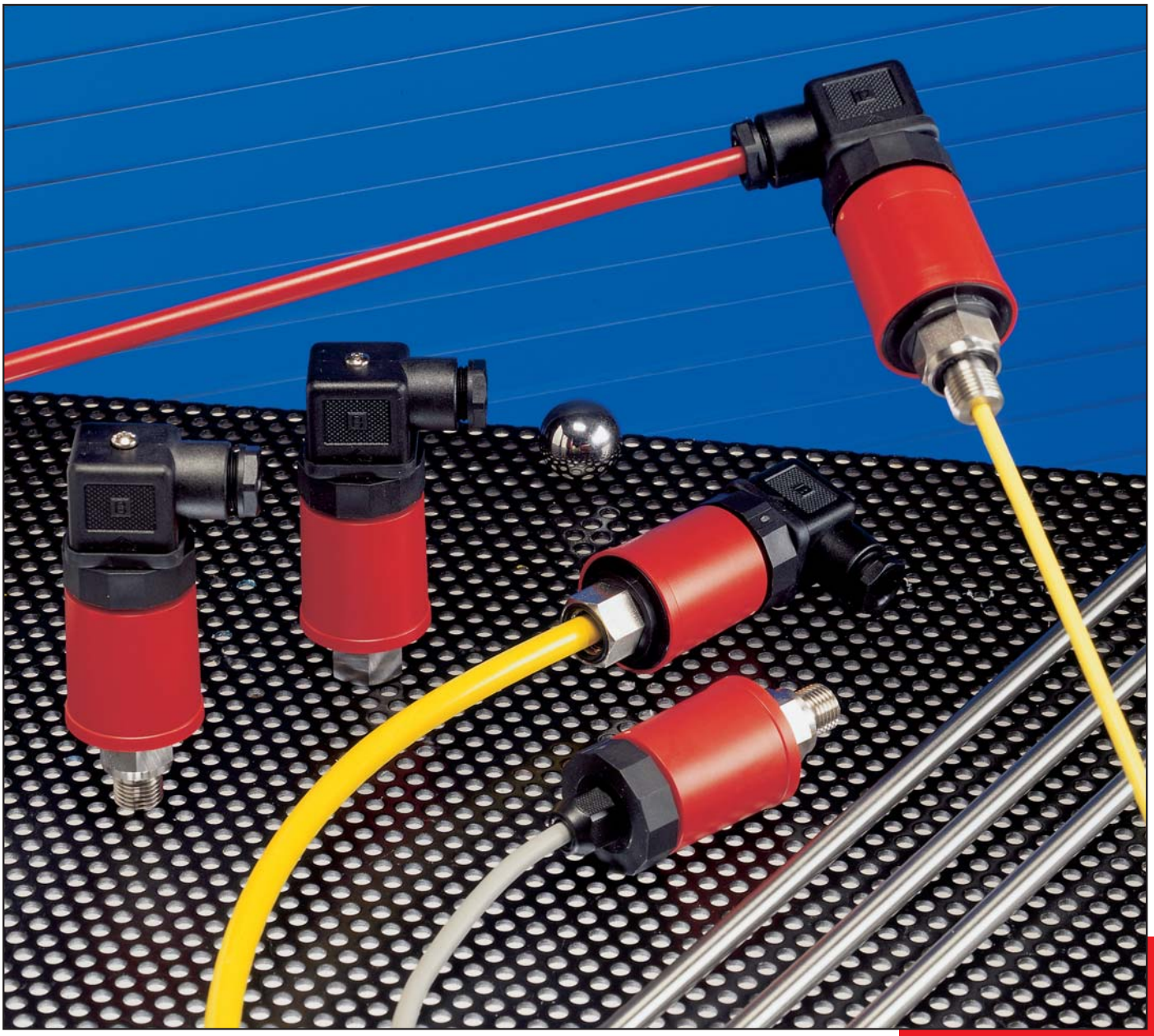
501

Pressure transmitter

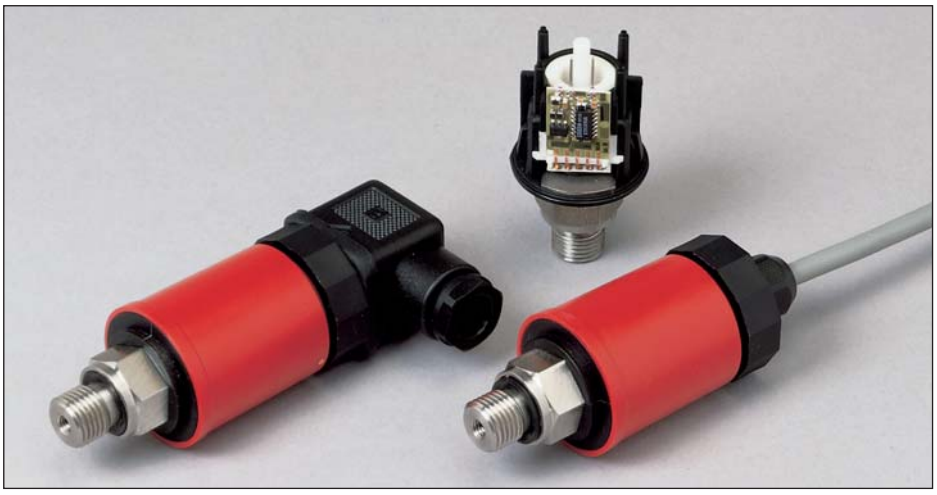
Relative 0 … 40 bar
Absolute 2.5 … 16 bar



EDITION 6/2005

Huba Control

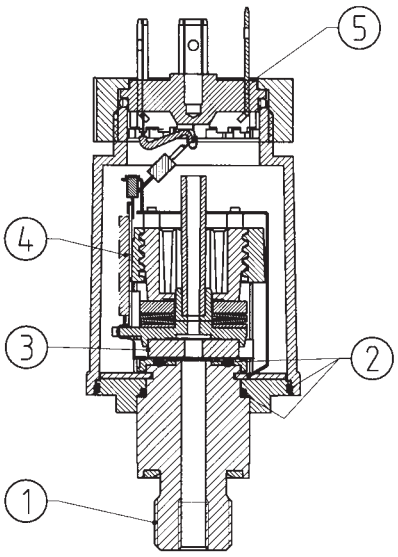
FOR FINE PRESSURE AND FLOW MEASUREMENT



Technical overview

The pressure transmitter of type series 501 with proved ceramic technology, features calibrated and amplified sensor signals which are available as standardised 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 Hybrid electronics
5 Connector DIN EN 175301-803

The distinct advantages

- Compact construction
- Automated manufacture in large quantities for ideal price/performance ratio
- Robust ceramic sensor technology
- High resistance to extreme temperatures
- No mechanical ageing
- No mechanical creepage

Pressure ranges
Absolute pressure, Relative pressure (Gauge)
(differential measurement of pressure relative to ambient pressure)

Overload
2x Measuring range (fs)

Rupture pressure
3x Measuring range (fs)
0 … 40 bar: max. 90 bar

Accuracy
Total of linearity, hysteresis and repeatability
< +/- 0.5% fs

Adjustment accuracy zero point and full scale (repeatable)

0 – 5 V	± 50 mV
1 – 6 V	± 50 mV
0 – 10 V	± 100 mV
4 – 20 mA	± 0.16 mA
10 – 90%	± 1%

Case material
Cover Pa 6

Materials in contact with the medium
Ceramic/Stainless steel 1.4305
Sealing material:
option FPM, EPDM, NBR, MVQ
acc. to order code selection table

Temperature influences
Medium and ambient temperature
– 15 …+ 80 °C

TC zero point	< +/- 0.04% fs
TC sensitivity	< +/- 0.015% fs/K typ.

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 DIN 3852 form E

Weight

Version inside thread	50 g
Version outside thread	70 g

Installation arrangement
Unrestricted

Signal	Power supply
0 – 5 V	11 – 33 VDC 3-wire cable
1 – 6 V	11 – 33 VDC 3-wire cable
0 – 10 V	18 – 33 VDC 3-wire cable
4 – 20 mA	11 – 33 VDC 2-wire cable
10 – 90%	4.5 – 6.0 VDC 3-wire cable ratiometric

Short circuit-proof and protected against polarity reversal. Each connection against other with max. +/- supply voltage

Load

0 – 5 V	> 10 k Ohm/<100 nF
1 – 6 V	> 10 k Ohm/<100 nF
0 – 10 V	> 10 k Ohm/<100 nF
4 –20 mA	$\leq \frac{\text{supply voltage} - 11\ \text{V}}{0.02\ \text{A}}$ [Ohm]
10 – 90 %	> 10 k Ohm/<100 nF

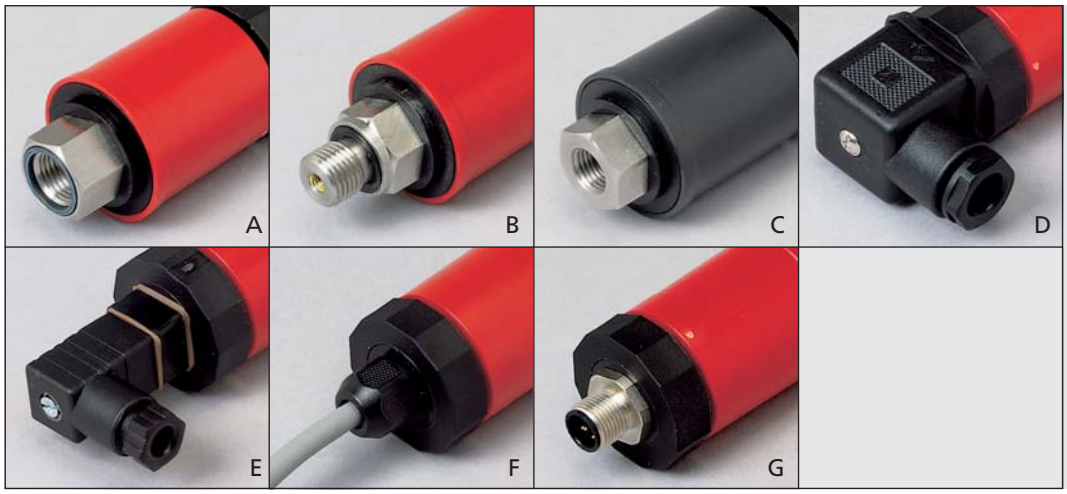
Current consumption
With max. signal output:

0 – 5 V	< 2 mA
1 – 6 V	< 2 mA
0 – 10 V	< 3 mA
4 – 20 mA	< 20 mA
10 – 90%	< 2 mA

Electrical connection / Protection standard

Cable 1.5 meters	IP 65
Connector DIN EN 175301-803-A	IP 65
Connector industrial standard	IP 65

Calibration
Calibrated in the factory



Versions

A – Inside thread G 1/4

B – Outside thread G 1/4

C – Storage version cover black

D – Female connector
DIN EN 175301-803-A

E – Female connector
industrial standard

F – Electrical connection with PG 7

G – Connector M 12x1
(on request)

Order code selection table

				501.	X	X	X	X	X	X	X	X	X	X
Relative pressure					9									
Absolute pressure					8									
Pressure ranges[1]	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							
	▲	Fullscale-Signal at these pressures												
Sealing materials[2]	FPM	Fluoro-elastomer						0						
	EPDM	Ethylene propylene						1						
	NBR	Butadiene Acrylonitrile						2						
	MVQ	Silicone polymer						3						
Calibration[3]	Factory calibrated								0					
Outputs and power supply	0 – 5 V	11.0 – 33.0 VDC	3-wire cable							1				
	1 – 6 V	11.0 – 33.0 VDC	3-wire cable							6				
	0 – 10 V	18.0 – 33.0 VDC	3-wire cable							2				
	4 – 20 mA	11.0 – 33.0 VDC	2-wire cable							3				
	10 – 90% ratiom.	4.5 – 6.0 VDC	3-wire cable							4				
Electrical connections[3]	Cable	1.5 m	IP 65								0			
	Connector	DIN EN 175301803	IP 65								1			
	Connector	Industrial standard	IP 65								2			
Pressure connections[4]	Inside thread	G 1/4	with O-ring sealing									1		
	Outside thread	G 1/4	sealed at back DIN 3852 form E									4		
Process connection	Stainless steel 1.4305 (AISI 303)												1	
	Stainless steel 1.4305 (AISI 303) with pressure tip orifice												2	
Pressure range variation	Indicate W and state range on order													W

Accessories / Packaging

Accessories	Female connector	DIN EN 175301-803	with seal (IP 65, when installed and latched)	1	0	3	5	1	0
	Female connector	Industrial standard	with seal (IP 65, when installed and latched)	1	0	4	2	4	4

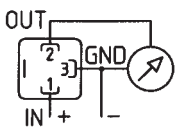
Packaging	Mention on order:	Single packaging:	with DIN-connector order-no 103510 or Connector industrial standard order-no 104244
		Multiple packaging:	(25 pcs) DIN-connector order-no 103510 or Connector industrial standard order-no 104244 enclosed separatly

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 and materials on request

Dimensions in mm

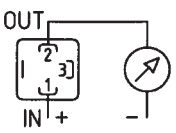
Electrical connections

Signal 3-wire



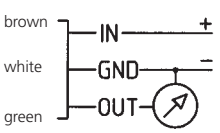
Supply

Signal 2-wire



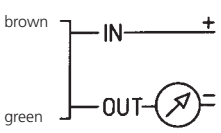
Supply

Supply 3-wire



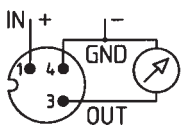
Signal

Supply 2-wire



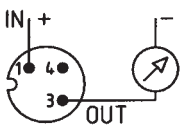
Signal

Supply 3-wire

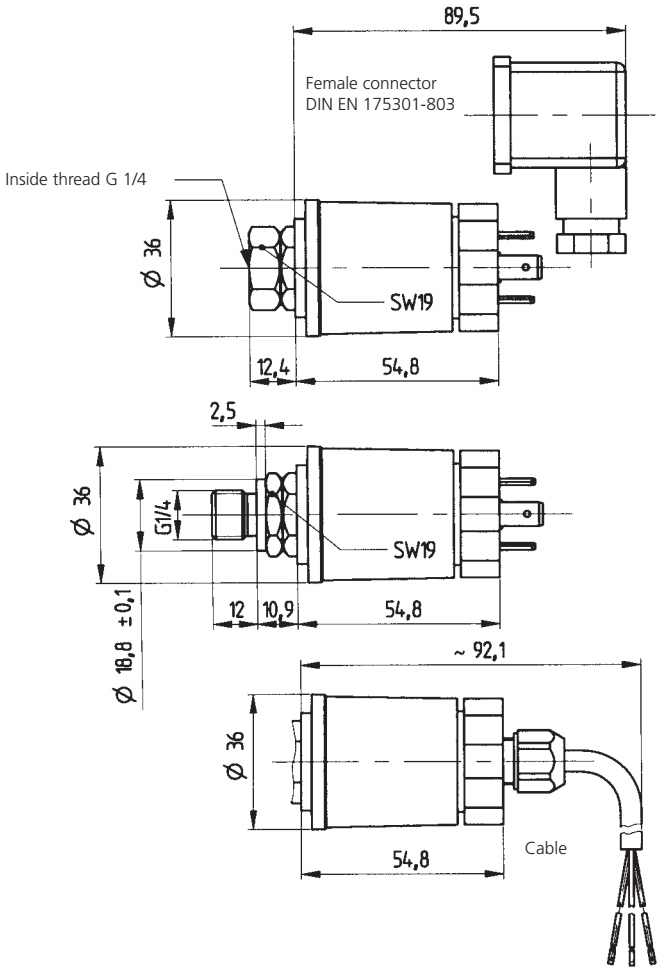


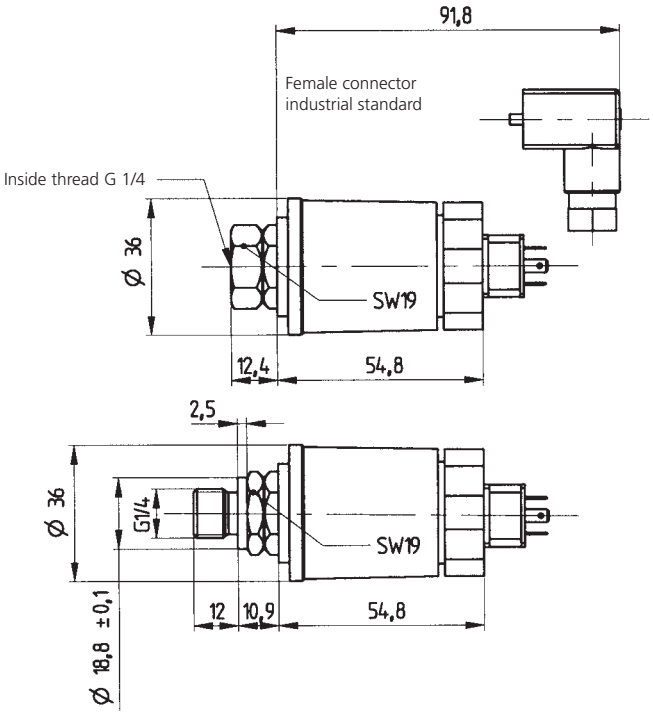
Signal

Supply 2-wire



Signal





Electromagnetic compatibility: CE conformity to EC directive 89/336 EEC (EMC) by application of harmonized standards EN 61000-6-1 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 (except ratiometric types)
High-frequency electromagnetic radiation (HF)	EN 61000-4-3	3 V/m, 80 … 1000 Mz	no effect (up to 3 V/m)
Conducted HF interference	EN 61000-4-6	3 V, 0.15 … 80 MHz	no effect
Fast transients (burst)	EN 61000-4-4	1 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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