



Pressure transmitter

## Relative pressure transmitter for shipbuilding Type 522



The compact type 522 pressure transmitter for shipbuilding is based upon the Huba Control developed thick film technology where the pressure measuring cell is fully welded.

The pressure measuring cell incorporates a fully welded construction within the transducer housing. Highest requirements in various applications concerning burst can be met.

All pressure transmitters of type 522 have the most important certifications for the shipbuilding industry.

**Pressure range**  
**0 ... 2.5 – 600 bar**

- + Compact, rugged construction
- + Welded without sealing parts
- + Certified for shipbuilding with:
  - American Bureau of Shipping
  - Bureau Veritas
  - Det Norske Veritas Germanischer Lloyd
  - Lloyd`s Register

## Technical overview

### Pressure range

Relative 0 ... 2.5 – 600 bar

### Operating conditions

Medium	Liquids, gases and refrigerants (incl. ammonia)
Temperature	Medium -40 ... +135 °C (E) -30 ... +120 °C Ambient -30 ... +85 °C (E) -25 ... +85 °C Storage -50 ... +100 °C
Tolerable overload	≤ 6 bar 5 x FS > 6 bar 3 x FS (max. 1500 bar)
Rupture pressure	≤ 6 bar 10 x FS > 6 bar 6 x FS (max. 2500 bar)

### Materials

Cover	Stainless steel 1.4404 / AISI 316L
Plug accommodation	Polyarylamide 50% GF UL 94 V-0
Materials in contact with medium	Pressure connection Stainless steel 1.4404 / AISI 316L Sensor Stainless steel

### Electrical overview

2 wire	Output 4 ... 20 mA (E) 4 ... 20 mA	Power supply 7 ... 33 VDC 10 ... 30 VDC	Load < $\frac{\text{supply voltage} - 7 \text{ V}}{0.02 \text{ A}}$ [Ohm] < $\frac{\text{supply voltage} - 10 \text{ V}}{0.02 \text{ A}}$ [Ohm]	Current consumption < 23 mA < 23 mA
3 wire	0 ... 10 V	12 ... 33 VDC	> 10 kOhm / < 100 nF	< 7 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	standard 500 VDC			

### Dynamic response

Response time	< 2 ms, 1 ms typ.
Load cycle	< 100 Hz

### Electrical connection

Electrical connection	Protection standard	Protection class
Swift connector with or without cable 1.5 m (PVC spec.)	IP 67	III
Connector DIN EN 175301-803-A	IP 65	III
Connector M12x1	IP 67	III

### Pressure connection

Inside thread	$\frac{1}{16}$ - 20 UNF	(≤ 60 bar) sealing cone 45°
	$\frac{1}{2}$ - 14 NPT	
Outside thread	$\frac{1}{16}$ - 20 UNF	sealed at back DIN EN ISO 1179-2 with Profile seal ring in FPM (-30 ... +135 °C) sealed at back and manometer (combi) with Profile seal ring in FPM (-30 ... +135 °C) sealed at front and manometer (combi) sealed at front
	$\frac{1}{4}$ - 18 NPT	
	G $\frac{1}{4}$	
	G $\frac{1}{2}$	
	M20x1.5	
	G $\frac{1}{2}$	

### Installation arrangement

Unrestricted

### Tests / Admissions

Electromagnetic compatibility	CE conformity acc. EN 61326-2-3
Shock acc. IEC 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, 15 ... 2000 Hz, 15 ... 25 Hz with amplitude ± 15 mm, 1 Octave/min. all 3 directions, 50 constant load
Shipbuilding	American Bureau of Shipping (ABS)
	Bureau Veritas (BV)
	Det Norske Veritas Germanischer Lloyd (DNV GL)
Drinking water approval	Lloyd's Register (LR)
EAC	WRAS

### Protection against explosion (E)

Intrinsic safety "i" (with current output only)	<b>4 ... 20 mA</b> Ex II 1/2 G Ex ia IIC T4 Ga/Gb
EC type examination certificate	Ex II 1/2 D Ex ia IIC T125°C Da/Db
Connection to certified intrinsically safe resistive circuits with maximum values	SEV 10 ATEX 0145
Effective internal inductance and capacitance for versions with plugs complying with EN 175301-803-A or M12x1	Ui = 30 VDC; Ii = 100 mA = Pi = 0.75 W
IECEX	Li = 0 nH; Ci = 0 nF SEV 16.0007

### Weight

~ 90 g

### Packaging (Please state on order)

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

## Accuracy

Parameter	Unit	
Characteristic line <sup>1)</sup>	% fs	± 0.3
Resolution	% fs	0.1
Thermal characteristic <sup>2)</sup>	max. % fs/10K	± 0.2
Long term stability acc. IEC EN 60770-1	max. % fs	± 0.25

Test conditions: 25 °C, 45% RH, power supply 24 VDC

<sup>1)</sup> typ. ; max. 0.5% fs (incl. zero point, full scale, linearity, hysteresis and repeatability)

<sup>2)</sup> -15 ... 85 °C

			1	2	3	4	5	6	7	8	9	10	11		
<b>Order code selection table in bar</b>			522.	X	X	X	X	X	X	X	X	X	X	X	
<b>Pressure range <sup>1)</sup></b>	0 ... 2.5 bar		9	1	4	S	0								
	0 ... 4 bar		9	1	5	S	0								
	0 ... 6 bar		9	1	7	S	0								
	0 ... 10 bar		9	3	0	S	0								
	0 ... 16 bar		9	3	1	S	0								
	0 ... 25 bar		9	3	2	S	0								
	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									
<b>Output / power supply</b>	0 ... 10 V	12 ... 33 VDC							2						
	4 ... 20 mA	7 ... 33 VDC							3						
<b>Electrical connection</b>	Connector	10 ... 30 VDC	Ex protection						4	1,3					
		DIN EN 175301-803-A <sup>2)</sup>								1					
		M12x1 <sup>2)</sup>	2w: IN=1 / OUT=3 3w: IN=1 / OUT=4 / GND=3								3				
		M12x1 <sup>2)</sup>	2w: IN=1 / OUT=4 3w: IN=1 / OUT=3 / GND=4								M				
<b>Pressure connection</b>	Inside thread	Swift connector with cable 1.5 m								L					
		$\frac{7}{16}$ - 20 UNF									K	0	1		
	$\frac{1}{2}$ - 14 NPT ( $\leq 60$ bar)										D	0	1		
	Outside thread	$\frac{7}{16}$ - 20 UNF										2	0	1	
		$\frac{1}{4}$ - 18 NPT										3	0	1	
		G $\frac{1}{4}$ sealed at back DIN EN ISO 1179-2 with Profile seal ring in FPM										4	0	1	
G $\frac{1}{2}$ sealed at back and manometer with Profile seal ring in FPM											8	0	1		
<b>Pressure range variation (optional)</b>	Indicate W and state range on order (e.g.: W0... + 3bar/OUT0...5V)	M20x1.5 sealed at front and manometer (combi)									E	0	1		
		G $\frac{1}{2}$ sealed at front										9	0	1	

			1	2	3	4	5	6	7	8	9	10	11			
<b>Order code selection table in psi</b>			522.	X	X	X	X	X	X	X	X	X	X	X		
<b>Pressure range <sup>1)</sup></b>	0 ... 30 psi		9	B	4	S	0									
	0 ... 60 psi		9	B	5	S	0									
	0 ... 100 psi		9	B	7	S	0									
	0 ... 200 psi		9	C	1	S	0									
	0 ... 300 psi		9	C	2	S	0									
	0 ... 500 psi		9	C	3	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										
<b>Output / power supply</b>	0 ... 10 V	12 ... 33 VDC								2						
	4 ... 20 mA	7 ... 33 VDC								3						
<b>Electrical connection</b>	Connector	10 ... 30 VDC	Ex protection							4	1,3					
		DIN EN 175301-803-A <sup>2)</sup>									1					
		M12x1 <sup>2)</sup>	2w: IN=1 / OUT=3 3w: IN=1 / OUT=4 / GND=3									3				
		M12x1 <sup>2)</sup>	2w: IN=1 / OUT=4 3w: IN=1 / OUT=3 / GND=4									M				
<b>Pressure connection</b>	Inside thread	Swift connector with cable 1.5 m									L					
		$\frac{7}{16}$ - 20 UNF										K	0	1		
	$\frac{1}{2}$ - 14 NPT ( $\leq 870$ psi)											D	0	1		
	Outside thread	$\frac{7}{16}$ - 20 UNF											2	0	1	
		$\frac{1}{4}$ - 18 NPT											3	0	1	
		G $\frac{1}{4}$ sealed at back DIN EN ISO 1179-2 with Profile seal ring in FPM											4	0	1	
G $\frac{1}{2}$ sealed at back and manometer with Profile seal ring in FPM												8	0	1		
<b>Pressure range variation (optional)</b>	Indicate W and state range on order (e.g.: W0... + 400psi/OUT0...5V)	M20x1.5 sealed at front and manometer (combi)										E	0	1		
		G $\frac{1}{2}$ sealed at front											9	0	1	

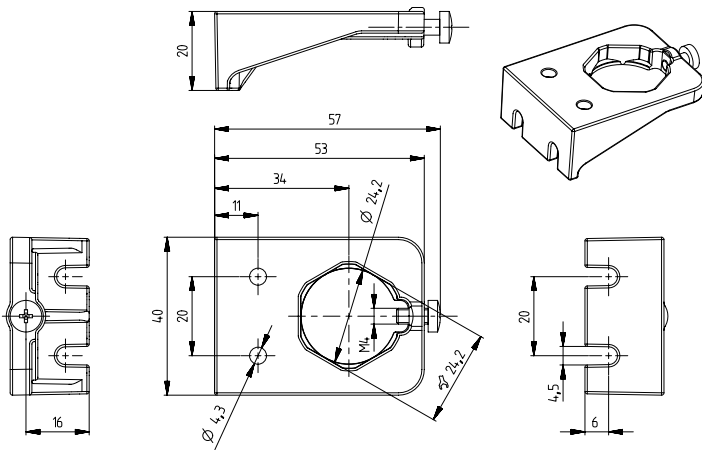
<sup>1)</sup> Other pressure ranges on request

<sup>2)</sup> Delivery without female connector

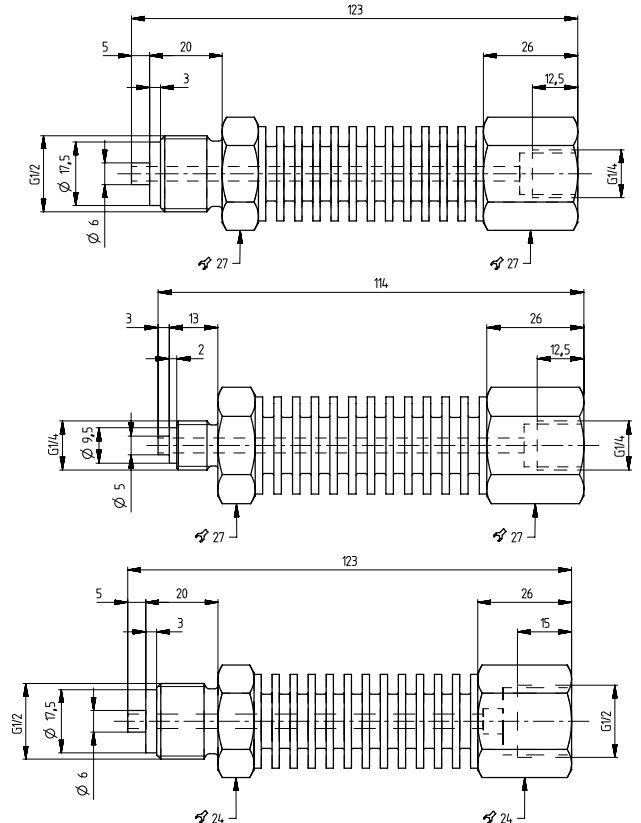
Order code selection table in MPa			1	2	3	4	5	6	7	8	9	10	11	
			522.	X	X	X	X	X	X	X	X	X	X	
Pressure range <sup>1)</sup>	0 ... 0.25 MPa		9	G	4	S	0							
	0 ... 0.4 MPa		9	G	5	S	0							
	0 ... 0.6 MPa		9	G	7	S	0							
	0 ... 1 MPa		9	H	0	S	0							
	0 ... 1.6 MPa		9	H	1	S	0							
	0 ... 2.5 MPa		9	H	2	S	0							
	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								
Output / power supply	0 ... 10 V	12 ... 33 VDC							2					
	4 ... 20 mA	7 ... 33 VDC							3					
Electrical connection	Connector	DIN EN 175301-803-A <sup>2)</sup>							4	1,3				
		M12x1 <sup>2)</sup>	2w: IN=1 / OUT=3	3w: IN=1 / OUT=4 / GND=3						1				
		M12x1 <sup>2)</sup>	2w: IN=1 / OUT=4	3w: IN=1 / OUT=3 / GND=4							3			
		Swift connector with cable 1.5 m									M			
Pressure connection	Inside thread	7/16 - 20 UNF									K	0	1	
		1/2 - 14 NPT (≤ 6 MPa)									D	0	1	
		7/16 - 20 UNF										2	0	1
	Outside thread	1/4 - 18 NPT										3	0	1
		G 1/4 sealed at back DIN EN ISO 1179-2 with Profile seal ring in FPM										4	0	1
		G 1/2 sealed at back and manometer with Profile seal ring in FPM										8	0	1
Pressure range variation (optional)	Indicate W and state range on order (e.g.: W0... + 0.3MPa/OUT0...5V)	M20x1.5 sealed at front and manometer (combi)									E	0	1	
		G 1/2 sealed at front										9	0	1
												W		

Accessories (supplied loose)	Order number
Female connector DIN EN 175301-803-A with seal	103510
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
Mounting bracket with screw	118716
Heat sink with outside thread G 1/2 sealed at front - inside thread G 1/2	105631
Heat sink with outside thread G 1/2 sealed at front - inside thread G 1/4	105073
Heat sink with outside thread G 1/4 sealed at front - inside thread G 1/4	105074
Calibration certificate (only until 600 bar possible)	104551

Mounting bracket



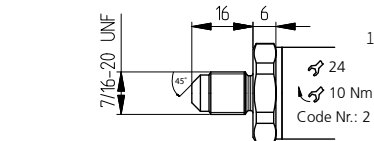
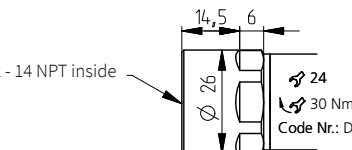
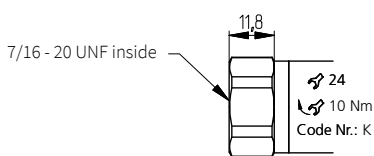
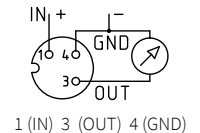
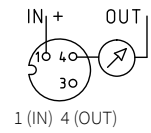
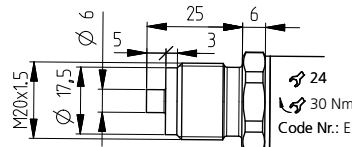
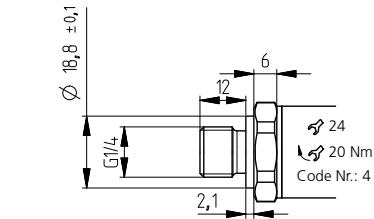
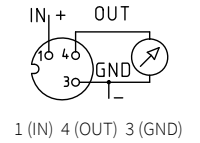
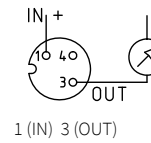
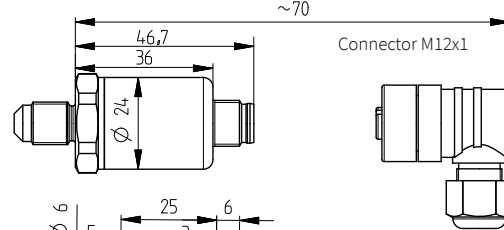
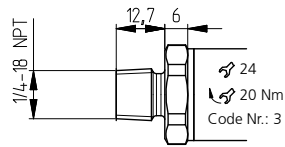
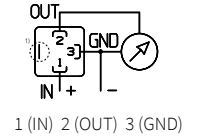
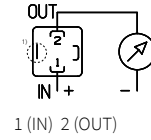
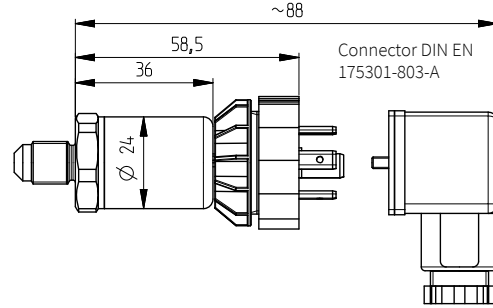
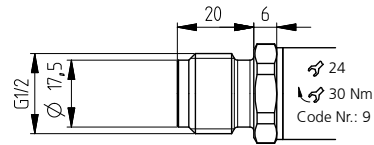
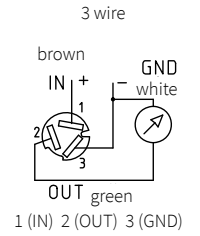
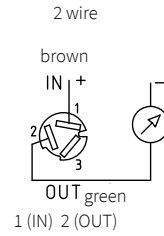
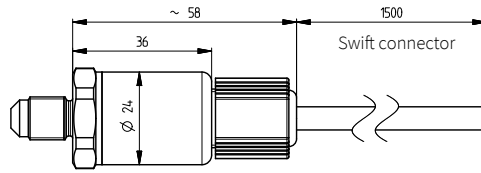
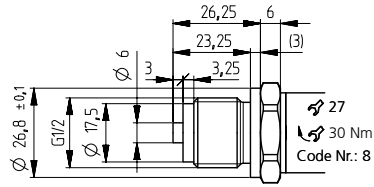
Heat sink



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

<sup>2)</sup> Delivery without female connector

Dimensions in mm / Electrical connections



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

Connector DIN EN 175301-803-A

1 (IN) 2 (OUT) ↓

Connector M12x1

1 (IN) 3 (OUT) 4 (↓)

<sup>1)</sup> Not connected with transmitter housing

**Huba Control AG**

Headquarters Schweiz  
Industriestrasse 17  
CH-5436 Würenlos  
Telefon +41 56 436 82 00  
Fax +41 56 436 82 82  
info.ch@hubacontrol.com

**Huba Control AG**

Vestiging Nederland  
Hamseweg 20A  
NL-3828 AD-Hoogland  
Telefoon +31 33 433 03 66  
Telefax +31 33 433 03 77  
info.nl@hubacontrol.com

**Huba Control AG**

Niederlassung Deutschland  
Schlattgrabenstrasse 24  
D-72141 Walddorfhäslach  
Telefon +49 7127 2393 00  
Fax +49 7127 2393 20  
info.de@hubacontrol.com

**Huba Control USA, Inc.**

Office United States of America  
303 Wyman Street  
Suite #300  
Waltham MA 02451  
Tel: +1 866-6HUBACO (+1 866-648-2226)  
info.usa@hubacontrol.com

**Huba Control SA**

Succursale France  
Rue Lavoisier  
Technopôle Forbach-Sud  
F-57602 Forbach Cedex  
Téléphone +33 3 87 84 73 00  
Télécopieur +33 3 87 84 73 01  
info.fr@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 1993 77 66 67  
Fax +44 1993 77 66 71  
info.uk@hubacontrol.com

**[www.hubacontrol.com](http://www.hubacontrol.com)**

