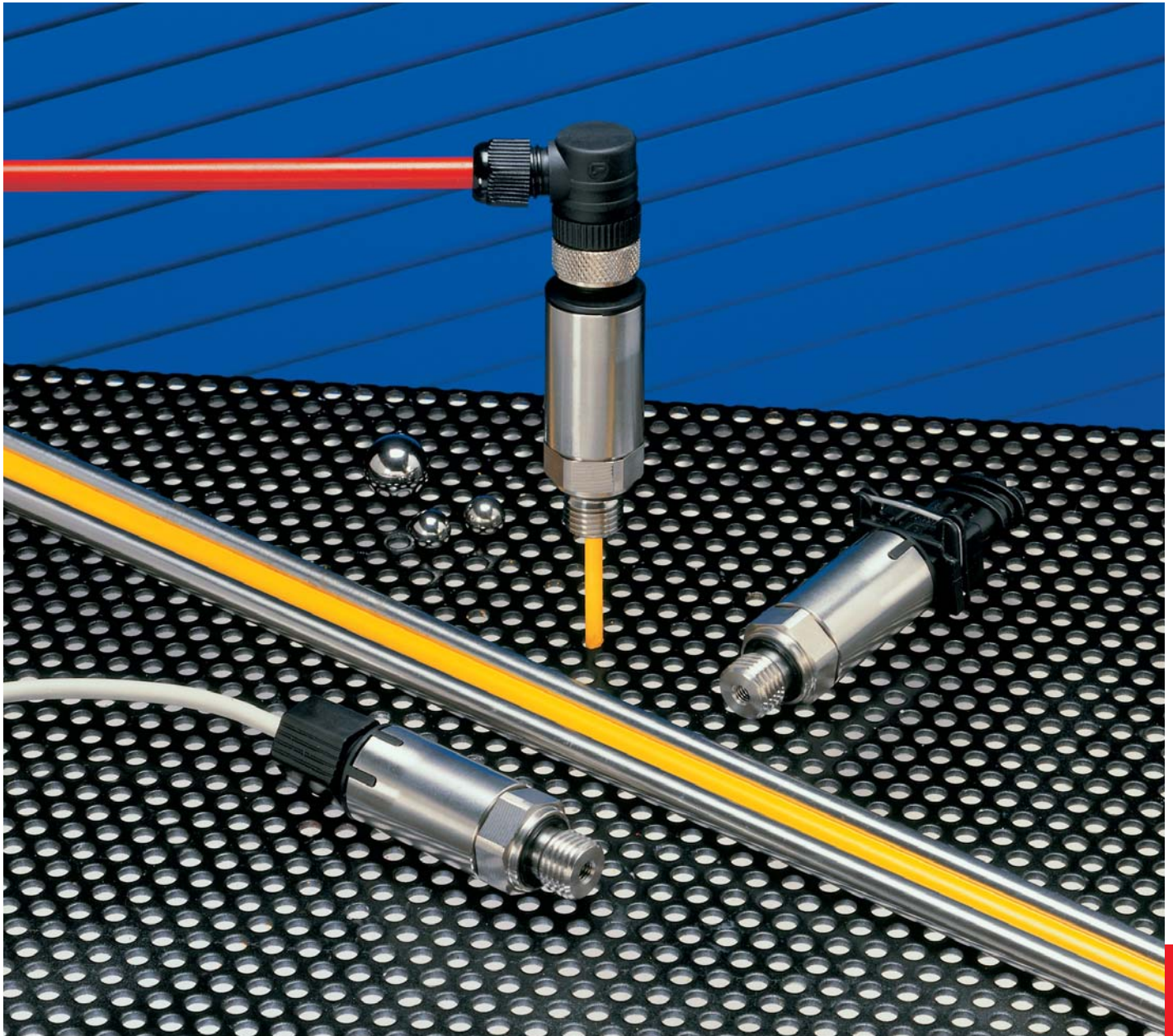


511

OEM

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



EDITION 07/2004

HUBA-REGISTERED TRADE MARK

 **Huba Control**

FOR FINE PRESSURE AND FLOW MEASUREMENT

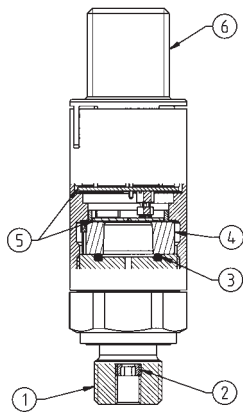


EDITION 07/2004

### 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 ... 600 bar  
but as a maximum 900 bar  
Higher overload on request

### Rupture pressure

3.0x Full scale at -1 ... 4 bar  
2.5x Full scale at 6 ... 600 bar  
but as a maximum 900 bar  
Higher rupture pressure on request  
**Patented media stop system to prevent media egress when exceeding rupture pressure range ( $\geq 40$  bar nominal value)**

### Accuracy

Total of linearity, hysteresis and repeatability  
Adjustment bar Adjustment psi  
< +/- 0.3% fs < +/- 0.5% fs  
Adjustment accuracy zero point and full scale  
Adjustment bar Adjustment psi  
< +/- 0.3% fs < +/- 0.5% fs

### Housing material

Casing:  
Stainless steel 1.4305 (AISI 303)

### Materials in contact with the medium

Ceramic Al<sub>2</sub>O<sub>3</sub>/  
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

	Adjustment bar	Adjustment psi
TK0	< ± 0.015% fs/K	< ± 0.025% fs/K
TKE	< ± 0.015% fs/K	< ± 0.015% fs/K

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. +/- supply voltage.  
**Electric strength 500 VDC, on request 1000 VDC**

### Load

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

### Current consumption

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

### Electrical connections / Protection standard

See order code selection table

### Tests / Admissions

**Shock acc. IEC 68-2-27**  
100 G, 11 ms half sine wave, all 6 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 ... 2000 Hz, 2 ... 9 Hz with amplitude +/- 15 mm, 1 Octave / min. all 3 directions, 50 constant load.  
**EMC-behaviour** see on the back.  
**UL** according to standard 873

### 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
- Excellent EMC-capacity
- Saving time by quick cable mounting by the customer with Quickon-System

## Versions

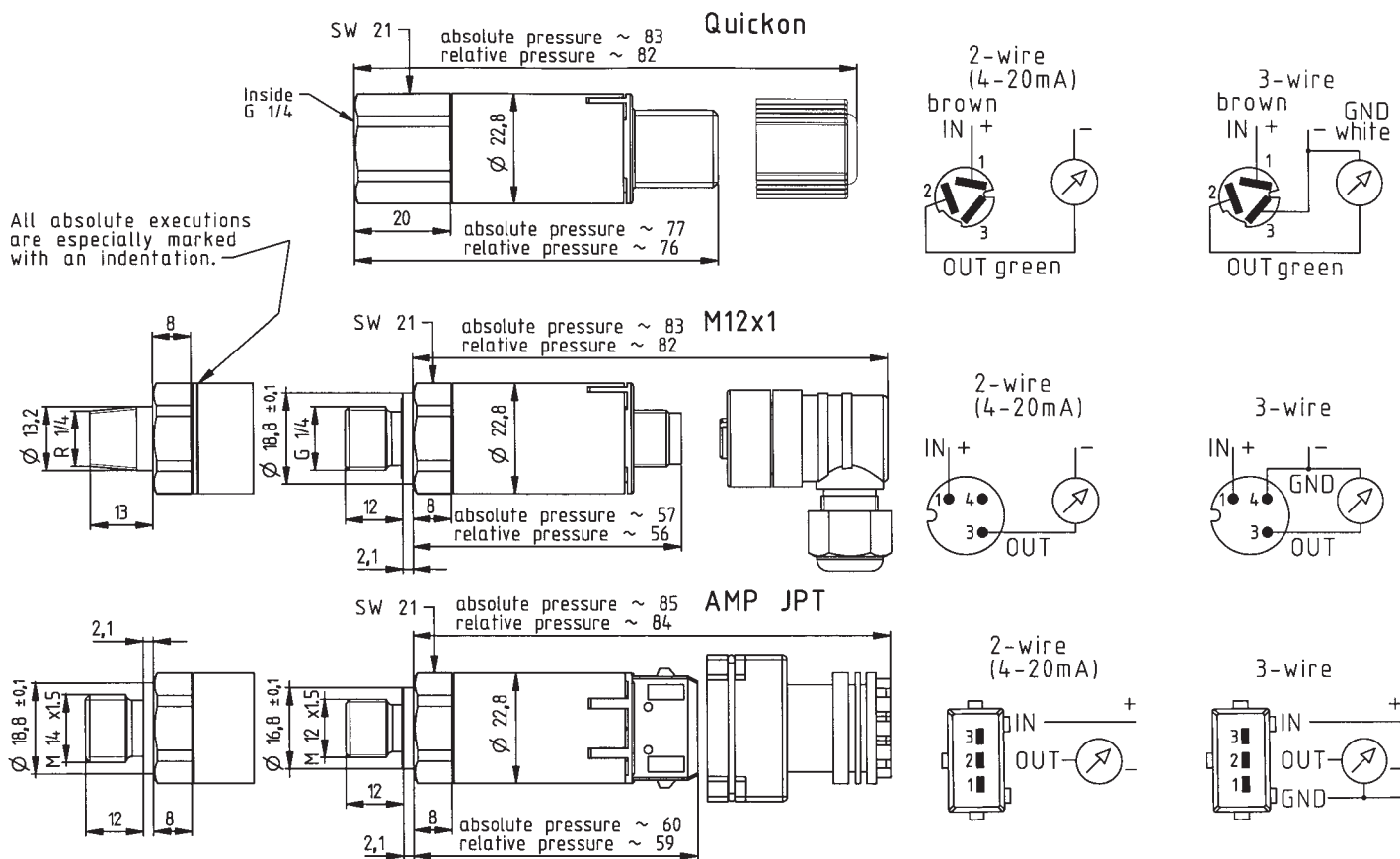


			X	X	X	X	X	X	X	X	X	X	X
<b>Relative pressure</b>			9										
<b>Absolute pressure</b>			8										
<b>Pressure ranges in bar<sup>1</sup></b>	-1 ... + 0 bar		9	0	0								
	0 ... + 1 bar			1	1								
	0 ... + 1.6 bar			1	2								
	0 ... + 2.5 bar			1	4								
	0 ... + 4 bar			1	5								
	0 ... + 6 bar			1	7								
	0 ... + 10 bar			3	0								
	0 ... + 16 bar			3	1								
	0 ... + 25 bar			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	FPM seal only	9	5	4	6							
	0 ... + 600 bar	FPM seal only	9	5	5	6							
<b>Pressure ranges in psi<sup>1</sup></b>	-30 ... 0" hg			A	0								
	0 ... + 15 psi			B	1								
	0 ... + 30 psi			B	4								
	0 ... + 60 psi			B	5								
	0 ... + 100 psi			B	7								
	0 ... + 200 psi			C	1								
	0 ... + 300 psi			C	2								
	0 ... + 500 psi		9	C	3								
	0 ... + 750 psi		9	D	0								
	0 ... + 1000 psi		9	D	1								
	0 ... + 2000 psi		9	D	2								
	0 ... + 3000 psi		9	D	3								
	0 ... + 5000 psi	FPM seal only	9	E	4	6							
	0 ... + 7500 psi	FPM seal only	9	E	5	6							
	▲	Full scale signal at these pressures											
<b>Sealing materials<sup>2</sup></b>	FPM Fluoro-elastomer	- 15 ... + 125 °C				0							
	NBR butadiene-acrylic nitrile-caoutchouc	- 25 ... + 85 °C				2							
	FPM Fluoro-elastomer spec.	- 40 ... + 150 °C				6							
<b>Calibration</b>	Factory calibrated						0						
<b>Outputs and power supply</b>	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	16 - 34 VDC/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 (4.75 - 5.25)	3-wire cable					4					
	* Only with Quickon- and cable version												
<b>Electrical connections</b>	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		
<b>Pressure connections<sup>3</sup></b>	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	
<b>Process connections</b>	without pressure tip orifice												1
	with pressure tip orifice (standard from ≥ 40 bar on)												2
	without pressure tip orifice, free of oil and grease (only seal FPM, not compound-filled, up to 160 bar)												3
	with pressure tip orifice (standard from ≥ 40 bar on) free of oil and grease (only seal FPM, not compound-filled, up to 160 bar)												4
<b>Pressure range variation</b>	Indicate W and mention range on order												W
<b>Accessories</b>	Female connector for connector M12 x 1	(not included in delivery)		1	0	6	9	7	5				
	Female connector AMP (Junior Power Timer) 2-wire	(not included in delivery)		1	1	0	4	4	2				
	Female connector AMP (Junior Power Timer) 3-wire	(not included in delivery)		1	0	8	7	6	7				
	Quickon cable screwing	(included in delivery)		1	0	7	3	5	9				
<b>Packaging</b>	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											
		• Multiple packaging (25 pcs), AMP and M12 connector separately enclosed											

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

<sup>2</sup> According to ISO standard R 1629, other sealing materials on request.

<sup>3</sup> Other pressure connections and materials on request.



**Electromagnetic compatibility:**  
 CE conformity to EC directive 89/336 (EMC) by application of harmonized standards: Interference stability EN 61000-6-2 and EN 61326-1, interference emit EN 61000-6-3, EN 61326-1

Interference stability	Test standard	Effects
Electrostatic discharge (ESD)	EN 61000-4-2 15 kV air, 8 kV contact	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 (CISPR 22) 0.15... 30 MHz	No emission
Radiation from housing	30...1000 MHz, 10 meters	No emission

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