or HHT
Power supply	: 12 ... 40 V DC
External load	: 600 Ohm / 24 V ... 1400 Ohm / 40V
Protection category	: IP 67
Process temperature	: -20°C ... +100°C (135°C/30 min)
Temperature effect	: ± 0.015%/K
Wetted parts	: AISI 316 (standard)
Electronic housing	: AISI 304
Process connections	: See below

Process connections

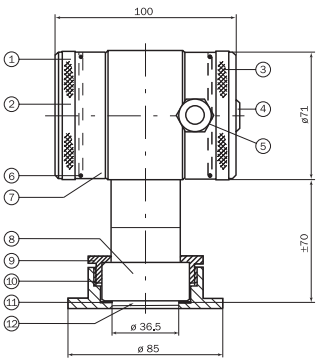
More than 30 different process connections available (Tri-clamp, SMS, IDF, 1 ½" BSP, etc...)

Code W
Weld on nipple diam. 85 mm.

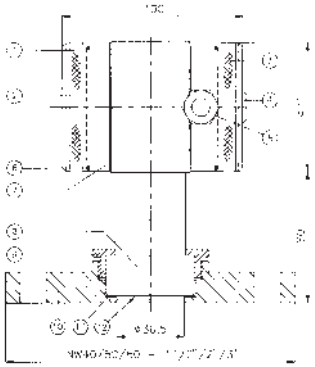
Code F
Flange (DIN or ANSI)

Code M
Milk coupling (NW 25, 40 or 50)

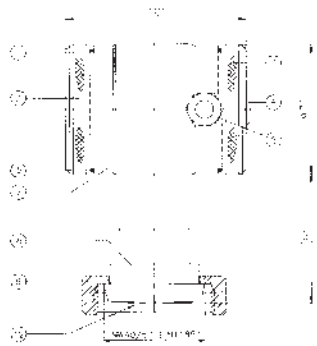
Dimensions (mm)



Code W



Code F



Code M

Parts description:

1 Cover
2 Pushbuttons + display (behind cover)
3 Cover with venting
4 Venting
5 PG9 cable gland
6 O-ring
7 Electronics housing
8 Foot
9 Locking
10 Process connection
11 Packing
12 Diaphragm

Series 2000 - Ceramic

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 push-buttons or by a hand held terminal (HART® option).

Specifications

Accuracy	: 0.1 %
Measuring ranges	: 0 - 0.2 ... 0 - 350 bar
Output signal	: 4 ... 20 mA /2-wire HART® protocol (option)
Adjustment	: by 3 pushbuttons or H.H.T.
Power supply	: 12 ... 40 V DC
External load	: 600 Ohm / 24 V ... 1400 Ohm / 40V
Protection category	: IP 67
Process temperature	: -20°C ... +100°C
Temperature effect	: ± 0.015%/K
Measuring sensor	: ceramic (Al_2O_3/96%)
Sensor sealing	: viton o-ring (standard) other materials on request
Other wetted parts	: AISI 316 (standard)
Material housing	: AISI 304

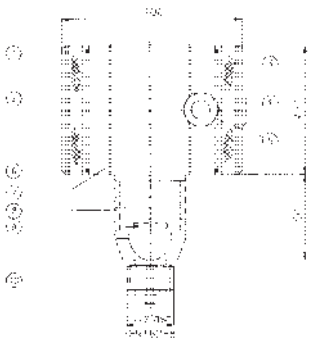
Process connections

Code R
1/2" BSP (DIN 16288)

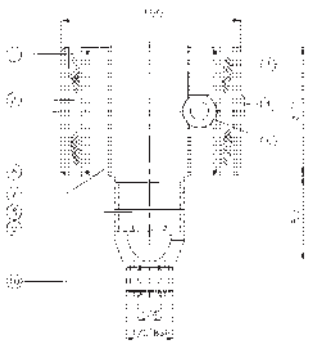
Code S
1/2" BSP M / 1/4" BSP F

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

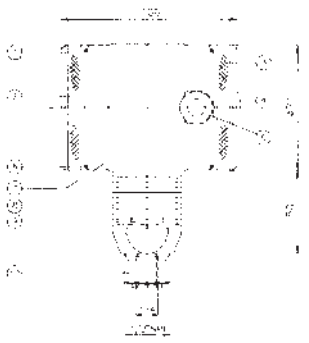
Dimensions (mm)



Code R



Code S



Code N

Parts description:

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

See page 7 for ordering code and ranges.

General information series 2000

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 hand held terminal (HART®).

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 ... 25 sec)

P107 Indication of process temperature (read out on display)

P108 0 = DEGR °C (*)
1 = DEGR °F

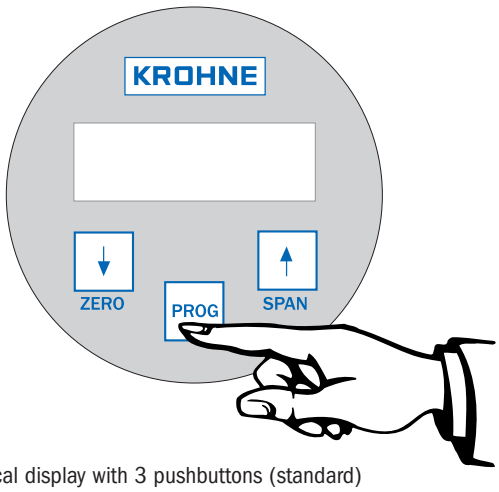
P109 Read out on display:
0 = current (4 ... 20 mA) or pressure simulation
1 = pressure unit
2 = percent %

P110 Current simulation (4 ... 20 mA)

P111 Linearisation
1 = horizontal tank
2 = tank with bottom core
3 = tank with spherical bottom

* Zero and span can be calibrated very easy. Without a test pressure, also in vacuum ranges. Special linearisation can be made for horizontal tanks (P111). For all other adjustable points see table left.

* The series 2000 is delivered as standard with 2 blind covers, so the 3 pushbuttons and the display are shielded 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.



Local display with 3 pushbuttons (standard)

Temperature compensation:
All pressure and level transmitters 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
All pressure and level transmitters are manufactured according to the new RFI/EMC and CE rules. All transmitters are equiped with RFI filters as standards.

Intrinsically safe certificate
The 2000 series is available with the intrinsic safe certificate acc. to ATEX II 1G (EEx ia IIC T4) (option).

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

Ordering Code Series 2000

SERIES 2000 (info on page 3)		SERIES 2000 –					
Flanges (bar)	Max. overpressure (bar)	Adjustable span range:					
0 - 0.1 ... 0.4	6.4	0 – 0.01 ... 0 – 0.4 bar	1				
0 - 0.3 ... 1.2	10.5	0 – 0.3 ... 0 – 1.2 bar	2				
0 - 1 ... 10	30	0 – 1 ... 0 – 10 bar	3				
0 - 5 ... 30	100	0 – 5 ... 0 – 30 bar	4				
PROCESS CONNECTIONS:							
– Weld-on ripple diam. 33 mm, with viton o-ring and M8 lock screw (flush diaphragm)				W			
– Threaded ripple 1" BSP (WTB) or 1" NPT (WTN), instead of weld-on ripple diam. 33 mm (specify)				WTB			
– 1" BSP connection (flush diaphragm)				WTN			
– 1" NPT connection (flush diaphragm)				S			
– Other process connections: i.e. PMC, Valmet, Valcom, etc. (specify)				N			
OPTIONS:							
– Cover with transparent plastic, display functions as local indicator					I		
– Intrinsically safe: ATEX II 1G EEx ia IIC T4					Ex		
– HART® Protocol						H	
– PROFIBUS-PA output							P

SERIES 2000-SAN (info on page 4)		SERIES 2000 SAN -					
Flanges (bar)	Max. overpressure (bar)	Adjustable span range:					
0 - 0.04 ... 0.4	6.4	0 – 0.04 ... 0 – 0.4 bar	1				
0 - 0.12 ... 0.2	10.5	0 – 0.12 ... 0 – 1.2 bar	2				
0 - 1 ... 10	30	0 – 1 ... 0 – 10 bar	3				
0 - 5 ... 30	100	0 – 5 ... 0 – 30 bar	4				
PROCESS CONNECTIONS:							
– Milk coupling DIN 11851, DN 25 (only ranges 3 and 4), DN 40, DN 50 (all ranges)				M..			
– Hygienic weld-on ripple diam. 62 mm or 85 mm (specify)				W..			
– Tri-clamp 1", $1^1/_2$" or 2" (specify size)				L..			
– Flange: DN 40, 50 or 80 (DIN) of 1", 2" or 3" (ANSI) (specify size)				F			
– Other process connections: $1^1/_2$" BSP, DRD, SMS, IDF, etc... (please specify)				X			
OPTIONS:							
– Cover with transparent plastic, display functions as local indicator					I		
– Intrinsically safe: ATEX II 1G EEx ia IIC T4					Ex		
– HART® Protocol						H	
– PROFIBUS-PA output							P

SERIES CER-2000 (info on page 5)		SERIES CER-2000 -					
Flanges (bar)	Max. overpressure (bar)	Adjustable span range:					
0 - 0.2 ... 0.8	5	0 – 0,2 ... 0 – 0.8 bar	1				
0 - 0.8 ... 2	10	0 – 0,8 ... 0 – 2 bar	2				
0 - 2 ... 10	50	0 – 2 ... 0 – 10 bar	3				
0 - 10 ... 40	120	0 – 10 ... 0 – 40 bar	4				
0 - 40 ... 200	350	0 – 40 ... 0 – 200 bar	5				
PROCESS CONNECTIONS:							
– G $1^1/_2$" ($1^1/_2$" BSP) manometer (gauge) connection DIN 16288				R			
– G $1^1/_2$" (male) and G $1^1/_4$" (female)				S			
– $1^1/_2$" NPT (male) and $1^1/_4$" NPT (female)				N			
OPTIONS:							
– Cover with transparent plastic, display functions as local indicator					I		
– Intrinsically safe: ATEX II 1G EEx ia IIC T4					Ex		
– HART® Protocol						H	
– PROFIBUS-PA output							P

We reserve the right for technical modifications without prior notice.