

PRESSURE TRANSMITTER RELATIVE 1+600 BAR ABSOLUTE 0-16 BAR

TYPE 691



Technical Overview

The pressure transmitter of TYPE series 691 with new, unique ceramic technology, features calibrated and amplified sensor signals which are available as standardized voltage or current outputs.

Various application-specific pressure and electrical connections can be provided.

The Distinct Advantages

- Very low temperature sensitivity
- High resistance to extreme temperature
- No mechanical aging
- No mechanical creepage
- Individual applications due to modular system

Legend to Cross-section Drawing

- 1 Connection fitting
- 2 Seals
- 3 Ceramic element
- 4 Cover

Pressure Ranges

Relative pressure
(Measurement of differential pressure to the ambient pressure)
Absolute pressure

Overload

2x measuring range (fs)

Rupture Pressure

3x measuring range (fs)

Accuracy

Total of linearity, hysteresis and repeatability < +/- 0.3 % fs
Zero point residual voltage < 50 mV
Zero point residual current < 150 μ A at version 0 - 20 mA

Materials of Housing in Contact with the Medium

Ceramic / Inox 1.4305
(Ceramic PVDF on request)

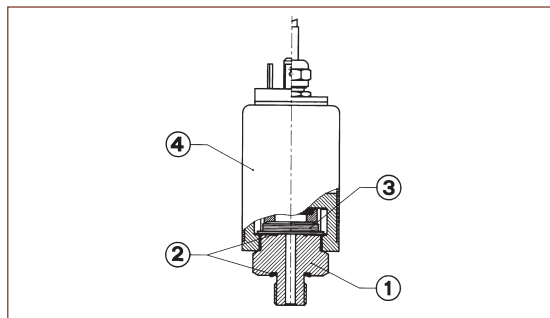
Sealing material: optionally Viton, EPDM, NBR, silicone
according to order code selection table

Temperature Influences

Medium and ambient temperature -15°C to +80°C
Medium and ambient temperature -40°C
only with CR seal and on request
TC zero point < +/- 0.03 % fs/K
TC sensitivity < +/- 0.015 % fs/K typically

Load Cycle

< 50 Hz



Dynamic Response

Suitable for static and dynamic measurements
Response time < 5 ms

Pressure Connections

Inside thread G 1/4 Outside thread G 1/8, G 1/4, G 1/2
Connection fitting sealed at front or at back (option)
7/16-20 UNF / 1/4 -18 NPT / 1/2 -14 NPT
See order code selection table

Weight

Inside thread:
G 1/4 200 grams
Outside thread:
G 1/8 / 7/16-20 UNF 212 grams
G 1/4 / 1/4-18 NPT 245 grams
G 1/2 / 1/2 -14 NPT 280 grams

Installation Arrangement

Unrestricted

Signal	Power Supply
0 - 10 V	18 - 33 VDC ; 24 VAC +/-15% ; 3-wire cable
0 - 20 mA	18 - 33 VDC ; 24 VAC +/-15% ; 3-wire cable
4 - 20 mA	11 - 33 VDC ; 2-wire cable
0 - 5 Volt	11 - 33 VDC ; 24 VAC +/-15% ; 3-wire cable

Short circuit proof and protected against polarity reversal. Each connection against other with max. +/- supply voltage.
Frequency output on request.
Switching output, see TYPE 615.
Electromagnetic compatibility: CE conformity to EC directive 89/336 EEC (EMC) by application of harmonized standards EN 50081-1, EN 50081-2 and EN 50082-2.
<<Germanischer Lloyd>> certification on request.

Load

0 - 10 V > 10 kOhm
0 - 20 mA < 300 Ohm
4 - 20 mA $\leq \frac{\text{supply voltage} - 11V}{0.02 A}$ [Ohm]

Current Consumption

At output signal max.:
0 - 10 V < 5 mA
0 - 20 mA < 25 mA
4 - 20 mA < 20 mA

Electrical Connection / Protection Class

Cable 1.5 meters, IP 67 or IP 65
ORound plug connector DIN 41524, 3-pole, IP 65
Connector DIN 43650-A, IP 65

Calibration by Customer

Adjustable versions (zero point / slope approx. +/- 10 %), only with IP 65 versions



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Order Code Selection Table

		691 .	X	X	X	X	X	X	X	X	X
Relative pressure			9								
Absolute pressure *			5								
Pressure range ¹ (bar)	-1... 0		9	0	0						
	-1... + 0.6		9	0	1						
	-1... + 1		9	0	2						
	-1... + 1.5		9	0	3						
	-1... + 3		9	0	4						
	-1... + 5		9	0	5						
	-1... + 9		9	0	6						
	0... + 0.3 (Absolute Tk0 ± 0.05 % fs/K)			2	6						
	0... + 0.6 (Absolute Tk0 ± 0.05 % fs/K)			1	0						
	0... + 1			1	1						
	0... + 1.6			1	2						
	0... + 2.5			1	4						
	0... + 4			1	5						
	0... + 6			1	7						
	0... + 10			3	0						
	0... + 16			3	1						
	0... + 25		9	3	2						
	0... + 40		9	3	3						
	0... + 60		9	4	0						
	0... + 100		9	4	1						
	0... + 160		9	4	2						
	0... + 250		9	4	3						
	0... + 400 Only seal Viton		9	5	4	0					
	0... + 600 only seal Viton (overpressure max. 1 000 bar)		9	5	5	0					
*Full scale signal at these pressures.											
Sealing materials ²	FPM Fluoro-elastomer (Viton)									0	
	EPDM Ethylene propylene								1		
	NBR Nitrile butadiene								2		
	MVQ Silicon polymer								3		
calibration	Factory calibrated									0	
	Factory calibrated with adjustable zero point and slope (only IP 65)									1	
Outputs and	0 - 5 V	11 - 33 VDC/24 VAC +/-15 % 3-wire cable									0
Power supply	0 - 10 V	18 - 33 VDC/24 VAC +/-15 % 3-wire cable									1
	0 - 20 mA	18 - 33 VDC/24 VAC +/-15 % 3-wire cable									5
	4 - 20 mA	11 - 33 VDC 2-wire cable									7
Electrical	Cable, 1.5 meters, Pg 7	(Protection class IP 65)									0
Connections ³	Cable, 1.5 meters, Pg 7	(Protection class IP 67)									2
	Connector DIN 43650-A	(Protection class IP 65)									1
	Round plug connector DIN 41524, 3-pole	(Protection class IP 65)									3
Pressure	Inside thread	G 1/4									0
Connections ⁴	Outside thread	G 1/8 (up to 250 bar)									1
	Outside thread	G 1/4									2
	Outside thread	G 1/2									3
	Outside thread	7/16-20 UNF									4
	Outside thread	1/4-18 NPT									5
	Outside thread	1/2-14 NPT									6
	Outside thread	G 1/8 (up to 250 bar)									7
	Outside thread	G 1/4									8
	Outside thread	G 1/2									9
Housing material /	Inox with 0.8 mm pressure tip orifice (standard from 100 bar)										3
Construction	Inox, free of oil and grease (only seal Viton, not compound-filled)										5
(Standard Inox)											

Accessories

Female connector DIN 43650-A with seal (IP 65 when installed and latched)	1	0	3	5	1	0
Round plug connector (coupling socket) DIN 41524	1	0	3	5	2	4
Mounting bracket	1	0	4	9	5	4
Test certificate	1	0	4	5	5	1

¹ Other pressure ranges on request.

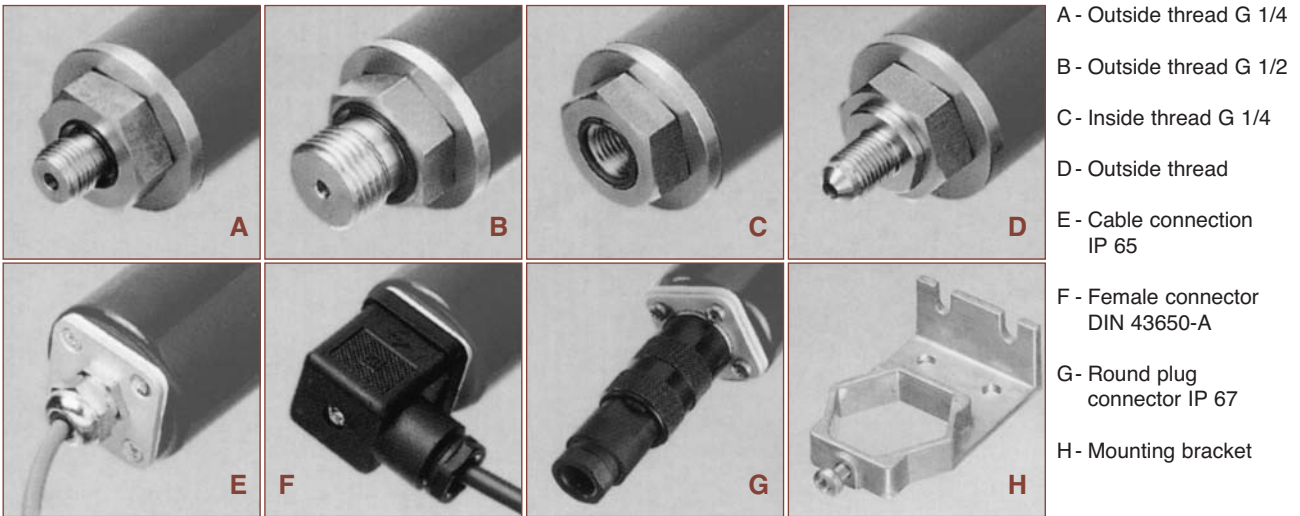
² According to ISO standard R 1629, other sealing materials on request.

³ Without female connector.

⁴ Other pressure connections on request.

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Versions



Electromagnetic Compatibility:

CE conformity to EC directive 89/336 EEC (EMC) by application of harmonized standards EN 50081-1, EN 50081-2 and EN 50082-2.

Type of interface / Interference susceptibility	Test standard	Effects
Electronic discharge ESD	IEC 1000-4-2 8 kV air discharge / 4 kV contact discharge	No failure (criterion B)
High-frequency electromagnetic radiation (HF)	ENV 50140 10 V/m / 80...1000 MHz	No failure (criterion A)
Conducted HF interference	ENV 50141 10 V/m / 0.15...80 MHz	No failure (criterion A)
Fast transients (burst)	IEC 801-4 2 kV	No failure (criterion B)
Magnetic fields 50 Hz 30 A/m	EN 61000-4-8	No failure (criterion A)

Type of interference / Emitted interference	Test standard	Effects
Conducted interface Radiation from housing	EN 55022 0.15...30 MHz 30...1000 MHz, 10 meters	No effect No effect

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Dimensions in mm / Electrical Connections

EDITION 01/2003

The delivery includes a detailed connection diagram for each connection variant.

