

Relative pressure transmitter type 520

Pressure range
0 ... 2.5 – 600 bar

The compact type 520 pressure transmitter is based upon the Huba Control developed thick film technology where the pressure measuring cell is fully welded. This transmitter meets the high burst protection demands and is suitable for the use in all types of refrigerants inclusive ammonia.

- Compact, rugged construction
- Welded without sealing parts, no elastomer seals
- Saving time by quick cable mounting by the customer with swift connector
- Large selection of connections available.



Technical overview

Pressure range

Relative	0 ... 2.5 – 600 bar
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Operating conditions

Medium	Liquids, gases and refrigerants (incl. ammonia)	
Temperature	Medium	-40 ... +135 °C
	Ambient	-30 ... +85 °C
	Storage	-50 ... +100 °C
Tolerable overload	0 ... 6 bar	5 x FS
	10 ... 600 bar	3 x FS (max. 1500 bar)
Repture pressure	0 ... 6 bar	10 x FS
	10 ... 600 bar	6 x FS (max. 2500 bar)

Materials

Cover	Stainless steel 1.4305 / AISI 303	
Plug accommodation	Polyarylamide 50% GF VO	
Materials in contact with medium	Pressure connection	Stainless steel 1.4305 / AISI 303
	Sensor	Stainless steel

Electrical overview

	Output	Power supply	Load	Current consumption
2 wire	4 ... 20 mA	7 ... 33 VDC	$< \frac{\text{supply voltage} - 7 \text{ V}}{0.02 \text{ A}}$ [Ohm]	< 23 mA
2 wire (Ex)	4 ... 20 mA	10 ... 30 VDC	$< \frac{\text{supply voltage} - 10 \text{ V}}{0.02 \text{ A}}$ [Ohm]	< 20 mA
	0 ... 5 V	8 ... 33 VDC	>10 kOhm / < 100 nF	< 7 mA
3 wire	1 ... 6 V	8 ... 33 VDC	>10 kOhm / < 100 nF	< 7 mA
	0 ... 10 V	12 ... 33 VDC	>10 kOhm / < 100 nF	< 7 mA
	0 ... 10 V	24 VAC ± 15%	>10 kOhm / < 100 nF	< 7 mA
	ratiom. 10 ... 90%	5 VDC ± 10%	>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.			

Protection class

Protection class III

Dynamic response

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

Protection standard

Connector DIN EN 175301-803, Braids	IP 65
Connector RAST 2.5	IP 00
Swift connector, Metri Pack, Connector M12x1	IP 67

Electrical connection

Swift connector with or without cable 1.5 m (PVC spec.)
Connector DIN EN 175301-803-A
Connector DIN EN 175301-803-C (mini DIN)
Metri Pack Serie 150
Connector M12x1
Braids
Connector RAST 2.5 (3 wire only)

Pressure connection

Inside thread	$\frac{7}{16}$ - 20 UNF	Schrader
	G $\frac{1}{4}$	with O-Ring seal FPM spec. (-30 ... +135 °C)
Outside thread	$\frac{7}{16}$ - 20 UNF	
	$\frac{1}{4}$ -18 NPT	
	G $\frac{1}{4}$	sealed at back DIN 3852 form E with Profile seal ring in FPM spec. (-30 ... +135 °C)
	R $\frac{1}{4}$	DIN 2999
	G $\frac{1}{2}$	sealed at back and manometer (combi) with Profile seal ring in FPM spec. (-30 ... +135 °C)
	G $\frac{1}{2}$	sealed at front

Installation arrangement

Unrestricted

Tests / Admissions

Electromagnetic compatibility	CE conformity acc. EN 61326-2-3
Shock acc. IEC 60068-2-27	25 g, 6 ms half sine wave, all 3 directions.
Drop test EN 60068-2-23	from 1 m on concrete
Vibration acc. IEC 60770-1	5 m/s, 10 ... 1000 Hz, 1 Octave/min 20 constant load per axis

Protection against explosion

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

Weight

~ 90 g

Packaging (Please state on order)

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

Accuracy acc. to EN 60770-1

Parameter	Unit	
Characteristic line (at reference conditions) ¹⁾	% fs	± 0.8
Resolution	% fs	0.1
Thermal characteristic ²⁾	% fs/10K	± 0.2

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

Order code selection table in bar

		520.9	X	X	X	X	X	X	X	X	X	X	X	
Pressure range ³⁾	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	3	3											
	0 ... + 60 bar	4	0											
	0 ... + 100 bar	4	1											
	0 ... + 160 bar	4	2											
	0 ... + 250 bar	4	3											
	0 ... + 400 bar	5	4											
0 ... + 600 bar	5	5												
Version	Not free of oil and grease, (cell welded)					S	0							
	Free of oil and grease, (cell welded without sealing parts)					S	1							
Output / power supply	0 ... 5 V	7 ... 33 VDC						1						
	1 ... 6 V	8 ... 33 VDC						6						
	0 ... 10 V	12 ... 33 VDC						2						
	0 ... 10 V	24 VAC ±15%						8	1,2,6					
	Ratiom. 10 ... 90%	5VDC ±10%						7						
	4 ... 20 mA	7 ... 33 VDC						3						
	4 ... 20 mA	10 ... 30 VDC						0	4	1,3				
Electrical connection ⁴⁾	Swift connector													
	Connector DIN EN 175301-803-A													
	Connector DIN EN 175301-803-C (Mini DIN)													
	Connector M12x1 ⁵⁾	2w: IN=1 / OUT=3	3w: IN=1 / OUT=4 / GND=3											
	Connector M12x1 ⁵⁾	2w: IN=1 / OUT=4	3w: IN=1 / OUT=3 / GND=4											
	Connector RAST 2.5						0	7	4					
	Metri Pack Serie 150 ⁵⁾						0		5					
	Braids	80 ±10 mm							6					
	Braids	290 ±10 mm							7					
	Braids	480 ±10 mm							8					
	Braids	730 ±10 mm							9					
		Swift connector with cable 1.5 m								L				
Pressure connection ⁶⁾	Inside thread	7/16"-20 UNF Schrader									0	0		
	Inside thread	G 1/4 with O-Ring seal FPM spec. (-30 ... +135 °C)									1	0		
	Outside thread	7/16"-20 UNF									2	0		
	Outside thread	1/4"-18 NPT									3	0		
	Outside thread	G 1/4 sealed at back DIN 3852 form E with Profile seal ring in FPM spec. (-30 ... +135 °C)									4	0		
	Outside thread	R 1/4 acc. to DIN 2999									7	0		
	Outside thread	G 1/2 sealed at back and manometer (combi) with Profile seal ring in FPM spec. (-30 ... +135 °C)									8	0		
	Outside thread	G 1/2 sealed at front									9	0		
	Material ⁶⁾	Stainless steel 1.4305												N
Pressure range variation	Indicate W and state range on order (e.g.: W0... + 3bar/OUT0...5V)													W

Accessories

	Order number
Swift connector	107359
Female connector DIN EN 175301-803-A with seal	103510
Female connector DIN EN 175301-803-C (mini DIN) with seal	104244
Female connector for connector M12x1	106975

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

²⁾ -15 ... 85 °C

³⁾ Other pressure ranges on request

⁴⁾ Delivery without female connector

⁵⁾ For pressure ranges ≤ 16 bar only possible if deaeration through the cable is assured

⁶⁾ Other pressure connections and materials on request

Order code selection table in psi		520.9	X	X	X	X	X	X	X	X	X	X	X	X	
Pressure range 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	C	3												
	0 ... + 750 psi	D	0												
	0 ... + 1000 psi	D	1												
	0 ... + 2000 psi	D	2												
	0 ... + 3000 psi	D	3												
	0 ... + 5000 psi	E	4												
0 ... + 7500 psi	E	5													
Version	Not free of oil and grease, (cell Welded)					S	0								
	Free of oil and grease, (cell Welded without sealing parts)					S	1								
Output / power supply	0 ... 5 V	7 ... 33 VDC						1							
	1 ... 6 V	8 ... 33 VDC						6							
	0 ... 10 V	12 ... 33 VDC						2							
	0 ... 10 V	24 VAC ±15%						8	1,2,6						
	Ratiom. 10 ... 90%	5VDC ±10%						7							
	4 ... 20 mA	7 ... 33 VDC						3							
	4 ... 20 mA	10 ... 30 VDC						0	4	1,3					
Electrical connection ²⁾	Swift connector												0		
	Connector DIN EN 175301-803-A												1		
	Connector DIN EN 175301-803-C (mini DIN)												2		
	Connector M12x1 ³⁾	2w: IN=1 / OUT=3	3w: IN=1 / OUT=4 / GND=3											3	
	Connector M12x1 ³⁾	2w: IN=1 / OUT=4	3w: IN=1 / OUT=3 / GND=4											M	
	Connector RAST 2.5							0	7	4					
	Metri Pack Serie 150 ³⁾							0		5					
	Braids	80 ±10 mm								6					
	Braids	290 ±10 mm								7					
	Braids	480 ±10 mm								8					
	Braids	730 ±10 mm								9					
	Swift connector with cable 1.5 m									L					
	Pressure connection ⁴⁾	Inside thread	7/16"-20 UNF Schrader											0	0
Inside thread		G 1/4 wiht O-Ring seal FPM spec. (-30 ... +135 °C)											1	0	
Outside thread		7/16"-20 UNF											2	0	
Outside thread		1/4"-18 NPT											3	0	
Outside thread		G 1/4 sealed at back DIN 3852 form E with Profile seal ring in FPM spec. (-30 ... +135 °C)											4	0	
Outside thread		R 1/4 acc. to DIN 2999											7	0	
Outside thread		G 1/2 sealed at back and manometer (combi) with Profile seal ring in FPM spec. (-30 ... +135 °C)											8	0	
Outside thread		G 1/2 sealed at front											9	0	
Material ⁴⁾		Without													N
Pressure range variation	Indicate W and state range on order (e.g.: W0... + 400psi/OUT1...8V)														W

¹⁾ Other pressure ranges on request
³⁾ For pressure ranges ≤ 16 bar only possible if deaeration through the cable is assured

²⁾ Delivery without female connector
⁴⁾ Other pressure connections and materials on request

Order code selection table in MPa		520.9	X	X	X	X	X	X	X	X	X	X	X	X
Pressure range ¹⁾	0 ... + 0.25 MPa	G	4											
	0 ... + 0.4 MPa	G	5											
	0 ... + 0.6 MPa	G	7											
	0 ... + 1 MPa	H	0											
	0 ... + 1.6 MPa	H	1											
	0 ... + 2.5 MPa	H	2											
	0 ... + 4 MPa	H	3											
	0 ... + 6 MPa	K	0											
	0 ... + 10 MPa	K	1											
	0 ... + 16 MPa	K	2											
	0 ... + 25 MPa	K	3											
	0 ... + 40 MPa	L	4											
0 ... + 60 MPa	L	5												
Version	Not free of oil and grease, (cell welded)					S	0							
	Free of oil and grease, (cell welded without sealing parts)					S	1							
Output / power supply	0 ... 5 V	7 ... 33 VDC							1					
	1 ... 6 V	8 ... 33 VDC							6					
	0 ... 10 V	12 ... 33 VDC							2					
	0 ... 10 V	24 VAC ±15%							8	1,2,6				
	Ratiom. 10 ... 90%	5VDC ±10%							7					
	4 ... 20 mA	7 ... 33 VDC							3					
	4 ... 20 mA	10 ... 30 VDC							0	4	1,3			
Electrical connection ²⁾	Swift connector										0			
	Connector DIN EN 175301-803-A										1			
	Connector DIN EN 175301-803-C (mini DIN)										2			
	Connector M12x1 ³⁾	2w: IN=1 / OUT=3	3w: IN=1 / OUT=4 / GND=3								3			
	Connector M12x1 ³⁾	2w: IN=1 / OUT=4	3w: IN=1 / OUT=3 / GND=4								M			
	Connector RAST 2.5							0	7	4				
	Metri Pack Serie 150 ³⁾							0		5				
	Braids	80 ±10 mm								6				
	Braids	290 ±10 mm								7				
	Braids	480 ±10 mm								8				
	Braids	730 ±10 mm								9				
	Swift connector with cable 1.5 m										L			
	Pressure connection ⁴⁾	Inside thread	7/16"-20 UNF Schrader									0	0	
Inside thread		G 1/4 with O-Ring seal FPM spec. (-30 ... +135 °C)									1	0		
Outside thread		7/16"-20 UNF									2	0		
Outside thread		1/4"-18 NPT									3	0		
Outside thread		G 1/4 sealed at back DIN 3852 form E with Profile seal ring in FPM spec. (-30 ... +135 °C)									4	0		
Outside thread		R 1/4 acc. to DIN 2999									7	0		
Outside thread		G 1/2 sealed at back and manometer (combi) with Profile seal ring in FPM spec. (-30 ... +135 °C)									8	0		
Outside thread		G 1/2 sealed at front									9	0		
Material ⁴⁾	Without												N	
Pressure range variation	Indicate W and state range on order (e.g.: W0... + 0.5MPa/OUT1...8V)													W

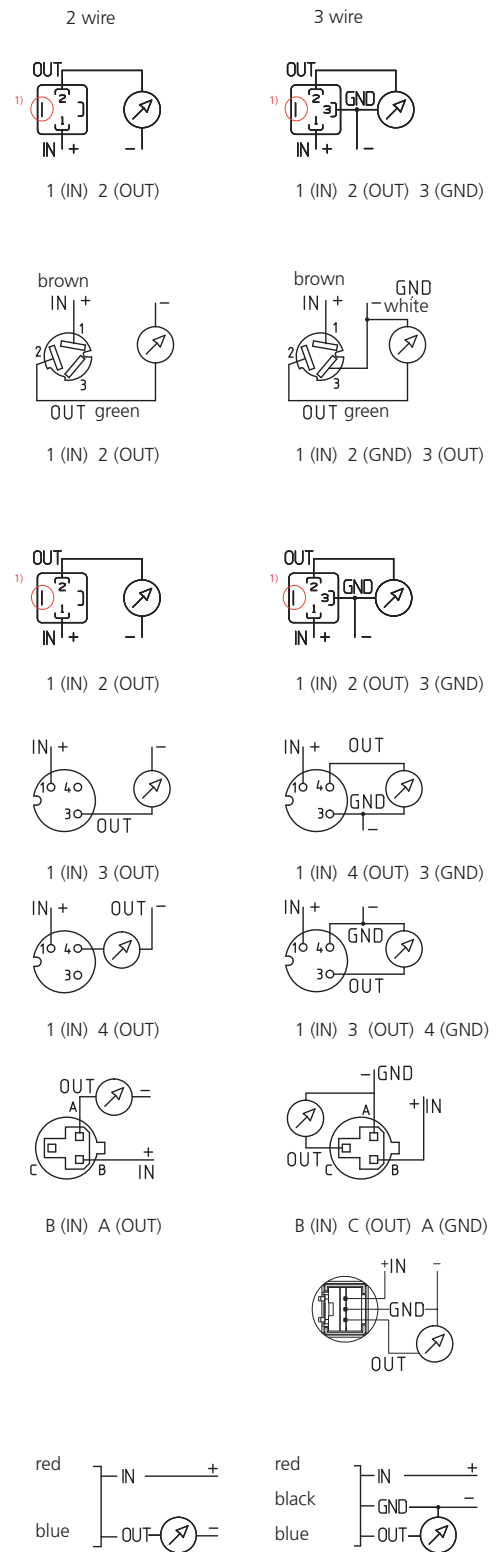
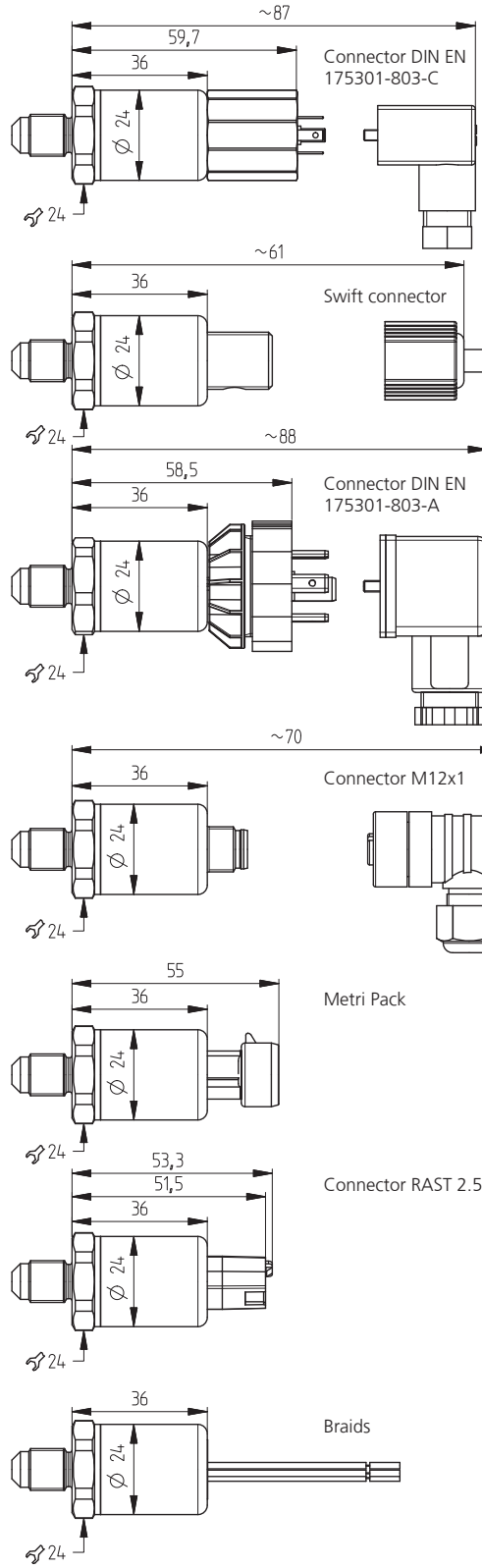
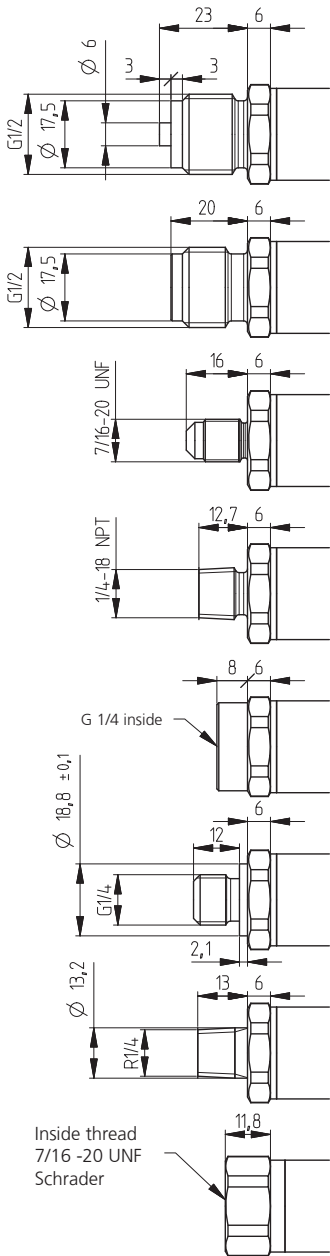
¹⁾ Other pressure ranges on request

³⁾ For pressure ranges ≤ 16 bar only possible if deaeration through the cable is assured

²⁾ Delivery without female connector

⁴⁾ Other pressure connections and materials on request

Dimensions in mm / Electrical connections



¹⁾ Not connected with transmitter housing

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 (Ex)

1 (IN) 2 (OUT)

Connector M12x1 (Ex)

1 (IN) 3 (OUT) 4 (±)

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