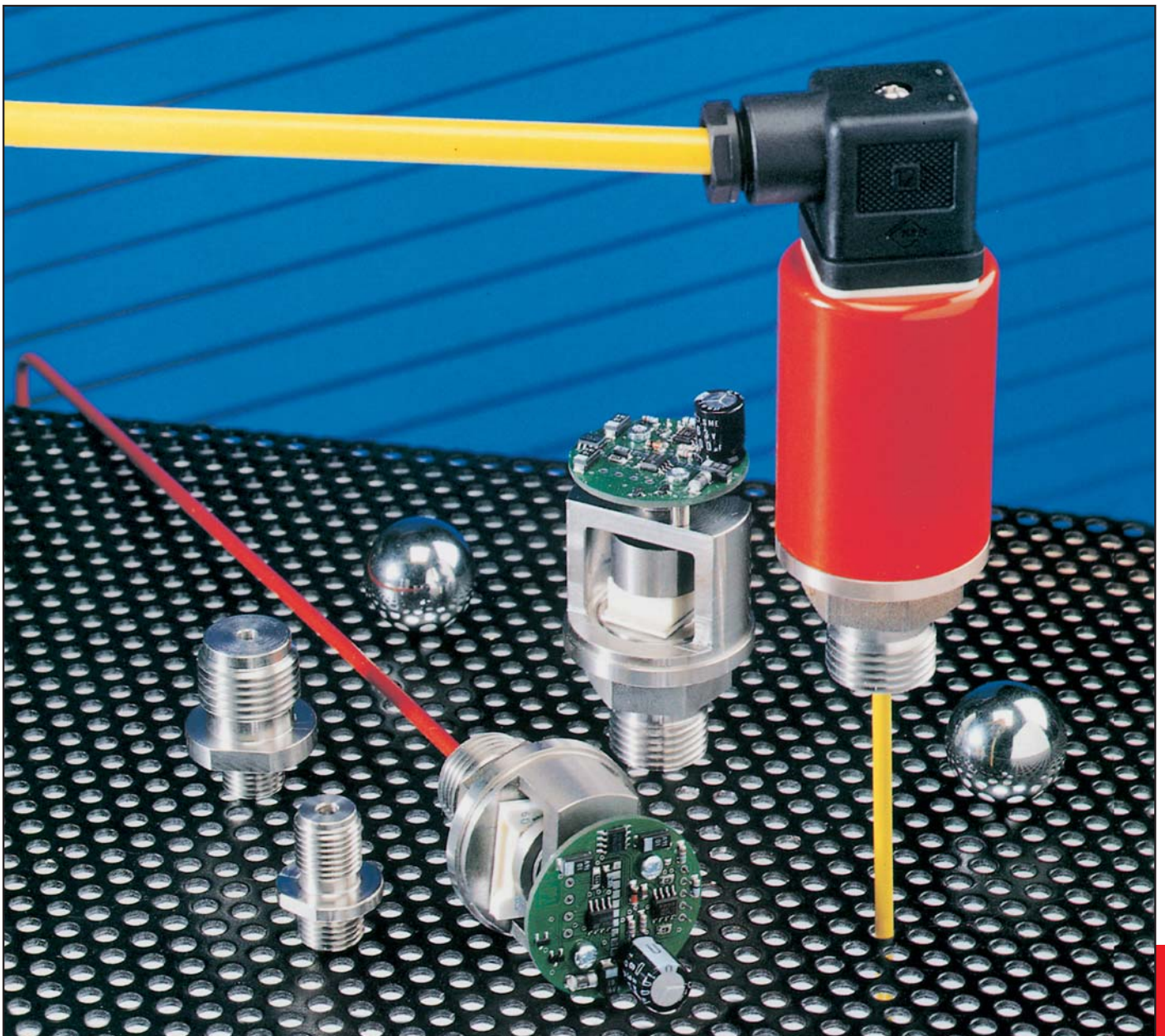


Pressure transmitter

Relative -1 to 600 bar

Absolute 0 to 16 bar

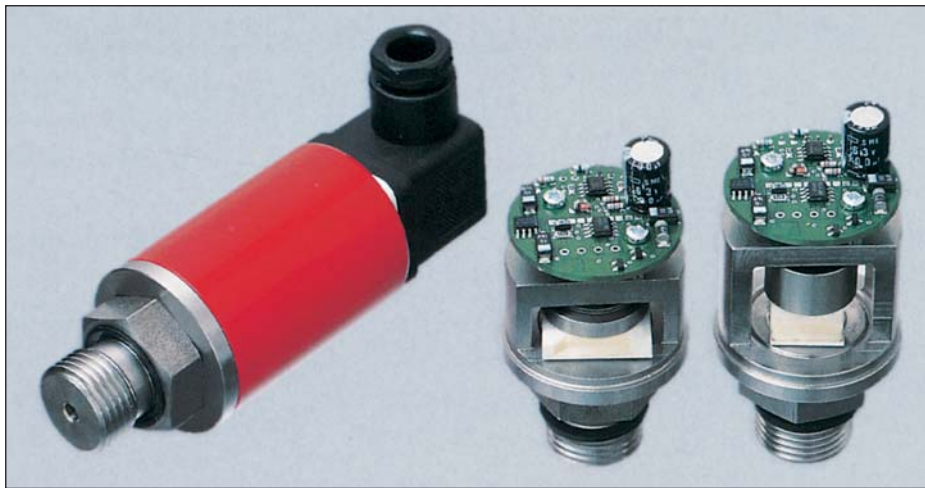


EDITION 12/2004

HUBA-REGISTERED TRADE MARK

Huba Control

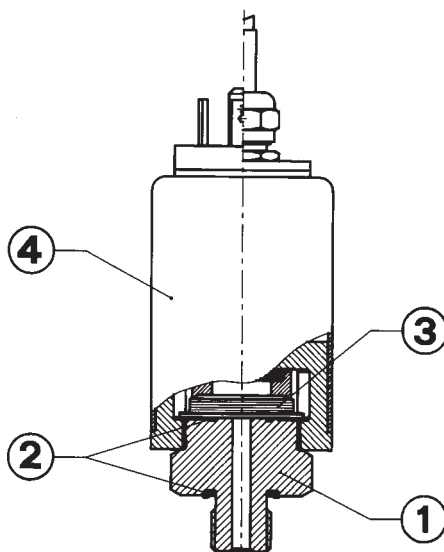
FOR FINE PRESSURE AND FLOW MEASUREMENT



Technical overview

The pressure transmitter of type series 691 with unique and for the last 10 years used in millions of applications 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.



Legend to cross-section drawing

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

The distinct advantages

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

Pressure ranges

Absolute pressure, Relative pressure (Gauge) (differential measurement of pressure relative to ambient pressure) See order code selection table

Overload

2 x Measuring range (fs)

Rupture pressure

3 x Measuring range (fs)

Accuracy

Total of linearity, hysteresis and repeatability $< \pm 0.3\% \text{ fs}$

Zero point residual voltage $< 50 \text{ mV}$

Zero point residual current at version 0 – 20 mA $< 150 \mu\text{A}$

Materials of housing in contact with the medium

Ceramic / Inox 1.4305 (Ceramic / PVDF on request)

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

Application temperature

Medium and ambient temperature $-15 \dots +80 \text{ }^{\circ}\text{C}$

Medium and ambient temperature $-40 \text{ }^{\circ}\text{C}$ only with CR seal and on request

Temperature influences

TC zero point $< \pm 0.03\% \text{ fs/K}$

TC sensitivity $< \pm 0.015\% \text{ fs/K typ.}$

Load cycle

$< 50 \text{ Hz}$

Dynamic response

Suitable for static and dynamic measurements.
Response time: $< 5 \text{ ms}$

Pressure connections

Inside thread G 1/4

Outside thread, connection fitting sealed at front or at back (option) 1/4-18 NPT

Weight

Inside thread G 1/4 200 g

Outside thread

G 1/8 / 7/16-20 UNF 212 g

G 1/4 / 1/4-18 NPT 245 g

G 1/2 / 1/2-14 NPT 280 g

Installation arrangement

Unrestricted

Signal

0 – 10 V

18 – 33 VDC

24 VAC $\pm 15\%$

3 wire cable

4 – 20 mA 11 – 33 VDC

2-wire cable

0 – 5 Volt 11 – 33 VDC

24 VAC $\pm 15\%$

3-wire cable

Short circuit-proof and protected against polarity reversal. Each connection against other with max. $\pm$ supply voltage. Frequency output on request. Switching output, see type 615.

Load

0 – 10 V

$> 10 \text{ k Ohm}$

4 – 20 mA $\leq \frac{\text{supply voltage} - 11 \text{ V}}{0.02 \text{ A}} [\text{Ohm}]$

Load

With max. signal output

0 – 10 V $< 5 \text{ mA}$

4 – 20 mA $< 20 \text{ mA}$

Electrical connections / Protection standard

Cable 1.5 meters, IP 67 or IP 65

Round plug connector DIN 41524, 3-pole, IP 65

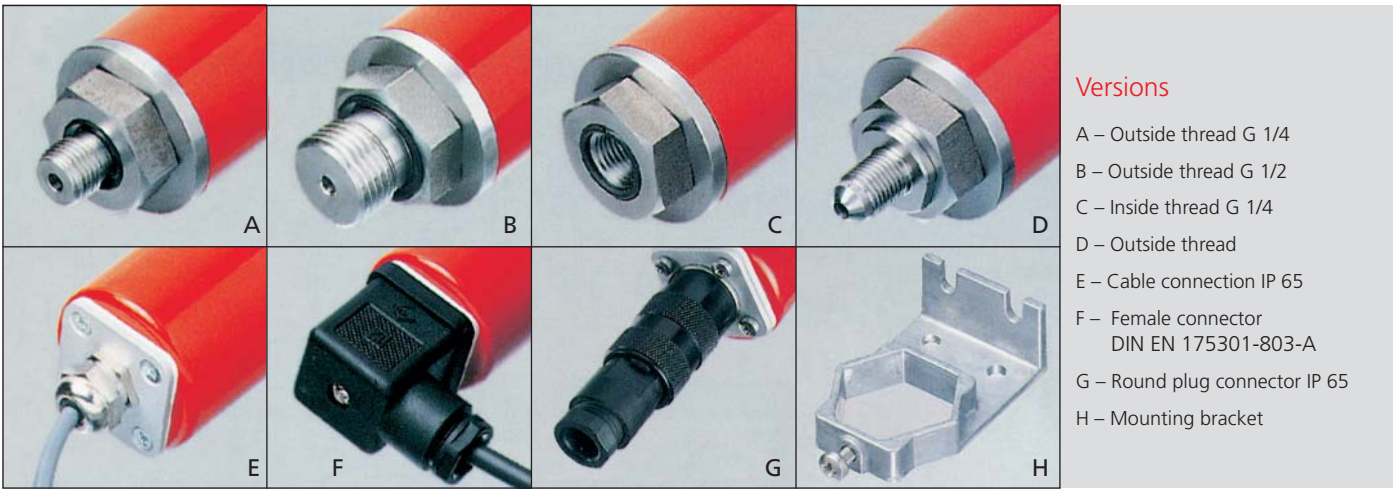
Connector DIN EN 175301-803-A, IP 65

Electromagnetic compatibility

EMC-Behavior see on the back. «Germanischer Lloyd» certification on request.

Calibration by customer

Adjustable versions (zero point/slope approx. $\pm 10\%$) only with IP versions.



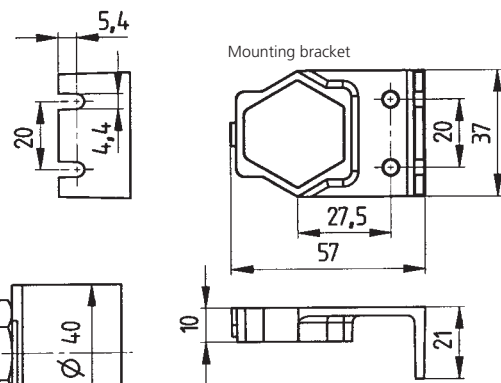
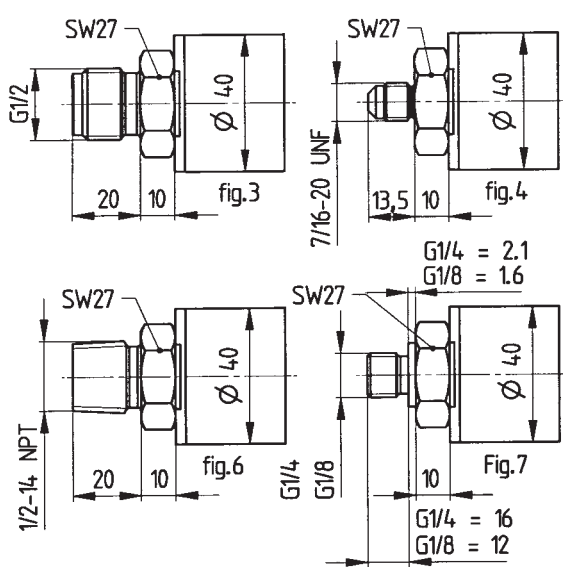
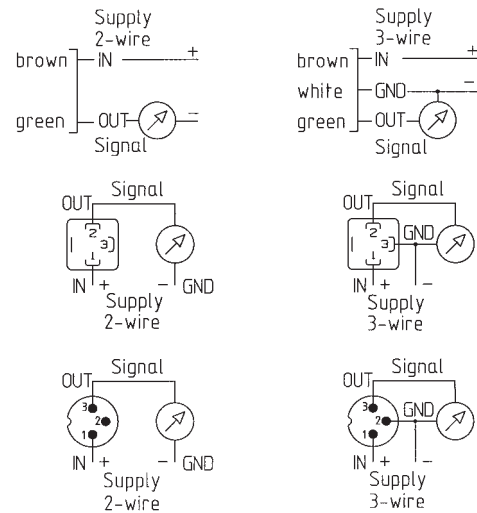
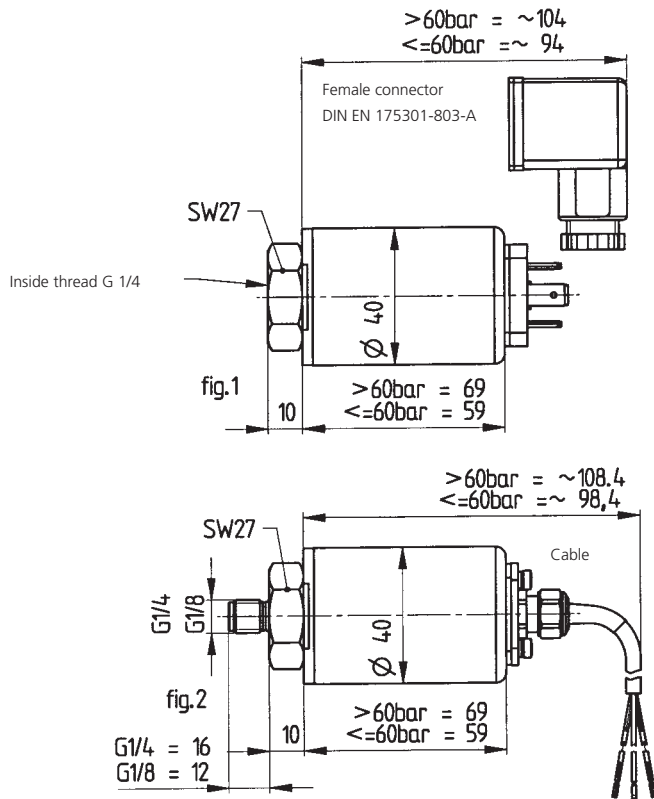
Versions

- A – Outside thread G 1/4
- B – Outside thread G 1/2
- C – Inside thread G 1/4
- D – Outside thread
- E – Cable connection IP 65
- F – Female connector
DIN EN 175301-803-A
- G – Round plug connector IP 65
- H – Mounting bracket

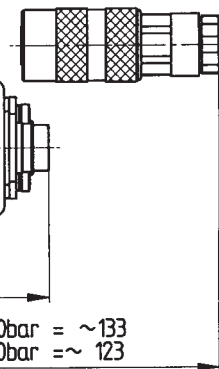
Order code selection table		691.	X	X	X	X	X	X	X	X	X	X	X	X
Relative pressure		9												
		5												
Absolute pressure		9	0	0										
		9	0	1										
Pressure ranges ¹	– 1 ... + 0 bar	9	0	2										
	– 1 ... + 0.6 bar	9	0	3										
	– 1 ... + 1 bar	9	0	4										
	– 1 ... + 1.5 bar	9	0	5										
	– 1 ... + 3 bar	9	0	6										
	– 1 ... + 5 bar	9	0	6										
	– 1 ... + 9 bar	9	0	6										
	0 ... + 0.3 bar (Absolut TC0 +/- 0.05% fs/K)	2	6											
	0 ... + 0.6 bar (Absolut TC0 +/- 0.05% fs/K)	1	0											
	0 ... + 1 bar	1	1											
	0 ... + 1.6 bar	1	2											
	0 ... + 2.5 bar	1	4											
	0 ... + 4 bar	1	5											
	0 ... + 6 bar	1	7											
	0 ... + 10 bar	3	0											
	0 ... + 16 bar	3	1											
	0 ... + 25 bar	9	3	2										
	0 ... + 40 bar	9	3	3										
	0 ... + 60 bar	9	4	0										
	0 ... + 100 bar	9	4	1										
	0 ... + 160 bar	9	4	2										
	0 ... + 250 bar	9	4	3										
	0 ... + 400 bar only seal FPM	9	5	4	0									
	0 ... + 600 bar only seal FPM (overpressure max. 1 000 bar)	9	5	5	0									
	▲ Fullscale signal at these pressures													
Sealing materials ²	FPM Fluoro-elastomer				0									
	EPDM Ethylene propylene				1									
	NBR Butadiene-acrylic nitrile-caoutchouc				2									
	MVQ Silicone polymer				3									
Calibration	Factory calibrated					0								
	Factory calibrated with adjustable zero point and slope (only IP 65)					1								
Outputs and power supply	0 – 5 V 11 – 33 VDC/24 VAC +/- 15% 3-wire cable							0						
	0 – 10 V 18 – 33 VDC/24 VAC +/- 15% 3-wire cable							1						
	4 – 20 mA 11– 33 VDC 2-wire cable							7						
Electrical connections ³	Cable, 1.5 m, Pg 7 IP 65									0				
	Cable, 1.5 m, Pg 7 IP 67									2				
	Connector DIN EN 175301-803-A IP 65									1				
	Round plug connector, DIN 41524, 3 pole IP 65									3				
Pressure connections ⁴	Inside thread G 1/4 Fig. 1 (no pressure tip orifice possible)										0			
	Outside thread G 1/8 (... 250 bar) Fig. 2 sealed at front										1			
	Outside thread G 1/4 Fig. 2 sealed at front										2			
	Outside thread G 1/2 Fig. 3 sealed at front										3			
	Outside thread 7/16-20 UNF Fig. 4										4			
	Outside thread 1/4-18 NPT Fig. 5										5			
	Outside thread 1/2-14 NPT Fig. 6										6			
	Outside thread G 1/8 (... 250 bar) Fig. 7 sealed at back (NBR)										7			
	Outside thread G 1/4 Fig. 7 sealed at back (NBR)										8			
	Outside thread G 1/2 Fig. 8 sealed at back (NBR)										9			
Housing material	Inox with pressure tip orifice (standard from 100 bar)												3	
	Inox, free of oil and grease (only seal FPM, not compound filled)												5	
Accessories	Female connector DIN EN 175301-803-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

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



Round plug connector DIN 41524



Electromagnetic compatibility:

CE conformity (EMC) by application of harmonized standards: Interference stability EN 61000-6-2 and EN 61000-6-3

Interference stability	Test standard	Effect	
Electrostatic discharge (ESD)	EN 61000-4-2	8 kV air, 4 kV contact	no effect
High-frequency electromagnetic radiation (HF)	EN 61000-4-3	10 V/m, 80 ... 1000 Mz	no effect
Conducted HF interference	EN 61000-4-6	10 V, 0.15 ... 80 MHz	no effect
Fast transients (burst)	EN 61000-4-4	2 kV	no effect
Surge	EN 61000-4-5	max. tolerable cable length 10 m	no test
Magnetic fields	EN 61000-4-8	30 A/m, 50 Hz	no effect
Interference emit	Test standard	Effect	
Conducted interference	EN 55022 (CISPR 22)	0.15... 30 MHz	no emission
Radiation from housing	30...1000 MHz, 10 m		No emission

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