Pressure transmitter

Huba Control

In Proud Partnership with Huba Control

PAQUIN SENSORS

For technical support, sales, & distribution within the USA & Canada

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Pressure transmitter for refrigeration applications

Type 560

Huba Control is expanding its product family of pressure transmitters with a new product series for OEM customers in the refrigeration sector.
The 560 features the well known Huba Control stainless steel sensor technology that has proven itself millions of times over. Thanks to the hermetically welded construction, the 560 is suitable for known refrigerants such as ammonia and CO_2 as well as other refrigerants from safety classes A2L and A3. This gives you great flexibility within your applications.

With a wide range of variants, such as the copper soldering tube, the pressure transmitter type 560 can be optimally integrated into your application.

Pressure range

-1 ... 7 bar

0 ... 10 – 150 bar

+ Compact and robust design
+ Hermetically sealed in accordance with EN ISO14903:2017 tested during manufacture by means of 100% helium leakage control
+ Due to the hermetically welded construction, no elastomer seals are required
+ Two colour versions of connectors for easy identification of pressure ranges within an application
+ Rated according to DIN EN 60335-2-40
+ Copper soldering tube for optimal integration into your copper pipe system

Technical overview

Pressure range

Relative	-1 ... 7 bar / 0 ... 10 – 150 bar

Operating conditions

Medium			Refrigerants	
Temperature		Medium	ratiom. 10 ... 90%	-40 ... +125 °C
		Medium	4 ... 20 mA	-40 ... +120 °C
		Ambient		-40 ... +85 °C
		Storage		-40 ... +100 °C
Tolerable overload				3 x fs [1]
Rupture pressure				6 x fs [2]

(other temperatures on request)

Materials

Cover		Stainless steel 1.4301 / 1.4404
Plug accommodation		Polyacrylamide 50% GF UL94 V0
Materials in contact with medium [3]	Thread	Stainless steel 1.4301 / AISI 304
	Soldering connection	CuDHP / CW024A
	Sensor	Stainless steel 1.4016

Electrical overview

	Output	Power supply	Load	Current consumption
2 wire	4 ... 20 mA	8 ... 32 VDC	$< \frac{\text{supply voltage - 8 V}}{0.02\ A}$	< 23 mA
3 wire	ratiom. 10 ... 90%	2.97 ... 5.5 VDC	>10 kOhm / < 10 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	500 VDC			

Dynamic response

Response time	ratiom. 10 ... 90%	< 5 ms (typ. 2 ms)
	4 ... 20 mA	< 5 ms (typ. 2 ms)

Electrical connection		**Protection standard**	**Protection class**
Metri Pack 150 P2S Series [4]	(two coloured design, black or grey)	IP 67 [5]	III
Swift connector	(two coloured design, black or grey)	IP 67 [5]	III

Pressure connection

Inside thread	$^{7}/_{16}$ - 20 UNF	sealing cone 45° and Schrader
Outside thread	$^{7}/_{16}$ - 20 UNF	sealing cone 45°
	¼ -18 NPT	sealing in thread
	G ¼	sealed at back DIN EN ISO 1179-2 with profile seal ring in FKM
	G ¼	sealed at back DIN EN ISO 1179-2 with profile seal ring in EDPM
Soldering connection [6]	Tube Ø 6 mm	L = 35 mm

Installation arrangement

Unrestricted

Tests / Admissions

UL	ANSI/UL 61010-1 acc. E325110
Electromagnetic compatibility	CE-Conform acc. EN 61326-2-3:2013
Hermetic sealing	Tested according to EN ISO 14903:2017
Surface temperature during operation and individual faults	Assessment according to DIN EN 60335-2-40

Weight

~ 90 g

Packaging (recycleable)

Multiple packaging in cardboard (25 pcs.)
min. order quantity 100 pcs.

Accuracy

Parameter	Unit	typic.	max.
Characteristic line acc. IEC 61298-2 [7]	% FS	0.5	1
Resolution	% FS	0.1	
Thermal characteristic -20 ... +85 °C	% FS	1	1.5
Thermal characteristic -40 ... +125 °C	% FS	1.5	2
Long term stability acc. IEC 61298-2	% FS	0.2	

Test conditions: 25 °C, 45% rF

[1] Soldering tube with pressure range ≥90 bar: max. 200 bar
[2] Soldering tube with pressure range ≥90 bar: max. 600 bar
[3] The application medium must be suitable for the materials of the pressure transmitter with media contact.
[4] Delivery without female connector.
[5] The specified protection class only applies when connected with a matching plug of the corresponding protection class; IP test not part of UL61010-1 approval
[6] Soldering tube with end stop, without end stop on request.
[7] incl. zero point, full scale, linearity, hysteresis and repeatability

Order code selection table in bar

				560.	1 X	2 X	3 X	4 X	5 X	6 X	7 X	8 X	9 X	10 X	11 X
Pressure range (relative)	-1 ... 7 bar				9	1	1		0, 5						
	0 ... 10 bar				9	1	2		0, 5						
	0 ... 16 bar				9	1	3		0, 5						
	0 ... 18 bar				9	1	4		0, 5						
	0 ... 30 bar				9	1	5								
	0 ... 45 bar				9	1	6								
	0 ... 50 bar				9	1	7								
	0 ... 60 bar				9	1	8								
	0 ... 90 bar				9	1	9								
	0 ... 150 bar				9	1	A								
Output / power supply	Ratiom. 10 ... 90%	2.97 ... 5.5 VDC	3 wire					7							
	Analog 4 ... 20 mA	8 ... 32 VDC	2 wire					3							
Electrical connection	Swift connector (black)	2L: IN=1 / OUT=3	3L: IN=1 / OUT=2 / GND=3						0						
	Swift connector (grey)	2L: IN=1 / OUT=3	3L: IN=1 / OUT=2 / GND=3						A						
	Metri Pack 150 P2S (black) [1]	2L: IN=B / OUT=A	3L: IN=B / OUT=C / GND=A						5						
	Metri Pack 150 P2S (grey) [1]	2L: IN=B / OUT=A	3L: IN=B / OUT=C / GND=A						B						
Pressure connection	Inside thread	$^{7}/_{16}$-20 UNF with Schrader								K	0	0	0	0	
	Outside thread	$^{7}/_{16}$-20 UNF								2	0	0	0	0	
		¼ -18 NPT								Y	0	0	0	0	
		G ¼ sealed at back DIN EN ISO 1179-2 with profile seal ring in FKM								4	A	0	0	0	
		G ¼ sealed at back DIN EN ISO 1179-2 with profile seal ring in EPDM								4	B	0	0	0	
	Soldering connection	Tube Ø 6mm	L = 35 mm							W	0	0	0	0	
Pressure range variation (optional)	Indicate W and state range on order (e.g. W -1 ... +3 bar/Out 10 ... 90%)														W

Order code selection table in psi

				560.	1 X	2 X	3 X	4 X	5 X	6 X	7 X	8 X	9 X	10 X	11 X
Pressure range (relative)	-15 ... 100 psi				9	A	1		0, 5						
	0 ... 145 psi				9	A	2		0, 5						
	0 ... 230 psi				9	A	3		0, 5						
	0 ... 260 psi				9	A	4		0, 5						
	0 ... 435 psi				9	A	5								
	0 ... 650 psi				9	A	6								
	0 ... 725 psi				9	A	7								
	0 ... 870 psi				9	A	8								
	0 ... 1300 psi				9	A	9								
	0 ... 2170 psi				9	A	A								
Output / power supply	Ratiom. 10 ... 90%	2.97 ... 5.5 VDC	3 wire					7							
	Analog 4 ... 20 mA	8 ... 32 VDC	2 wire					3							
Electrical connection	Swift connector (black)	2L: IN=1 / OUT=3	3L: IN=1 / OUT=2 / GND=3						0						
	Swift connector (grey)	2L: IN=1 / OUT=3	3L: IN=1 / OUT=2 / GND=3						A						
	Metri Pack 150 P2S (black) [1]	2L: IN=B / OUT=A	3L: IN=B / OUT=C / GND=A						5						
	Metri Pack 150 P2S (grey) [1]	2L: IN=B / OUT=A	3L: IN=B / OUT=C / GND=A						B						
Pressure connection	Inside thread	$^{7}/_{16}$-20 UNF with Schrader								K	0	0	0	0	
	Outside thread	$^{7}/_{16}$-20 UNF								2	0	0	0	0	
		¼ -18 NPT								Y	0	0	0	0	
		G ¼ sealed at back DIN EN ISO 1179-2 with profile seal ring in FKM								4	A	0	0	0	
		G ¼ sealed at back DIN EN ISO 1179-2 with profile seal ring in EPDM								4	B	0	0	0	
	Soldering connection	Tube Ø 6mm	L = 35 mm							W	0	0	0	0	
Pressure range variation (optional)	Indicate W and state range on order (e.g. W -15 ... +45 psi/Out 10 ... 90%)														W

Variation

Variations

Deviation factor	0.33 ... 1.33 (must not be undercut or exceeded)
Accuracy	Standard accuracy / variation factor (for variation factor < 1)
Lowest starting point (relative)	-1 bar

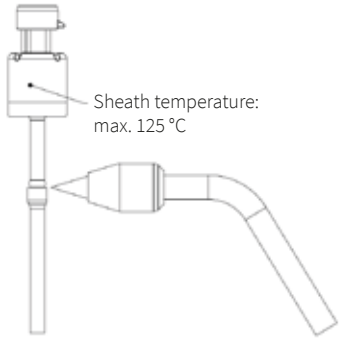
Ex. 1: Sensor with a measuring range of 0 ... 10 bar is to be calibrated to 0 ... 4 bar.
Deviation factor = $\frac{4\ \text{bar}}{10\ \text{bar}} = 0.4$ → ok, because the deviation factor is within 0.33 ... 1.33.

Ex. 2: Sensor with a measuring range of 0 ... 10 bar is to be calibrated to 0 ... 2 bar.
Deviation factor = $\frac{2\ \text{bar}}{10\ \text{bar}} = 0.2$ → cannot be synchronized, as the deviation factor is not within 0.33 ... 1.33.

[1] Delivery without female connector

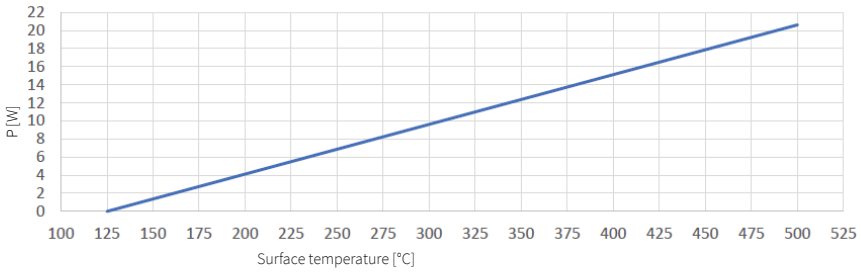
Accessories	Order number
Set - Swift connector (female) (included in delivery)	117312
Set - Metri Pack 150 P2S Series (female) (3 wire)	120345

Mounting instruction soldering

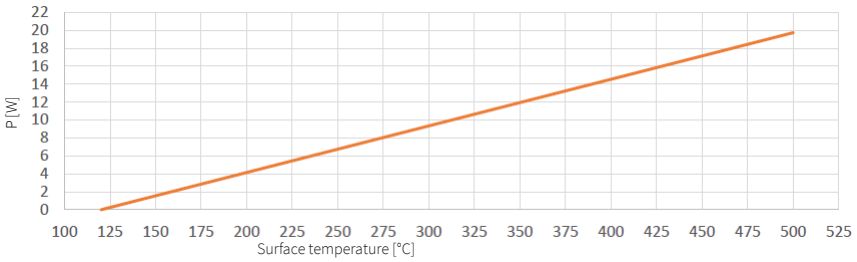


Surface temperature of the sensor in the event of a fault as a function of the supply power. Measured according to EN60335-2-40

Ratiometer 10 ... 90%



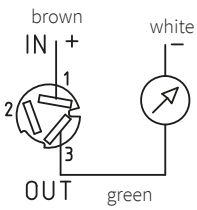
Analog 4 ... 20 mA



Electrical connections

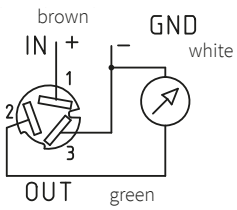
Swift connector

2 wire



1 (IN) 3 (OUT)

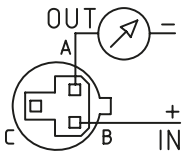
3 wire



1 (IN) 2 (OUT) 3 (GND)

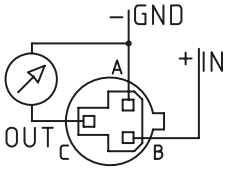
Metri Pack Series 150

2 wire



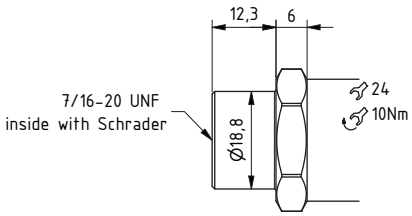
B (IN) A (OUT)

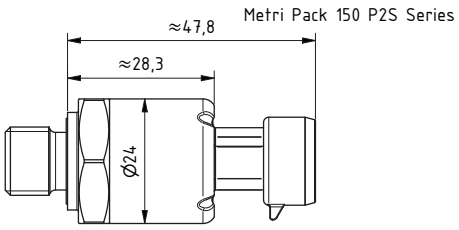
3 wire

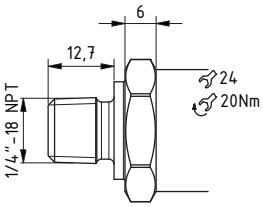


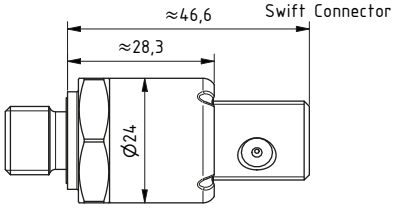
B (IN) C (OUT) A (GND)

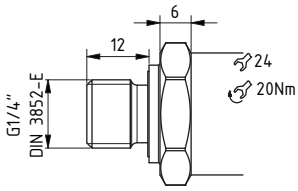
Dimensions in mm / Electrical Connections

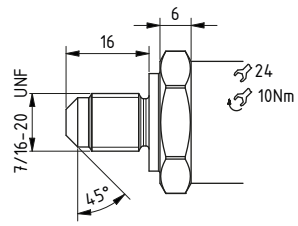


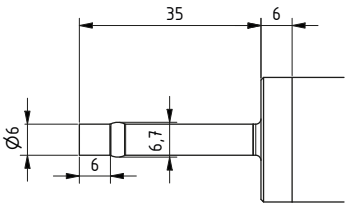












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