

OEM Relative pressure transmitter

–1 ... 7 – 160 bar

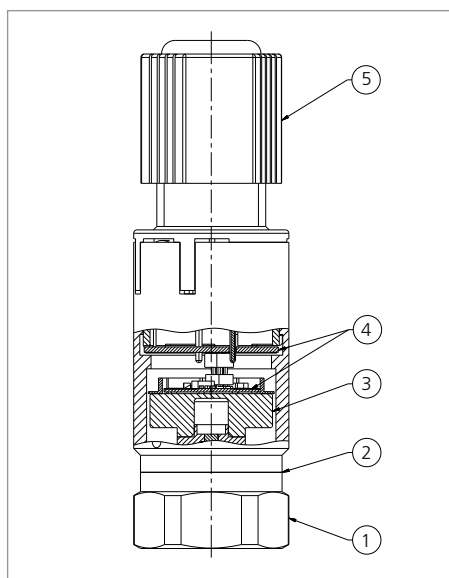


Technical overview

These compact OEM pressure transmitters type 510 have been developed for applications in the industrial refrigeration technology.

The special sensor is based on thick-film technology, developed by Huba Control, which utilises a special grade of steel welded to the pressure sensor. This means that the 510 can be used for all gases and media in refrigeration, including ammonia. Highest requirements concerning EMC and accuracy for all temperature ranges can be met in combination with the unique integrated electronic design.

Suitable from small series to high quantity applications with best price to performance ratio.



Legend to cross-section drawing

- 1 Pressure connection
- 2 Measuring cell
- 3 Steel cell welded
- 4 Electronic with EMC-protection
- 5 Electrical connection (example Quickon)

The distinct advantages

- Compact, rugged construction for highest operational reliability
- Protection IP 67
- Welded without sealing parts, no elastomer seals
- Negligible temperature influence on accuracy
- Excellent EMC-capacity
- Saving time by quick cable mounting by the customer with Quickon-System

Medium

Liquids, refrigerants (incl. ammonia) and neutral gases

Pressure range

Relative -1 ... 7 – 160 bar
-14.5 ... 100 – 2000 psi

Tolerable overload

5.0 x Measuring range (fs) at -1 ... 7 bar
3.0 x Measuring range (fs) > 7 ... 160 bar

Rupture pressure

10 x Measuring range (fs) at -1 ... 7 bar
6.0 x Measuring range (fs) > 7 ... 160 bar

Materials in contact with the medium

Pressure connections:
Stainless steel 1.4305 / AISI 303
Measuring cell:
Stainless steel

Case material

Stainless steel 1.4305 / AISI 303

Temperature

Medium -40 ... +150 °C
Ambiance -40 ... +85 °C
Storage -40 ... +85 °C

Output

3-wire
0 ... 5 VDC 8 ... 33 VDC
1 ... 6 VDC 8 ... 33 VDC
0 ... 10 VDC 12.3 ... 33 VDC
Ratiom. 10 ... 90% 5 VDC (4.75 ... 5.25)

Power supply

2-wire
4 ... 20 mA 8 ... 33 VDC

Electric strength 500 VDC

Load

3-wire > 10 kOhm / <100 nF
2-wire < $\frac{\text{supply voltage} - 8 \text{ V}}{0.02 \text{ A}}$ [Ohm]

Current consumption

At nominal pressure
3-wire
0 ... 5 V < 5 mA
1 ... 6 V < 5 mA
0 ... 10 V < 5 mA
Ratiom. 10 ... 90% < 4 mA
2-wire
4 ... 20 mA 20mA

Dynamic response

Suitable for static and dynamic measurements

Response time < 2 ms (typ. 1 ms)
Load cycle < 50 Hz

Electrical connection

Quickon Cable screwing
Round plug connector M12x1
Connector DIN EN 175301-803-C (mini DIN)
Cable 1.5 m (Quickon)

Polarity reversal protection

Short circuit proof and protected against polarity reversal. Each connection is protected against crossover up to max. supply voltage.

Protection standard

Quickon, M12x1, Cable IP 67
Connector DIN EN 175301-803-C IP 65

Pressure connection

Outside thread 7/16-20 UNF, 1/4-18 NPT, R1/4, G1/4
Inside thread 7/16-20 UNF, G1/4

Installation arrangement

Unrestricted

Tests / Admissions

CE conform
UL according to standard 873
Shock acc. DIN IEC 60068-2-27
100 g, 11 ms half sine wave, all 6 directions. Free fall from 2 m on concrete (6x).

Constant shock acc. DIN IEC 60068-2-29
40 G for 6 ms, 1000 x all 3 directions.

Vibration acc. DIN IEC 60068-2-6
20 g, 2 ... 2000 Hz with amplitude ± 15 mm, 1 Octave/min. all 3 directions, 50 constant load.

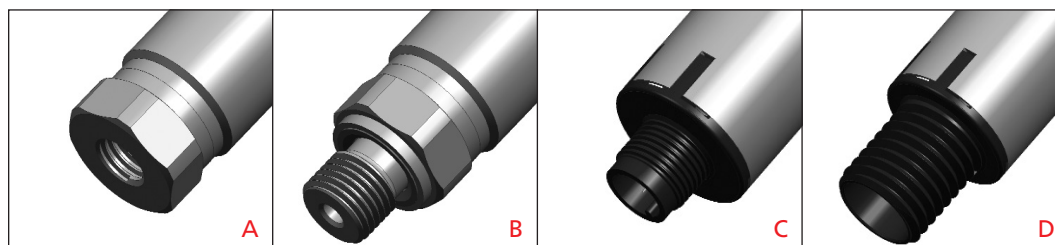
Weight

Version inside thread approx. 80 g
Version outside thread approx. 92 g

Packaging

Please state on order
Single packaging
in cardboard, accessories integrated
Multiple packaging
in cardboard (25 pcs), accessories integrated

- A – Inside thread 7/16-20 UNF
- B – Outside thread G1/4
- C – Connector M12x1
- D – Quickon cable screwing



Accuracy

Parameter		Unit		
Tolerance zero point	max.	% fs	±	0.5
Tolerance full scale	max.	% fs	±	0.5
Resolution		% fs		0.3
Total of linearity, hysteresis and repeatability	max.	% fs	±	0.5
Long term stability acc. to DIN IEC 770		% fs	±	1.0
TC zero point ¹⁾	max.	% fs/10 K	±	0.3
TC sensitivity ¹⁾	max.	% fs/10 K	±	0.15

Test conditions: 25 °C, 45% rF, Power supply 24 VDC
TC0 / TCE -40 ... +125 °C

Order code selection table

[illegible]

Accessories

Quickon cable screwing	Order number
Female connector DIN 175301-803-C (mini DIN)	107359
Female connector for connector M12x1	104244
Calibration certificate	106975
	104551

- 1) TC = Temperature coefficient
- 2) Adjustment in psi (min. 100 psi fs) and other pressure ranges and materials on request
- 3) Delivery without female connector
- 4) Other pressure connections on request

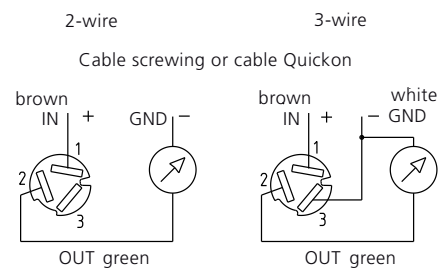
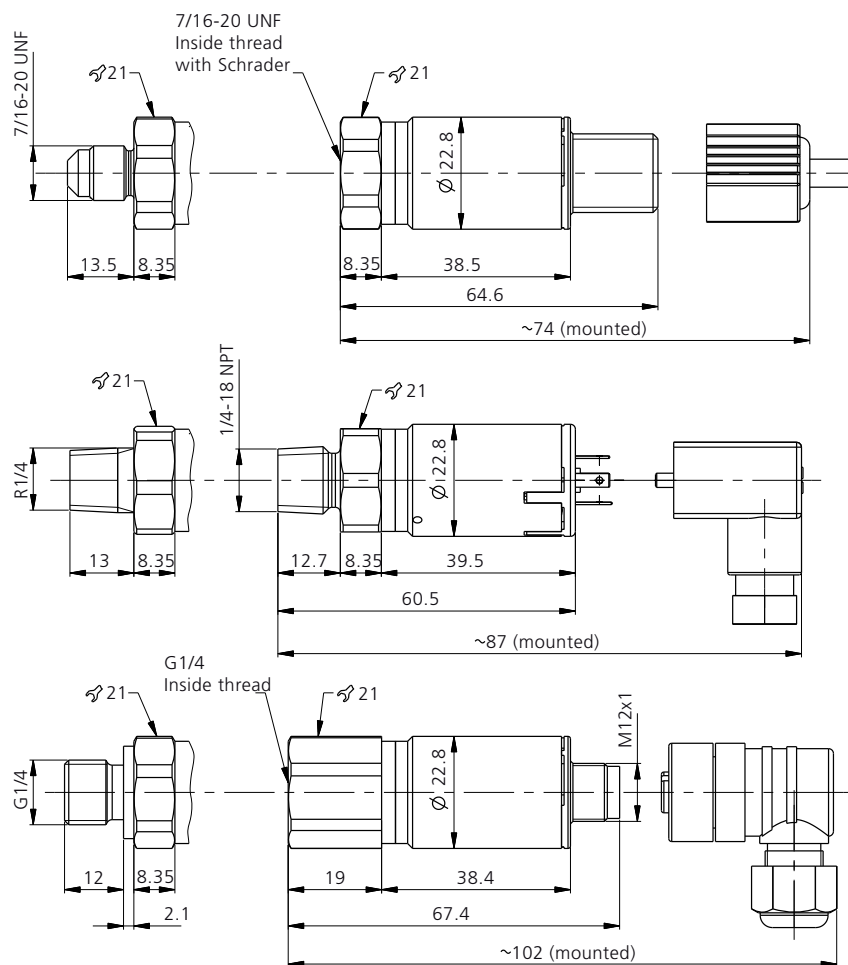


Fig. 1
Connector DIN 175301-803-C (mini DIN)

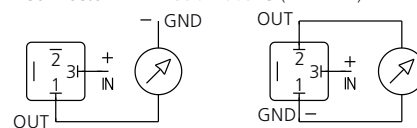
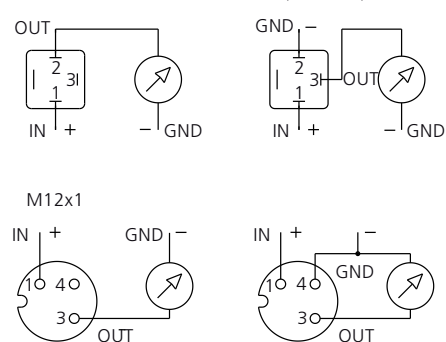


Fig. 2
Connector DIN 175301-803-C (mini DIN)



Electromagnetic compatibility

CE conformity (EMC) by application of harmonised standards: Interference stability EN 61000-6-2 and EN 61326-1, interference emit EN 61000-6-3 and EN 61326-1

Interference stability	Test standard	Effect
Electrostatic discharge (ESD)	EN 61000-4-2	15 kV air, 8 kV contact no effect
High-frequency electromagnetic radiation (HF)	EN 61000-4-3	30 V/m, 80 ... 1000 MHz 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 Line-Case 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 350 VAC no effect
Interference emit	Test standard	Effect
Conducted interference	EN 55022 (CISPR 22)	0.15 ... 30 MHz no emission
Radiation from housing		30 ... 1000 MHz, 10 m no emission

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