A Higher Level of Performance

Data Sheet

Series 2000

Pressure and Level Transmitters

For more information, please visit >
www.hawkmeasure.com

Description

"Intelligent" pressure and level transmitters for all industries (Series 2000)

The Series 2000 is a complete range of 'intelligent' pressure and level transmitters with local display and adjustment by three push buttons. The push 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 easy operation. Process temperatures can be shown and damping times can be adjusted from 0 to 25 secs. Also 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 ATEX Ex approval, HART® protocol or PROFIBUS-PA output.

HART® is a registered trademark of the HART Communication Foundation

Features

- "All Stainless" design
- Easy calibration without test pressure by 3 push buttons
- Accuracy 0.1%
- 4-20 mA and HART® protocol
- ATEX Ex II 1 G and II 1 D
- Wide rangeability
- Local display
- Adjustable damping
- More than 40 different process connections
- Profibus-PA

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

Specifications

Accuracy : 0,1% of adjusted span
Measuring ranges : 0 - 0,1 bar to 0 - 100 bar
Output signal : 4 - 20 mA / 2-wire
HART® protocol (option)
PROFIBUS-PA (option)
Adjustment : by 3 push buttons or H.H.T.
Power supply : 12 - 36 Vdc (Exi: 13 - 26,5 Vdc)
Protection grade : IP66 (Option: IP68)
Process temperature : -20°C to +80°C (Option: 100°C)
Ambient temperature : -20°C to +70°C*
Temperature effect : ±0,010% / K
Wetted parts : AISI 316 (standard)
Electronic housing : AISI 304
Process connections : See below. Also available
PMC, Vega, E+H, etc...
Specify code X..

Process connections

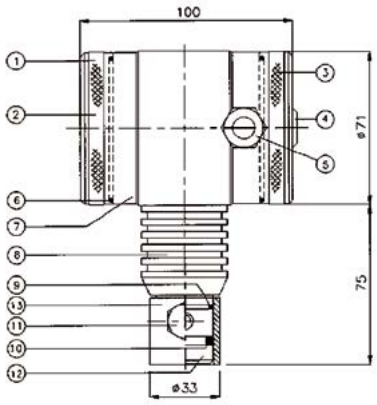
Code: W
Weld-on nipple ø 33 mm

Code: X12
PASVE
connection

Code: S
1" BSP (G1")

Dimensions (mm)

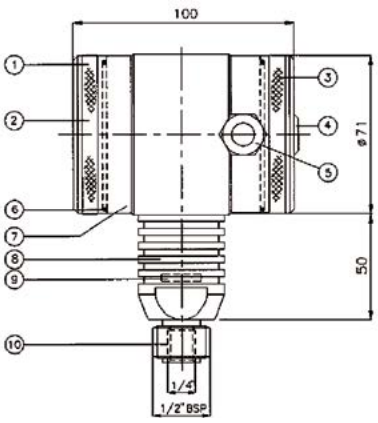
Code W



Parts description

1. Cover
2. Push buttons + display (behind cover)
3. Cover with Venting
4. Venting
5. Cable entry
6. O-ring
7. Electronics housing
8. Foot with cooling fins
9. O-ring (code W), code S = G1" thread
10. O-ring
11. M8 Bolt
12. Diaphragm
13. Weld-on nipple ø 33 mm

Code S



Description

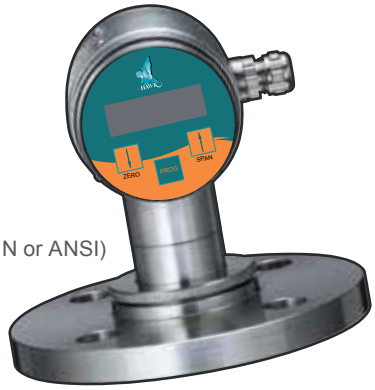
The 2000-SAN series are designed for all pressure and level measurements in the food and beverage, chemical and pharmaceutical industries. All hygienic process connections are available, most of them are according to the EHEDG, 3-A and FDA regulations. The transmitters are fully temperature compensated,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

Specifications

Accuracy:	0,1% of adjusted span	Process temperature:	-20°C to +100°C (145° / 45 min)
Measuring ranges:	0 - 0,04 bar to 0 - 100 bar	Ambient temperature:	-20°C to +70°C*
Output signal:	4 - 20 mA / 2-wire	Temperature effect:	±0,010% / K
	HART® protocol (option)	Wetted parts:	AISI 316 (standard)
	PROFIBUS-PA (option)	Option:	Hastelloy C, Tantalum or Goldplated
Adjustment:	by 3 push buttons or H.H.T.	Electronic housing:	AISI 304
Power supply:	12 - 36 Vdc (Exi: 13 - 26,5 Vdc)	Process connections:	all industrial process connections
External load:	600 Ohm / 24V to 1200 Ohm / 36V		available (more than 40*)
Protection grade:	IP66 (Option: IP68)		

Process connections

Code: M
Milkcoupling
(DN 25, 40 or 50)

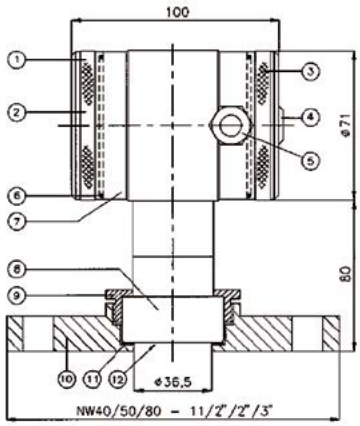


Code F
Flange (DIN or ANSI)

Code W85
Weld-on nipple
ø 85 mm

Dimensions (mm)

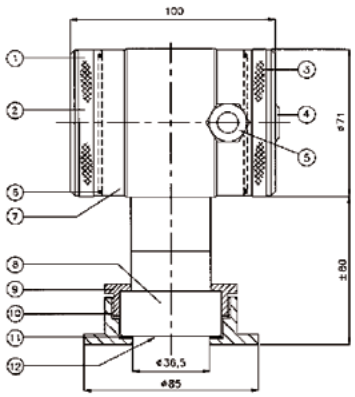
Code F



Parts description

1. Cover
2. Push buttons + display (behind cover)
3. Cover with venting
4. Venting
5. Cable entry
6. O-ring
7. Electronics housing
8. Foot
9. Lock ring
10. Weld-on nipple (W) or Flange (F)
11. Packing
12. Flush diaphragm

Code W



Also available with separate (remote) electronics. Vented cable between process connection and SS electronics housing, type: 2000-SAN-Cable

Description

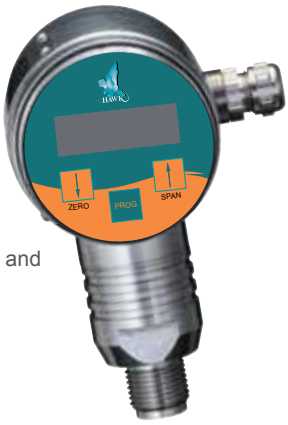
The Peramic ‘S’, series **CER-2000**, is a pressure transmitter based on a ceramic measuring sensor. The CER-2000 series is fully temperature compensated and is made for all pressure applications in clean liquids, gases and vapours. The ceramic measuring cell can withstand high overpressures, and is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

Specifications

Accuracy:	0,1% of adjusted span	Process temperature:	-20°C to +90°C
Measuring ranges:	0 - 2 bar to 0 - 400 bar	Ambient temperature:	-20°C to +70°C*
Output signal:	4 - 20 mA / 2-wire	Temperature effect:	±0,010% / K
	HART® protocol (option)	Measuring sensor:	ceramic (Al2O3)
	PROFIBUS-PA (option)	Sensor sealing:	viton o-ring (standard) other materials
Adjustment:	by 3 push buttons or H.H.T.		on request
Power supply:	12 - 36 Vdc (Exi: 13 - 26,5 Vdc)	Other wetted parts:	AISI 316 (standard)
Protection grade:	IP66 (Option: IP68)	Material housing:	AISI 304

Process connections

Code: R
1/2´´ BSP
(DIN 16288)

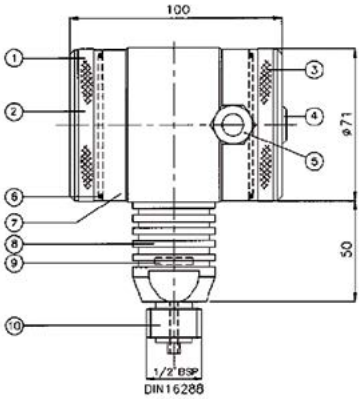


Code S
1/2´´ BSP M and
1/4´´ BSP F

Code N
1/2´´ NPT M
and
1/4´´ NPT F

Dimensions (mm)

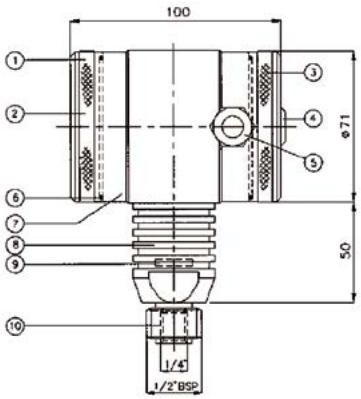
Code R



Parts description

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

Code S



Calibration

As standard the Series 2000 is always equipped with a display and 3 push buttons for easy calibration. Both the measured and the calibrated value can be read locally. A full calibration can be completed using the three push buttons or with the optional handheld terminal (HART®), or with special software.

Zero and span can be calibrated very easy, without test pressure, also in vacuum ranges. Linearisation can be made for various tankshapes like horizontal and conical tanks (P111). For all other adjustable points see table right.

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

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

Adjustable points

P101	Zero adjustment (4 mA)	P108	0 = CELC °C *
P102	Span adjustment (20 mA)		1 = FAHR °F
P103	Cancel mounting position effect	P109	Read out on display:
P104	Adjustment pressure unit (see conversion table)		0 = current (4 - 20 mA) *
P105	4 - 20 mA*		1 = pressure unit
	20 - 4 mA (reverse output)		2 = percent %
P106	Damping adjustment (0 to 25 sec)	P110	Current simulation (4 - 20 mA)
P107	Indication of process temperature (read out on display)	P111	Linearisation (Various tankshapes)

** = factory setting*

Certificates and options

Temperature Compensation

All our transmitters are fully temperature compensated. All transmitters with flush diaphragm are equipped with the unique Flush Diaphragm Technology. (Detailed documentation available).

For High Temperature Applications where the process temperature is continuously above 100°C we manufacture special transmitters with cooling fins to reduce the temperature (Series 2000-SAN with HT option). With a compact 2000-SAN transmitter with option HT we can go up to 200°C and with separation by a cable between process connection and electronics housing (Type: 2000-SAN-Cable-HT) we can go up to 300°C continuously! The HT option is only available on series 2000-SAN (except range 1 and 2)

** Transparent cover (I) with option Ex: Min. amb. temp. -10°C*

2000-SAN-HT

Series 2000

Series 2000		Series 2000						
Ranges (bar)	**Maximum overpressure (bar)**	**Adjustable span range (bar)**	↑	↑	↑	↑	↑	↑
0 - 0,1 ...0,4	6,4	0 - 0,1 to 0 - 0,4	1					
0 - 0,3 ...1,2	10,5	0 - 0,3 to 0 - 1,2	2					
0 - 1 ...10	30	0 - 1 to 0 - 10	3					
0 - 5 ...30	100	0 - 5 to 0 - 30	4					
0 - 20 ...100	200	0 - 20 to 0 - 100	5					
PROCESS CONNECTIONS:								
• Weld-on nipple diam. 33 mm (flush diaphragm / pulp & paper)				W				
• G1" (1" BSP) threaded connection (flush diaphragm)				S				
• PASVE 1" connection (Satron / Valmet)				X12				
• Other connections: i.e. PMC (X2), Valcom, Vega etc (specify X code)				X..				
OPTIONS:								
• Transparent cover, display functions as local indicator					I			
• Vacuum Ranges (Specify Relative or absolute) Compound ranges available (example -1 / +1 bar)						V		
• Intrinsically safe: ATEX Ex II 1 G Ex ia IIC T4 Ga and/or II 1 D Ex ia IIIC T100°C Da IP6X							Ex	
• HART® Protocol								H
• PROFIBUS-PA output (Not available in Ex)								P

Series 2000-SAN

Series 2000-SAN		Series 2000-SAN						
Ranges (bar)	**Maximum overpressure (bar)**	**Adjustable span range (bar)**	↑	↑	↑	↑	↑	↑
0 - 0,1 ...0,4	6,4	0 - 0,1 to 0 - 0,4	1					
0 - 0,3 ...1,2	10,5	0 - 0,3 to 0 - 1,2	2					
0 - 1 ...10	30	0 - 1 to 0 - 10	3					
0 - 5 ...30	100	0 - 5 to 0 - 30	4					
0 - 20 ...100	200	0 - 20 to 0 - 100	5					
PROCESS CONNECTIONS:								
• Milk coupling DIN 11851, DN 25 (only ranges 3 and 4), DN 40, DN 50 (all ranges)				M..				
• Hygienic weld-on nipple diam 62 mm or 85 mm (specify, for example: W85)				W..				
• Tri-clamp 11/2´´, 2´´ or 3´´ (specify size)				L..				
• Flange: DN 25, 40, 50 or 80 (DIN) or 11/2´´, 2´´ or 3´´ (ANSI) (specify size)				F..				
• Other connections: G11/2´´(X3), Varivent(X4), IDF(X5), DRD(X7), SMS (X9), etc... (specify X code)				X..				
OPTIONS:								
• Transparent cover, display functions as local indicator					I			
• Vacuum Ranges (Specify Relative or absolute) Compound ranges available (example -1 / +1 bar)						V		
• HIGH Temperature version with cooling fins. Always specify Process Temperature						HT		
• Intrinsically safe: ATEX Ex II 1 G Ex ia IIC T4 Ga and/or II 1 D Ex ia IIIC T100°C Da IP6X							Ex	
• HART® Protocol								H
• PROFIBUS-PA output (Not available in Ex)								P

Series CER-2000

Series CER-2000		Series CER-2000						
Ranges (bar)	**Maximum overpressure (bar)**	**Adjustable span range (bar)**	↑	↑	↑	↑	↑	↑
0 - 2 ...10	50	0 - 2 to 0 - 10	3					
0 - 10 ...40	120	0 - 10 to 0 - 40	4					
0 - 40 ...200	350	0 - 40 to 0 - 200	5					
0 - 150 ...400	300	0 - 150 to 0 - 400	6					
PROCESS CONNECTIONS:								
• G 1/2" (1/2" BSP) manometer (gauge) connection DIN 16288				R				
• G 1/2" (male) and G 1/4" (female)				S				
• 1/2" NPT (male) and 1/4" NPT (female)				N				
OPTIONS:								
• Transparent cover, display functions as **local indicator**					I			
• Vacuum Ranges (Specify Relative or absolute) Compound ranges available (example -1 / +1 bar)						V		
• Intrinsically safe: ATEX Ⓔx II 1 G Ex ia IIC T4 Ga and/or II 1 D Ex ia IIIC T100°C Da IP6X							Ex	
• HART® Protocol								H
• PROFIBUS-PA output (Not available in Ex)								P

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Additional product warranty and application guarantees upon request.
Technical data subject to change without notice.

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