



Pressure transmitter

## Relative pressure transmitter Type 519

The pressure transmitter type 519 has a compact and robust design and a very high measurement accuracy.

The flush diaphragm offers the use in the process technique of pasty media.

Beside various pressure- and electrical connectors there are pressure ranges from 400 mbar to 60 bar full scale available.

This sensor utilises a ceramic technology, developed by Huba Control and for the last 20 years, in millions of applications.



**Pressure range**  
**0 ... 0.4 – 60 bar**

- + Flush diaphragm
- + High measurement accuracy
- + Available with integrated temperature measurement
- + There are low pressure ranges from 400 mbar full scale available
- + Compact and rugged construction

## Technical Overview

### Pressure range

Relative 0 ... 0.4 – 60 bar

### Operating conditions

Medium		Liquids, pasty media and gases
Temperature	Medium	-25 ... +125 °C
	Ambient	-25 ... +85 °C
	Storage	-40 ... +100 °C
Tolerable overload / rupture pressure	≤ 1.6 bar	max. 4.8 bar
	> 1.6 bar	3x FS

### Materials

Cover		Stainless steel 1.4404 / AISI 316L
Materials in contact with medium	Pressure connection	Stainless steel 1.4404 / AISI 316L
	Sensor	Ceramic Al <sub>2</sub> O <sub>3</sub> (99.6%)
	Sealing material	FPM, EPDM

### Electrical overview

	Output	Power supply	Load	Current consumption
2 wire	4 ... 20 mA	10 ... 30 VDC	< $\frac{\text{Supply voltage} \cdot 10 \text{ V}}{100 \text{ k}\Omega}$ [Ohm]	< 23 mA
	0 ... 5 V	7 ... 33 VDC	>10 kOhm / < 100 nF	< 7 mA
3 wire	0 ... 10 V	12 ... 33 VDC	>10 kOhm / < 100 nF	< 7 mA
	ratiom. 10 ... 90%	5 VDC ±10%	>10 kOhm / < 100 nF	< 5 mA
4 wire (with temperature)	Pressure	ratiom. 10 ... 90%	5 VDC ±10%	>10 kOhm / < 100 nF
	Temperature (-40 ... +150 °C)	ratiom. 10 ... 90%	5 VDC ±10%	>10 kOhm / < 100 nF
Polarity reversal protection	Short circuit proof and protected against polarity reversal. Each connection is protected against crossover up to max. supply voltage.			< 5 mA
Insulation voltage				1000 VDC

### Dynamic response

Start-up time		< 100 ms
Response time	Pressure	< 5 ms
	Temperature T90	< 5 s
Load cycle		< 100 Hz

### Electrical connection

Connector	Protection standard	Protection class
Connector DIN EN 175301-803-A	IP 65	III
Connector DIN EN 175301-803-C (Industrial standard 9.4 mm)	IP 65	III
Connector M12x1	IP 67	III


### Pressure connection

Outside thread	G ½	sealed at back DIN 3852-E with profile seal ring in FPM (-30 ... +135 °C)
	G ½	dual sealed with profile seal ring in FPM (-30 ... +135 °C)
	G ¾	dual sealed with profile seal ring in FPM (-30 ... +135 °C)

### Installation arrangement

Unrestricted

### Tests / Admissions

Electromagnetic compatibility		CE conformity acc. EN 61326-2-3
Shock acc. IEC 60068-2-27		100 g, 11ms, half sine wave, 1x, all 6 directions
		40 g, 6 ms, half sine wave, 1000x, all 6 directions
Vibration nach IEC 60068-2-6		10 g, 10 ... 2000 Hz, 1 Octave/min., all 3 directions, 50 constant load
Explosion protection 	without zone separation	Ex II 1 G Ex ia IIC T4 Ga Ex II 1 D Ex ia IIIC T120 °C Da
	with zone separation	Ex II ½ G Ex ia IIC T4 Ga/Gb Ex II ½ D Ex ia IIIC T120 °C Da/Db
UL		ANSI/UL 61010-1 acc. E325110

### Weight

110 ... 140 g

### Packaging (Please state on order)

Single packaging in cardboard	accessories integrated
Multiple packaging in cardboard (25 pcs)	

## Accuracy

Standard

Parameter pressure (≥ 1 bar)	Unit	
Characteristic line <sup>1)</sup> (at 25 °C)	% fs ± 0.3	
Resolution	% fs < 0.1	
Long term stability acc. IEC 60770-1	% fs ± 0.25	
Temperature error (at -25 °C ... +125 °C) <sup>2)</sup>	% fs/10K	± 0.15

Parameter pressure (< 1 bar)	Unit	
Characteristic line <sup>1)</sup> (at 25 °C)	% fs ± 0.5	
Resolution	% fs < 0.1	
Long term stability acc. IEC 60770-1	% fs ± 0.25	
Temperature error (at -25 °C ... +125 °C) <sup>2)</sup>	% fs/10K	± 0.15

Higher accuracy




Parameter pressure (≥ 1 bar)	Unit	
Characteristic line <sup>1)</sup> (at 25 °C)	% fs ± 0.3	
Resolution	% fs < 0.1	
Long term stability acc. IEC 60770-1	% fs ± 0.25	
Total error band (at -25 °C ... +125 °C)	% fs ± 0.5	




Parameter pressure (< 1 bar)	Unit	
Characteristic line <sup>1)</sup> (at 25 °C)	% fs ± 0.5	
Resolution	% fs < 0.1	
Long term stability acc. IEC 60770-1	% fs ± 0.25	
Total error band (at -25 °C ... +125 °C)	% fs ± 0.7	

Parameter temperature	Unit	
Characteristic line	°C	± 3.0
Resolution	°C	0.2

Test conditions: 45% rF  
Balance position: vertical, pressure connection down

<sup>1)</sup> incl. zero point, full scale, linearity, hysteresis and repeatability

			1	2	3	4	5	6	7	8	9	10	11	
<b>Order code selection table in bar</b>			519.	X	X	X	X	X	X	X	X	X	X	X
<b>Pressure mode</b>	Relative		9											
	Relative with higher accuracy		D											
<b>Pressure range <sup>1)</sup></b>	0 ... 0.4 bar			2	7		0,2							
	0 ... 0.6 bar			2	8		0,2							
	0 ... 1.0 bar			1	1		0,2							
	0 ... 1.6 bar			1	2		0,2							
	0 ... 2.5 bar			1	4		0,2							
	0 ... 4.0 bar			1	5		0,3							
	0 ... 6.0 bar			1	7		0,3							
	0 ... 10.0 bar			3	0		0,3							
	0 ... 16.0 bar			3	1		0,3							
	0 ... 25.0 bar			3	2		0,3							
	0 ... 40.0 bar			3	3		0,3							
	0 ... 60.0 bar			4	0		0,3							
<b>Sealing material</b>	FPM	Fluoro elastomer					0							
	EPDM	Ethylene propylene					1							
<b>Version</b>	standard						0							
	with Ex-Admission  <sup>2)</sup>	without zone separation	Ex II 1 GD				2	4	1,3					
	with Ex-Admission  <sup>2)</sup>	with zone separation <sup>3)</sup>	Ex II 1/2 GD				3	4	1,3					
<b>Output / power supply</b>	0 ... 5 V	7 ... 33 VDC						1						
	0 ... 10 V	12 ... 33 VDC						2						
	4 ... 20 mA	10 ... 30 VDC						3						
	4 ... 20 mA  <sup>2)</sup>	10 ... 30 VDC						4	1,3					
	ratiom. 10 ... 90%	5VDC ±10%						7						
	ratiom. 10 ... 90%	5VDC ±10% with temperature						5	3					
<b>Electical connection <sup>4)</sup></b>	Connector	M12x1 2L: IN=1 / OUT=3	3L: IN=1 / OUT=4 / GND=3 / Opt. T=2						3					
		M12x1	3L: IN=1 / OUT=3 / GND=4						1,2	M				
		DIN EN 175301-803-A								1				
		DIN EN 175301-803-C								2				
<b>Pressure connection <sup>1)</sup></b>	Outside thread	G ½ sealed at back DIN 3852-E								0	1	1		
		G ½ dual sealed									0	2	1	
		G ¾ dual sealed										0	3	1
<b>Pressure range variation (optional)</b>	Indicate W and state range on order (e.g. W0... + 0.5bar/OUT0.5...4.5V)													

			1	2	3	4	5	6	7	8	9	10	11	
<b>Order code selection table in psi</b>			519.	X	X	X	X	X	X	X	X	X	X	X
<b>Pressure mode</b>	Relative		9											
	Relative with higher accuracy		D											
<b>Pressure range <sup>1)</sup></b>	0 ... 6 psi			A	7		0,2							
	0 ... 10 psi			A	8		0,2							
	0 ... 15 psi			B	1		0,2							
	0 ... 20 psi			B	2		0,2							
	0 ... 30 psi			B	4		0,2							
	0 ... 60 psi			B	5		0,3							
	0 ... 100 psi			B	7		0,3							
	0 ... 150 psi			C	0		0,3							
	0 ... 200 psi			C	1		0,3							
	0 ... 300 psi			C	2		0,3							
	0 ... 500 psi			C	3		0,3							
	0 ... 750 psi			D	0		0,3							
<b>Sealing material</b>	FPM	Fluoro elastomer					0							
	EPDM	Ethylene propylene					1							
<b>Version</b>	standard						0							
	with Ex-Admission  <sup>2)</sup>	without zone separation	Ex II 1 GD				2	4	1,3					
	with Ex-Admission  <sup>2)</sup>	with zone separation <sup>3)</sup>	Ex II 1/2 GD				3	4	1,3					
<b>Output / power supply</b>	0 ... 5 V	7 ... 33 VDC						1						
	0 ... 10 V	12 ... 33 VDC						2						
	4 ... 20 mA	10 ... 30 VDC						3						
	4 ... 20 mA  <sup>2)</sup>	10 ... 30 VDC						4	1,3					
	ratiom. 10 ... 90%	5VDC ±10%						7						
	ratiom. 10 ... 90%	5VDC ±10% with temperature						5	3					
<b>Electical connection <sup>4)</sup></b>	Connector	M12x1 2L: IN=1 / OUT=3	3L: IN=1 / OUT=4 / GND=3 / Opt. T=2							3				
		M12x1	3L: IN=1 / OUT=3 / GND=4							1,2	M			
		DIN EN 175301-803-A									1			
		DIN EN 175301-803-C									2			
<b>Pressure connection <sup>1)</sup></b>	Outside thread	G ½ sealed at back DIN 3852-E									0	1	1	
		G ½ dual sealed										0	2	1
		G ¾ dual sealed											0	3
<b>Pressure range variation (optional)</b>	Indicate W and state range on order (e.g. W0... + 0.5bar/OUT0.5...4.5V)													

<sup>1)</sup> Other pressure ranges on request

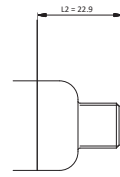
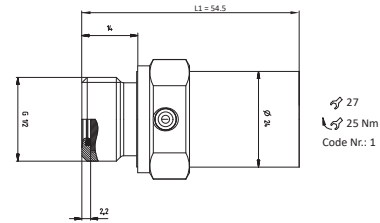
<sup>2)</sup> without UL-Admission

<sup>3)</sup> Turn-down versions max. ≥ 1 bar

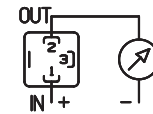
<sup>4)</sup> Delivery without female connector

Female connector DIN EN 175301-803-A with seal	103510
Connector DIN EN 175301-803-C with seal	104244
Corner-wire box for connector M12x1	106975
Corner-wire box for connector M12x1 with cable 2.0 m	114604
Straight-wire box for connector M12x1	114570
Straight-wire box for connector M12x1 with cable 2.0 m	114605
Calibration certificate	104551

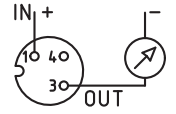
Dimensions in mm / Electrical connections



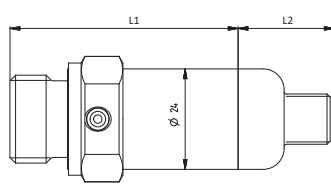
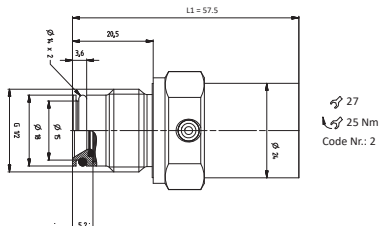
2 wire



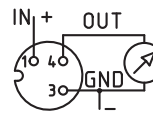
1 (IN) 2 (OUT)



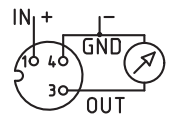
1 (IN) 3 (OUT)



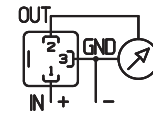
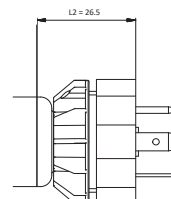
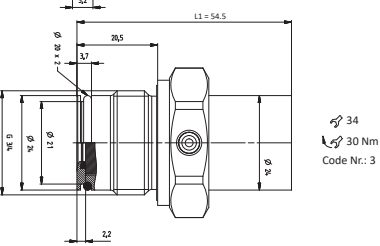
3 wire



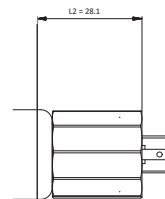
1 (IN) 3 (GND) 4 (OUT)



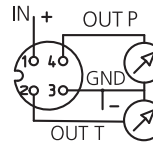
1 (IN) 3 (OUT) 4 (GND)



1 (IN) 2 (OUT) 3 (GND)



4 wire

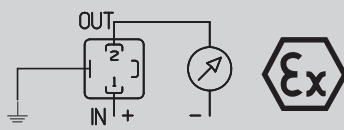


1 (IN) 2 (OUT T) 3 (GND) 4 (OUT P)

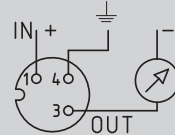
Device design with explosion protection: 4 ... 20 mA  
The grounding connection is conductively connected to the pressure transmitter housing.

connector DIN  
EN 175301-803-A

connector M12x1



1 (IN) 2 (OUT) ↓



1 (IN) 3 (OUT) 4 (↓)

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