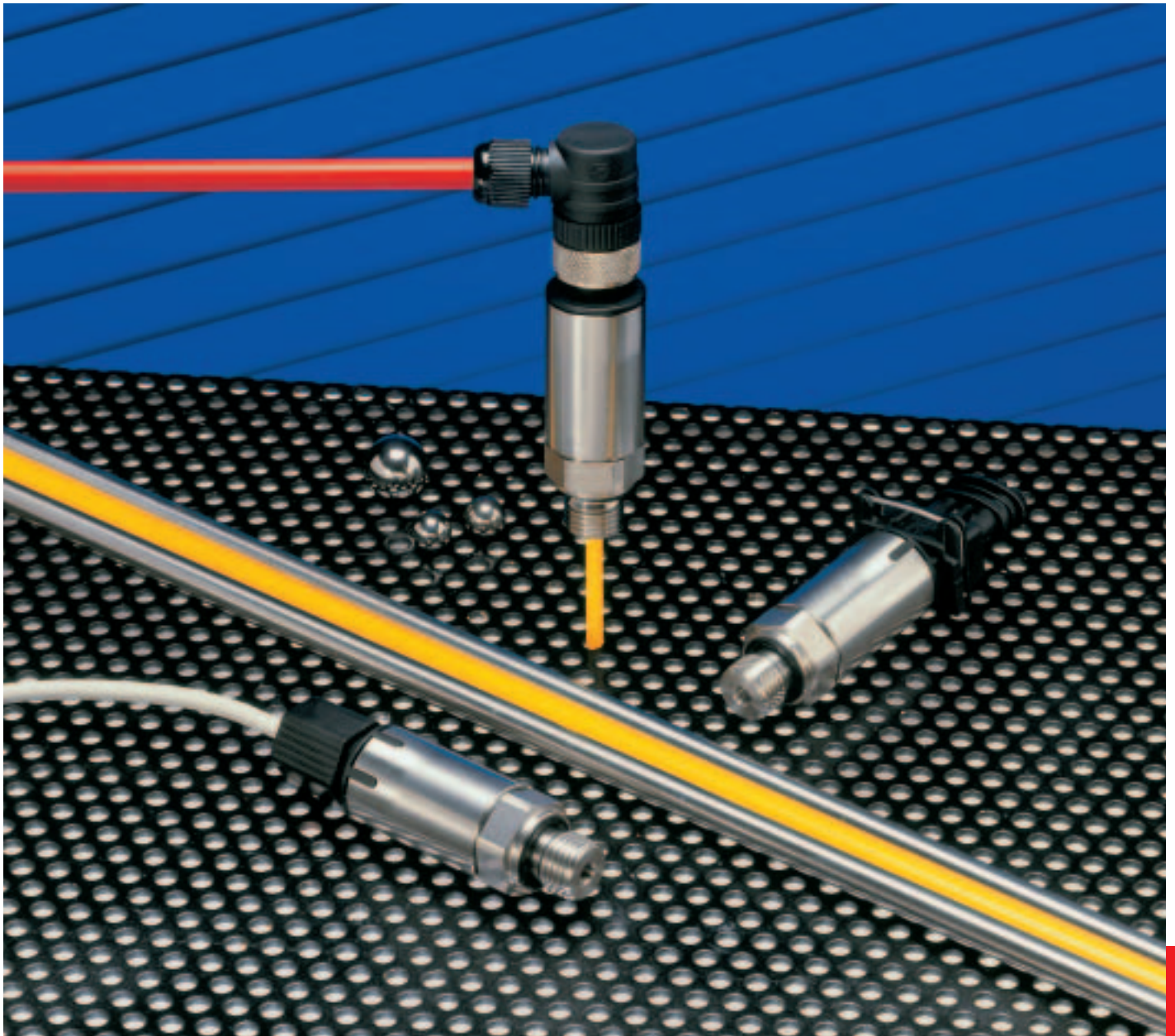


511

OEM

Pressure transmitter
Relative -1 ... 600 bar
Absolute 0 ... 25 bar



EDITION 10/2002

HUBA-REGISTERED TRADE MARK

 **Huba Control**

FOR FINE PRESSURE AND FLOW MEASUREMENT

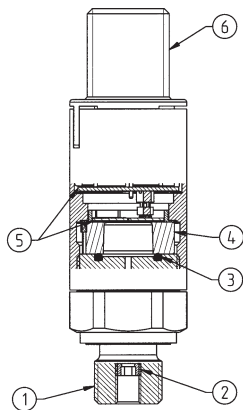


EDITION 10/2002

Technical overview

These compact OEM pressure transmitters type series 511 meet the highest specification for mechanical stress, EMC compatibility, and operational reliability, which means that this range is particularly suitable for all demanding industrial applications.

This sensor utilises a ceramic technology, developed by Huba Control and for the last 10 years, in millions of applications, used in combination with unique integrated electronic design, means that the type 511 series has a high degree of accuracy for all temperature ranges. These units are available in small or production quantities, with an excellent price to performance ratio.



Legend to cross-section drawing

- 1 Connection fitting
- 2 Protection of media leakage
- 3 Sealing
- 4 Ceramic cell
- 5 Electronic with EMC-protection
- 6 Electrical connection (example Quickon)

Pressure ranges

Absolute pressure
Relative pressure (Gage)
(differential measurement of pressure relative to ambient pressure).

Overload

3.0x Full scale at -1 ... 4 bar
2.5x Full scale at 6 ... 400 bar
2.0x Full scale at 600 bar
Higher overload on request

Rupture pressure

3.0x Full scale at -1 ... 4 bar
2.5x Full scale at 6 ... 400 bar
2.0x Full scale at 600 bar
Higher rupture pressure on request
Patented media stop system to prevent media egress when exceeding rupture pressure range (≥ 40 bar nominal value)

Accuracy

Total of linearity, hysteresis and repeatability
 $< \pm 0.3\%$ fs
Adjustment accuracy zero point and full scale
 $< \pm 0.3\%$ fs

Housing material

Casing:
Stainless steel 1.4305 (AISI 303)

Materials in contact with the medium

Ceramic Al_2O_3 /
Stainless steel 1.4305 (AISI 303)
Media stopper: PPS
Sealing material:
optionally FPM, NBR,
others on request

Application temperature

Medium temperature with sealing:
FPM -15 ... +125 °C
NBR -25 ... +85 °C
FPM spec. -40 ... +150 °C
Ambient temperature:
For all versions max. 85 °C
For versions with connector AMP and ratiometric output max. 125 °C
(Versions up to 150 °C on request)

Temperature influences

TK0 $< \pm 0.015\%$ fs/°C
TKE $< \pm 0.015\%$ fs/°C
temperature range -40 ... +125 °C

Dynamic response

Suitable for static and dynamic measurements.
Response time < 2 ms
typ. 1 ms

Pressure connections

See order code selection table

Weight

Version inside thread 85 grams
Version outside thread 95 grams

Installation arrangement

Unrestricted

Signal/Power supply

See order code selection table
• Short circuit-proof and protected against polarity reversal. Each connection against other with max. \pm supply voltage.
Electric strength 500 VDC, on request 1000 VDC

Load

Voltage outputs:
 > 10 kOhm / < 100 nF
OutputP
 $4 - 20$ mA $\leq \frac{\text{supply voltage} - 8 \text{ V}}{0.02 \text{ A}}$ [Ohm]
Ratiometrically
 > 10 kOhm / < 100 nF

Current consumption

With max. signal output
Voltage outputs: < 4 mA
 $4 - 20$ mA < 20 mA
Ratiometrically < 4 mA

Electrical connections / Protection standard

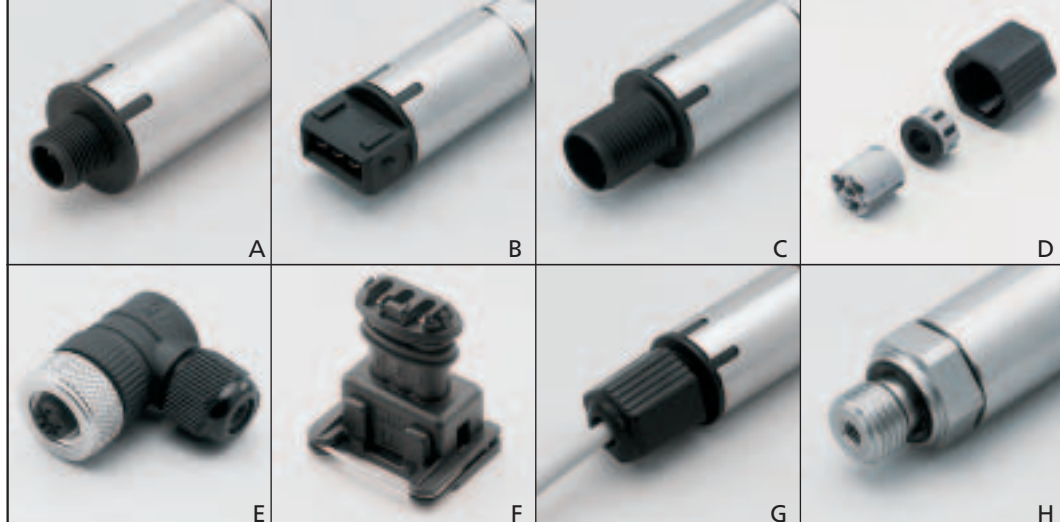
See order code selection table

Tests / Admissions

Shock acc. IEC 68-2-27
75 G, 11 ms half sine wave, all 3 directions. Free fall from 1 m on concrete (6x).
Constant shock acc. IEC 68-2-29
40 G for 6 ms, 1000x all 3 directions.
Vibration acc. IEC 68-2-6
20 G, 9 ... 200 Hz, 2 ... 9 Hz with amplit ± 15 mm, 1 Octave / min. all 3 directions, 50 constant load.
EMV-behaviour see on the back.
UL-version see separate data sheet.

The distinct advantages

- Compact, rugged construction for highest operational reliability
- Protection IP 67 standard
- No media egress when exceeding rupture pressure (patented)
- Negligible temperature influence on accuracy ($\pm 0.015\%$ fs/°C)
- Excellent EMC-capacity
- Saving time by quick cable mounting by the customer with Quickon-System



- A – Connector M 12x1
- B – Connector AMP
- C – Quickon
- D – Quickon cable screwing
- E – Female connector M 12x1
- F – Female Connector AMP Junior Power Timer
- G – Cable 1.5 meters
- H – Outside thread G 1/4

Versions

Order code selection table

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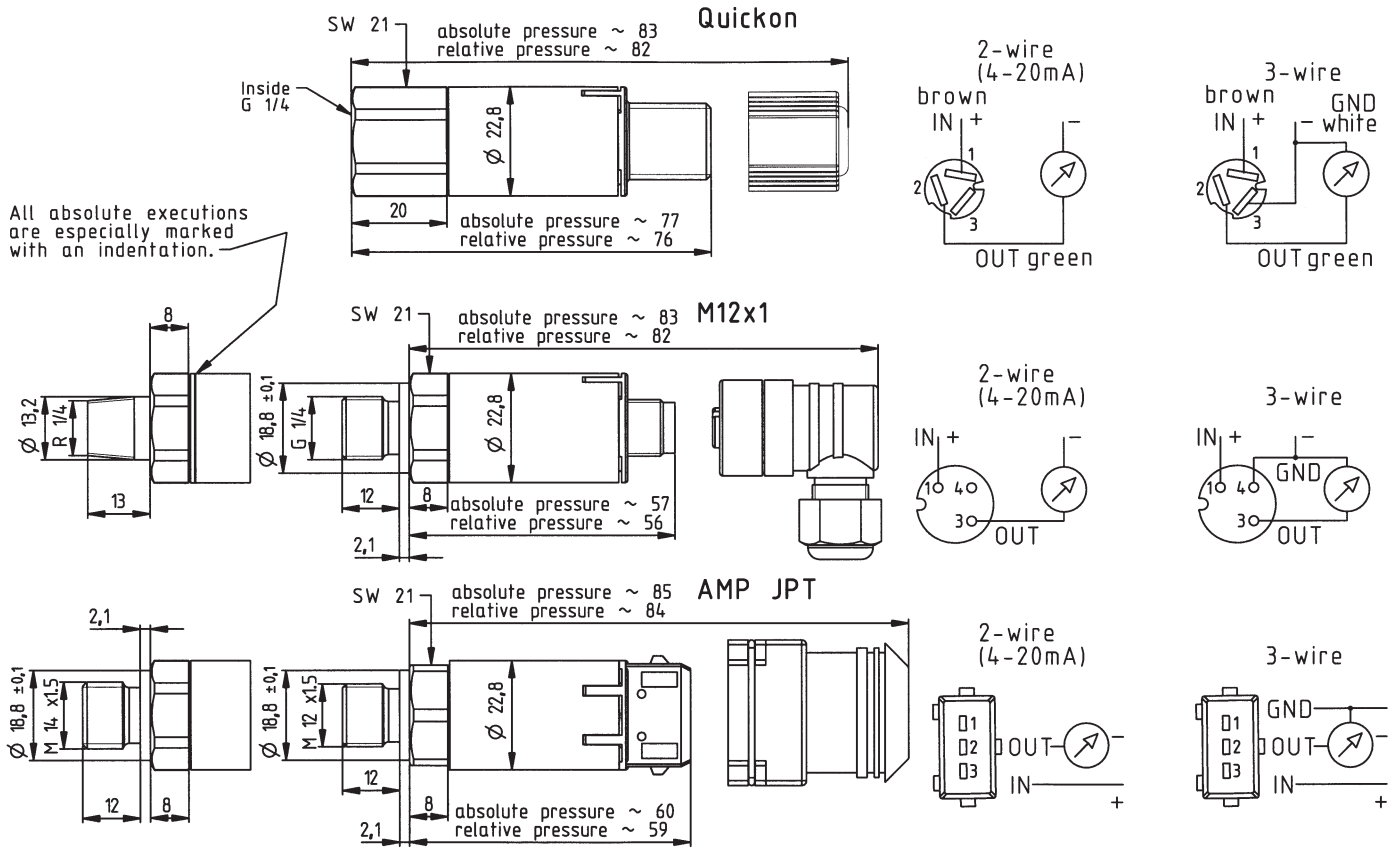
511

		X	X	X	X	X	X	X	X	X
Relative pressure		9								
Absolute pressure		8								
Pressure ranges¹ (bar)	-1 ... + 0	9	0	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		3	2						
	0 ... + 40	9	3	3						2
	0 ... + 60	9	4	0						2
	0 ... + 100	9	4	1						2
	0 ... + 160	9	4	2						2
	0 ... + 250	9	4	3						2
	0 ... + 400 Viton seal only	9	5	4	6					2
	0 ... + 600 Viton seal only	9	5	5	6					2
	▲ Full scale signal at these pressures.									
Sealing materials²	FPM Fluoro-elastomer (Viton) - 15 ... + 125 °C				0					
	NBR butadiene-acrylic nitrile-caoutchouc - 25 ... + 85 °C				2					
	FPM Fluoro-elastomer (Viton) spec. - 40 ... + 150 °C				6					
Calibration	Factory calibrated				0					
Outputs and power supply	0 - 5 V 8.0 - 33.0 VDC 3-wire cable					1				
	1 - 6 V 8.0 - 33.0 VDC 3-wire cable					6				
	0 - 10 V 11.4 - 33.0 VDC 3-wire cable					2				
	0 - 10 V 24 VAC +/- 15% 3-wire cable					7				
	4 - 20 mA 8.0 - 33.0 VDC 2-wire cable					3				
	0.5 - 4.5 V, ratiometric 5 VDC (4.575 - 5.25) 3-wire cable					4				
Electrical connections	Cable, 1.5 meters IP 67 max. 85 °C							0		
	Quickon including cable screwing IP 67 max. 85 °C							1		
	Connector AMP (without female connector) IP 67 max. 125 °C							2		
	Connector M 12 x 1 (without female connector) IP 67 max. 85 °C							5		
Pressure connections³	Inside thread G 1/4 with O-ring sealing								1	
	Outside thread G 1/4 sealed at back DIN 3852/E								4	
	Outside thread R 1/4, DIN 2999								7	
	Outside thread M 12 x 1.5								5	
	Outside thread M 14 x 1.5								6	
Pressure tip orifice	Without pressure tip orifice									1
	With pressure tip orifice (standard from ≥ 40 bar on)									2
Pressure range variation	Indicate W and mention range on order									W
Accessories	Female connector for connector M12 x 1 (not included in delivery)	1	0	6	9	7	5			
	Female connector AMP (Junior Power Timer) (not included in delivery)	1	0	8	7	6	7			
	Quickon cable screwing (included in delivery)	1	0	7	3	5	9			
Packaging	Mention on order: • single packaging / • multiple packaging (25 pcs)									
	• Single packaging, accessories integrated									
	• Multiple packaging (25 pcs), Quickon cable screwing enclosed									
	• Multiple packaging (25 pcs), AMP and M12 connector separately enclosed									

¹ Other pressure ranges on request.

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

³ Other pressure connections and materials on request.



Electromagnetic compatibility:
 CE conformity (EMC) by application of harmonized standards: Interference stability EN 50082-2, IEC 61000-6-2 and EN 61326-1, interference emit EN 50081-1, EN 55022, CISPR 22, EN 61326-1

Interference stability	Test standard	Effects
Electrostatic discharge (ESD)	EN 61000-4-2 15 kV air discharge, 8 kV contact discharge	No effect
High-frequency electromagnetic radiation (HF)	EN 61000-4-3 200 V/m, 80 ... 1000 Mz	No effect
Conducted HF interference	EN 61000-4-6 30 V, 0.15 ... 80 MHz	No effect
Fast transients (burst)	EN 61000-4-4 4 kV	No effect
Surge	EN 61000-4-5 Line-Line, Line-Case 500 V, 12 Ohm, 9 µF 1 kV, 42 Ohm, 0.5 µF Ratiometric Line-Line 500 V, 2 Ohm, 18 µF	No failure
Magnetic fields	EN 61000-4-8 30 A/m, 50 Hz	No effect
Insulation voltage	500 VDC (optional 1000 VDC) 350 VAC (optional 700 VAC)	No effect
Interference emit	Test standard	Effects
Conducted interference	EN 55022 0.15... 30 MHz	No emission
Radiation from housing	30...1000 MHz, 10 meters	No emission

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