

# Relative pressure transmitter type 512 for mobile hydraulic

Pressure range  
0 ... 40 – 1000 bar



The pressure transmitter type 512 with cable connection meets the highest demands of industrial and mobile hydraulic applications. This sensor is available with protection standard IP 69K. The standard pressure orifice prevents damage due to pressure peaks.

The compact and rugged design meets the requirement of shock- and vibration stability according to Kfz-norm ISO 16750. The pressure transmitter type 512 guarantees highest EMC stability according to various Kfz regulations with test level up to 100V/m.

The measuring cell is based upon the Huba Control developed thick film technology on stainless steel and is fully hermetically welded.

- Compact and rugged construction for highest operational reliability
- Welded construction – no elastomer seals
- Negligible temperature influence on accuracy
- Excellent EMC-capacity
- Rugged PUR cable with IP 69K

## Technical Overview

<b>Pressure range</b>				
Relative		0 ... 40 – 1000 bar		
<b>Operating conditions</b>				
Medium		Liquids and gases		
Temperature	Medium	-40 ... +125 °C		
	Ambient	-40 ... +100 °C		
	Storage	-40 ... +100 °C		
Tolerable overload	≤ 400 bar	3 x FS		
	> 400 bar	2.5 x FS (max. 1500 bar)		
Rupture pressure	≤ 400 bar	6 x FS		
	> 400 bar	4 x FS (max. 2500 bar)		
<b>Materials</b>				
Case		Stainless steel 1.4404 / AISI 316 L		
Cable		PUR		
Materials in contact with the medium	Pressure connection	Stainless steel 1.4404 / AISI 316 L		
	Sensor	Stainless steel		
<b>Electrical overview</b>				
2 wire	Output	Power supply	Load	Current consumption
	4 ... 20 mA	9.5 ... 33 VDC	$< \frac{\text{Power supply} - 9.5 \text{ V}}{0.02 \text{ A}}$ [Ohm]	< 23 mA
3 wire	0 ... 5 V	7.5 ... 33 VDC	>10 kOhm / < 100 nF	< 7 mA
	1 ... 6 V	8.5 ... 33 VDC	>10 kOhm / < 100 nF	< 7 mA
	0 ... 10 V	12.5 ... 33 VDC	>10 kOhm / < 100 nF	< 7 mA
	ration. 10 ... 90%	5 VDC ± 10%	>10 kOhm / < 100 nF	< 7 mA
Insulation voltage				1000 VDC
Polarity reversal protection		Short circuit proof and protected against polarity reversal. Each connection is protected against crossover up to max. supply voltage.		
<b>Dynamic response</b>				
Response time		< 2 ms (10... 90%, typ. 1 ms)		
Load cycle		< 100 Hz		
<b>Electrical connection</b>		<b>Protection standard</b>	<b>Protection class</b>	
Cable PUR 1.5 m		IP 69K, IP 68	III	
<b>Pressure connection</b>				
Outside thread	7/16 - 20 UNF	sealed at back SAE-4 with O-Ring seal FPM (-20 ... +135 °C)		
	1/4 - 18 NPT			
	G 1/4	sealed at back DIN 3852-E with profile seal FPM (-30 ... +135 °C)		
	M14x1.5	sealed at back DIN 3852-E with profile seal FPM (-30 ... +135 °C)		
	9/16 - 18 UNF	sealed at back SAE-6 with O-Ring seal FPM (-20 ... +135 °C)		
	R 1/4	EN 10226		
<b>Installation arrangement</b>				
Unrestricted				
<b>Tests / Admissions</b>				
Electromagnetic compatibility	Noise immunity / Noise emission		Noise immunity automotive guideline	Noise emission automotive guideline
	ISO 13766 - earth-moving equipment		ISO 11452-2, HF (Field), 100 V/m (200 ... 2000 MHz)	CISPR11
	DIN EN 13309 - construction equipment		ISO 11452-4, HF (BCI), 100 mA (20 ... 400 MHz)	
	DIN ISO 14982 - agriculture and forestry		ISO 10605, ESD, ±15 kV contact, ±15 kV air	
	Automotive guideline ECE R10 <sup>1)</sup>		ISO 7637-2, puls, test level 4 <sup>2), 3)</sup>	
	Automotive guideline 2004/104/EG <sup>1)</sup>		ISO 16750-2, Load Dump, 155 V (1Ω, 300 ms)	
EN 61326-2-3 - pressure transducer				
Noise immunity (industry)		EN 61000-6-2		
Noise emission (residential and commercial area)		EN 61000-6-3		
Environmental test		ISO 16750-Z-J-A-L-Z IP69K		
Shock acc. IEC 68-2-27		50 g, 11 ms, half sine wave, 1000x / axis		
Vibration acc. ISO 16750-3		Test VI (12 g, sinusoidal 18 g random vibration)		
cULus		ANSI/UL 61010-1 acc. E325110		
<b>Weight</b>				
~ 176 g				
<b>Packaging (Please state on order)</b>				
Single packaging in cardboard				
Multiple packaging in cardboard (2 pcs)				
Multiple packaging in cardboard (25 pcs)				

## Accuracy

Parameter		Unit	
Characteristic line acc. IEC 61298-2 <sup>4)</sup>		% fs	± 0.5
Resolution		% fs	0.1
Thermal characteristic <sup>5)</sup>	max.	% fs/10K	± 0.2
Long term stability acc. IEC 61298-2	max.	% fs	± 0.3

Test conditions: 25 °C, 45% rF

<sup>1)</sup> E1 approval for customer specific type on request

<sup>2)</sup> Puls 1, 2a, 2b, 3a, 3b

<sup>3)</sup> Pressure sensor for 12 V and 24 V power system (0 ... 5 V, 0 ... 10 V / 1 ... 6 V and 4 ... 20 mA)

<sup>4)</sup> incl. zero point, full scale, linearity, hysteresis and repeatability

<sup>5)</sup> -40 ... 100 °C

		1	2	3	4	5	6	7	8	9	10	11	
<b>Order code selection table in bar</b>		<b>512. X X X X X X X X X X X X</b>											
Pressure range <sup>1)</sup>	0 ... + 40 bar	9	3	3	S	0							
	0 ... + 60 bar	9	4	0	S	0							
	0 ... + 100 bar	9	4	1	S	0							
	0 ... + 160 bar	9	4	2	S	0							
	0 ... + 250 bar	9	4	3	S	0							
	0 ... + 400 bar	9	5	4	S	0							
	0 ... + 600 bar	9	5	5	S	0							
	0 ... + 1000 bar	9	5	7	S	0							
Output / power supply	0 ... 5 V      7.5 ... 33 VDC							1					
	0 ... 10 V     12.5 ... 33 VDC							2					
	1 ... 6 V      8.5 ... 33 VDC							6					
	4 ... 20 mA    9.5 ... 33 VDC							3					
	10 ... 90% ratiom.    5VDC ±10%							7					
Electrical connection	Cable 1.5 m							L					
Pressure connection <sup>1)</sup>	Outside thread	<sup>7</sup> / <sub>16</sub> -20 UNF sealed at back SAE-4 with O-Ring seal FPM								G	2	1	
		<sup>1</sup> / <sub>4</sub> -18 NPT								3	2	1	
		G <sup>1</sup> / <sub>4</sub> sealed at back DIN 3852-E with profile seal FPM									4	2	1
		M14x1.5 sealed at back DIN 3852-E with profile seal FPM									6	2	1
		R <sup>1</sup> / <sub>4</sub> acc. EN 10226									7	2	1
<sup>9</sup> / <sub>16</sub> -18 UNF sealed at back SAE-6 with O-Ring seal FPM									V	2	1		
Pressure range variation (optional)	Indicate W and state range on order (e.g. W0... + 300bar/Out1...8V)											W	

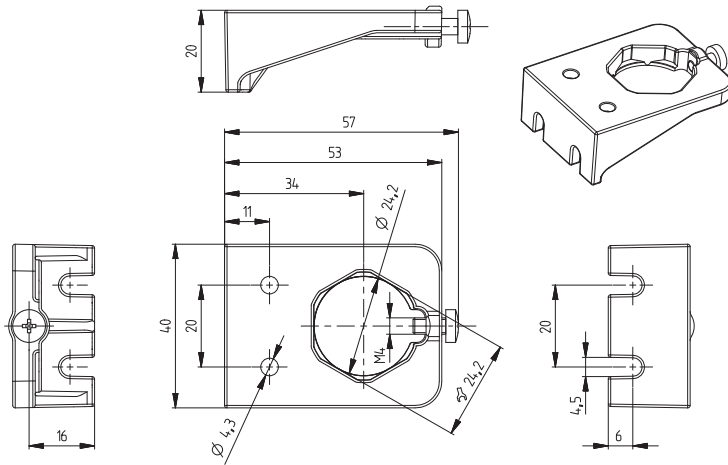
		1	2	3	4	5	6	7	8	9	10	11	
<b>Order code selection table in psi</b>		<b>512. X X X X X X X X X X X X</b>											
Pressure range <sup>1)</sup>	0 ... + 600 psi	9	C	4	S	0							
	0 ... + 750 psi	9	D	0	S	0							
	0 ... + 1000 psi	9	D	1	S	0							
	0 ... + 2000 psi	9	D	2	S	0							
	0 ... + 3000 psi	9	D	3	S	0							
	0 ... + 5000 psi	9	E	4	S	0							
	0 ... + 7500 psi	9	E	5	S	0							
	0 ... + 14500 psi	9	E	7	S	0							
Output / power supply	0 ... 5 V      7.5 ... 33 VDC							1					
	0 ... 10 V     12.5 ... 33 VDC							2					
	1 ... 6 V      8.5 ... 33 VDC							6					
	4 ... 20 mA    9.5 ... 33 VDC							3					
	10 ... 90% ratiom.    5VDC ±10%							7					
Electrical connection	Cable 1.5 m							L					
Pressure connection <sup>1)</sup>	Outside thread	<sup>7</sup> / <sub>16</sub> -20 UNF sealed at back SAE-4 with O-Ring seal FPM								G	2	1	
		<sup>1</sup> / <sub>4</sub> -18 NPT								3	2	1	
		G <sup>1</sup> / <sub>4</sub> sealed at back DIN 3852-E with profile seal FPM									4	2	1
		M14x1.5 sealed at back DIN 3852-E with profile seal FPM									6	2	1
		R <sup>1</sup> / <sub>4</sub> acc. EN 10226									7	2	1
<sup>9</sup> / <sub>16</sub> -18 UNF sealed at back SAE-6 with O-Ring seal FPM									V	2	1		
Pressure range variation (optional)	Indicate W and state range on order (e.g. W0... + 4000psi/Out1...8V)											W	

		1	2	3	4	5	6	7	8	9	10	11	
<b>Order code selection table in MPa</b>		<b>512. X X X X X X X X X X X X</b>											
Pressure range <sup>1)</sup>	0 ... + 4 MPa	9	H	3	S	0							
	0 ... + 6 MPa	9	K	0	S	0							
	0 ... + 10 MPa	9	K	1	S	0							
	0 ... + 16 MPa	9	K	2	S	0							
	0 ... + 25 MPa	9	K	3	S	0							
	0 ... + 40 MPa	9	L	4	S	0							
	0 ... + 60 MPa	9	L	5	S	0							
	0 ... + 100 MPa	9	L	7	S	0							
Output / power supply	0 ... 5 V      7.5 ... 33 VDC							1					
	0 ... 10 V     12.5 ... 33 VDC							2					
	1 ... 6 V      8.5 ... 33 VDC							6					
	4 ... 20 mA    9.5 ... 33 VDC							3					
	10 ... 90% ratiom.    5VDC ±10%							7					
Electrical connection	Cable 1.5 m							L					
Pressure connection <sup>1)</sup>	Outside thread	<sup>7</sup> / <sub>16</sub> -20 UNF sealed at back SAE-4 with O-Ring seal FPM								G	2	1	
		<sup>1</sup> / <sub>4</sub> -18 NPT								3	2	1	
		G <sup>1</sup> / <sub>4</sub> sealed at back DIN 3852-E with profile seal FPM									4	2	1
		M14x1.5 sealed at back DIN 3852-E with profile seal FPM									6	2	1
		R <sup>1</sup> / <sub>4</sub> acc. EN 10226									7	2	1
<sup>9</sup> / <sub>16</sub> -18 UNF sealed at back SAE-6 with O-Ring seal FPM									V	2	1		
Pressure range variation (optional)	Indicate W and state range on order (e.g. W0... + 30MPa/Out1...8V)											W	

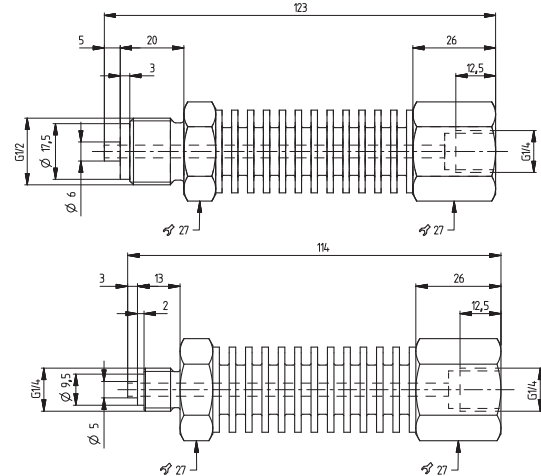
<sup>1)</sup> Other pressure range or pressure connection on request

Mounting bracket with screw	118716
Heat sink with outside thread G ½ sealed at front - inside thread G ¼	105073
Heat sink with outside thread G ¼ sealed at front - inside thread G ¼	105074
Calibration certificate	104551

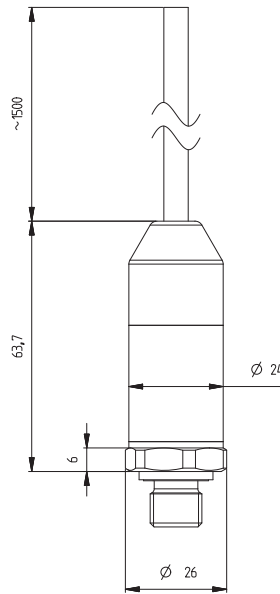
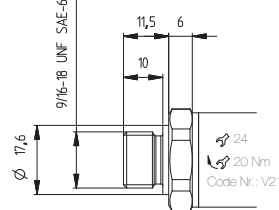
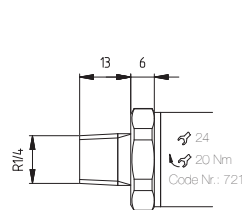
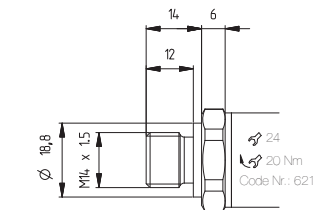
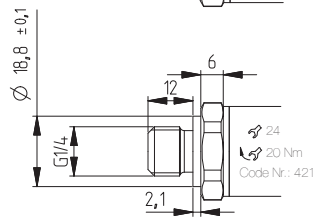
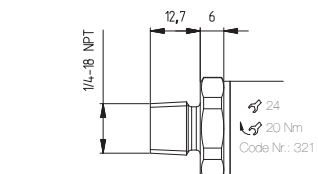
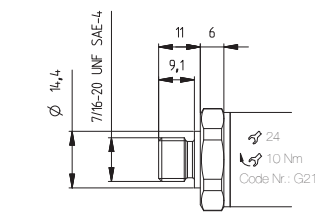
Mounting bracket



Heat sink

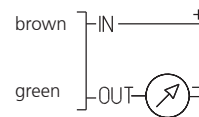


Dimensions in mm / Electrical connections

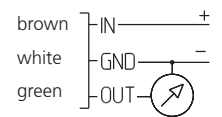


Attention: min. bending radius cable PUR ≥ 15x cladding-Ø

2 wire



3 wire



### Huba Control AG

#### Headquarters

Industriestrasse 17  
5436 Würenlos  
Telefon +41 (0) 56 436 82 00  
Telefax +41 (0) 56 436 82 82  
info.ch@hubacontrol.com

### Huba Control AG

#### Niederlassung Deutschland

Schlattgrabenstrasse 24  
72141 Walddorfhäslach  
Telefon +49 (0) 7127 23 93 00  
Telefax +49 (0) 7127 23 93 20  
info.de@hubacontrol.com

### Huba Control SA

#### Succursale France

Rue Lavoisier  
Technopôle Forbach-Sud  
57602 Forbach Cedex  
Téléphone +33 (0) 387 847 300  
Télécopieur +33 (0) 387 847 301  
info.fr@hubacontrol.com

### Huba Control AG

#### Vestiging Nederland

Hamseweg 20A  
3828 AD Hoogland  
Telefoon +31 (0) 33 433 03 66  
Telefax +31 (0) 33 433 03 77  
info.nl@hubacontrol.com

### Huba Control AG

#### Branch Office United Kingdom

Unit 13 Berkshire House  
County Park Business Centre  
Shrivenham Road  
Swindon Wiltshire SN1 2NR  
Phone +44 (0) 1993 776667  
Fax +44 (0) 1993 776671  
info.uk@hubacontrol.com