Huba Control

FOR FINE PRESSURE AND FLOW MEASUREMENT

Relative pressure transmitter type 519

Pressure range
0 ... 0.4 – 60 bar

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.

- 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_2O_3 (99.6%)
	Sealing material	FPM, EPDM

Electrical overview

		Output	Power supply	Load	Current consumption
2 wire		4 . .. 20 mA	10 ... 30 VDC	$< \frac{\text{Supply voltage- 10 V}}{0.02\ A}$ [Ohm]	< 23 mA
3 wire		0 ... 5 V	7 ... 33 VDC	>10 kOhm / < 100 nF	< 7 mA
		0 ... 10 V	12 ... 33 VDC	>10 kOhm / < 100 nF	< 7 mA
4 wire	Pressure	ratiom. 10 ... 90%	5 VDC ±10%	>10 kOhm / < 100 nF	< 5 mA
(with temperature)	Temperature (-40 ... +150 °C)	ratiom. 10 ... 90%	5 VDC ±10%	>10 kOhm / < 100 nF	< 5 mA
Polarity reversal protection	Short circuit proof and protected against polarity reversal. Each connection is protected against crossover up to max. supply voltage.				
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	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 sealded 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 ⟨Ex⟩	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 [1] (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) [2]	% fs/10K	± 0.15

Parameter pressure (< 1 bar)	Unit	
Characteristic line [1] (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) [2]	% fs/10K	± 0.15

Higher accuracy

Parameter pressure (≥ 1 bar)	Unit	
Characteristic line [1] (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 [1] (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

[1] incl. zero point, full scale, linearity, hysteresis and repeatability

Order code selection table in bar

				1	2	3	4	5	6	7	8	9	10	11
			519.	X	X	X	X	X	X	X	X	X	X	X
Pressure mode	Relative			9										
	Relative with higher accuracy			D										
Pressure range [1]	0 ... 0.4 bar				2	7								
	0 ... 0.6 bar				2	8								
	0 ... 1.0 bar				1	1								
	0 ... 1.6 bar				1	2								
	0 ... 2.5 bar				1	4								
	0 ... 4.0 bar				1	5								
	0 ... 6.0 bar				1	7								
	0 ... 10.0 bar				3	0								
	0 ... 16.0 bar				3	1								
	0 ... 25.0 bar				3	2								
	0 ... 40.0 bar				3	3								
	0 ... 60.0 bar				4	0								
Sealing material	FPM	Fluoro elastomer					0							
	EPDM	Ethylene propylene					1							
Version	standard							0						
	with Ex-Admission Ⓔx [2]	without zone separation	Ex II 1 GD					2	4	1,3				
	with Ex-Admission Ⓔx [2]	with zone separation [3]	Ex II 1/2 GD					3	4	1,3				
Output / power supply	0 ... 5 V	7 ... 33 VDC							1					
	0 ... 10 V	12 ... 33 VDC							2					
	4 ... 20 mA	10 ... 30 VDC							3					
	4 ... 20 mA Ⓔx	10 ... 30 VDC							4	1,3				
	ratiom. 10 ... 90%	5 VDC ±10%							7					
	ratiom. 10 ... 90%	5 VDC ±10% with temperature							5	3				
Electical connection [4]	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				
Pressure connection [1]	Outside thread	G ½ sealed at back DIN 3852-E									0	1	1	
		G ½ dual sealded									0	2	1	
		G ¾ dual sealded									0	3	1	
Pressure range variation (optional)	Indicate W and state range on order (e.g. W0... + 0.5bar/OUT0.5...4.5V)													W

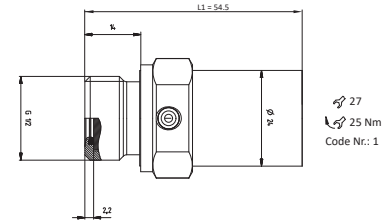
Order code selection table in psi

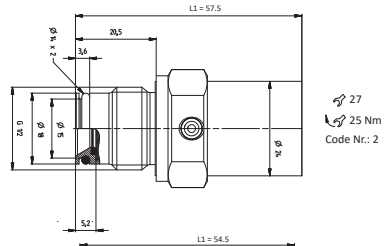
				1	2	3	4	5	6	7	8	9	10	11
			519.	X	X	X	X	X	X	X	X	X	X	X
Pressure mode	Relative			9										
	Relative with higher accuracy			D										
Pressure range [1]	0 ... 6 psi				A	7								
	0 ... 10 psi				A	8								
	0 ... 15 psi				B	1								
	0 ... 20 psi				B	2								
	0 ... 30 psi				B	4								
	0 ... 60 psi				B	5								
	0 ... 100 psi				B	7								
	0 ... 150 psi				C	0								
	0 ... 200 psi				C	1								
	0 ... 300 psi				C	2								
	0 ... 500 psi				C	3								
	0 ... 750 psi				D	0								
Sealing material	FPM	Fluoro elastomer					0							
	EPDM	Ethylene propylene					1							
Version	standard							0						
	with Ex-Admission Ⓔx [2]	without zone separation	Ex II 1 GD					2	4	1,3				
	with Ex-Admission Ⓔx [2]	with zone separation [3]	Ex II 1/2 GD					3	4	1,3				
Output / power supply	0 ... 5 V	7 ... 33 VDC							1					
	0 ... 10 V	12 ... 33 VDC							2					
	4 ... 20 mA	10 ... 30 VDC							3					
	4 ... 20 mA Ⓔx	10 ... 30 VDC							4	1,3				
	ratiom. 10 ... 90%	5 VDC ±10%							7					
	ratiom. 10 ... 90%	5 VDC ±10% with temperature							5	3				
Electical connection [4]	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				
Pressure connection [1]	Outside thread	G ½ sealed at back DIN 3852-E									0	1	1	
		G ½ dual sealded									0	2	1	
		G ¾ dual sealded									0	3	1	
Pressure range variation (optional)	Indicate W and state range on order (e.g. W0... + 0.5bar/OUT0.5...4.5V)													W

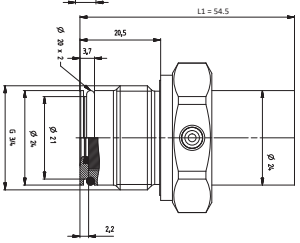
[1] Other pressure ranges on request
[2] without UL-Admisson
[3] Turn-down versions allowed up to 1 bar
[2] Delivery without female connector

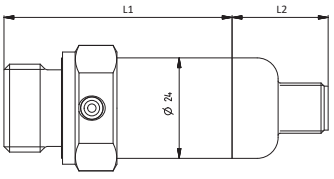
Accessories *(supplied loose)*	Order number
Female connector DIN EN 175301-803-A with seal	103510
Connector DIN EN 175301-803-C with seal	104244
Corner-wire box for connector M12x1	106975
Corner-wire box for connector M12x1 with cable 2.0 m	114604
Straight-wire box for connector M12x1	114570
Straight-wire box for connector M12x1 with cable 2.0 m	114605
Calibration certificate	104551

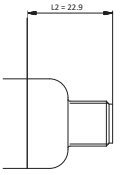
Dimensions in mm / Electrical connections

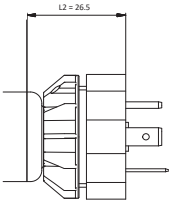


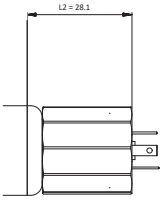




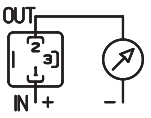




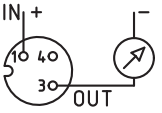




2 wire

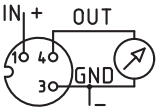


1 (IN) 2 (OUT)

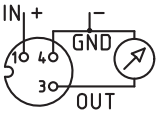


1 (IN) 3 (OUT)

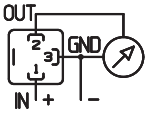
3 wire



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

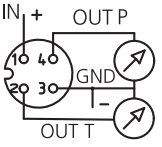


1 (IN) 3 (OUT) 4 (GND)



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

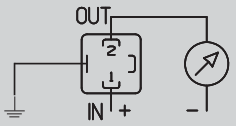
4 wire



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

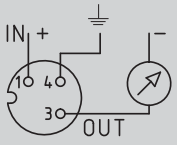
Device design with explosion protection: 4 ... 20 mA
The grounding connection is conductively connected to the pressure transmitter housing.

connector DIN EN 175301-803-A



1 (IN) 2 (OUT) ⏚

connector M12x1



1 (IN) 3 (OUT) 4 (⏚)

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