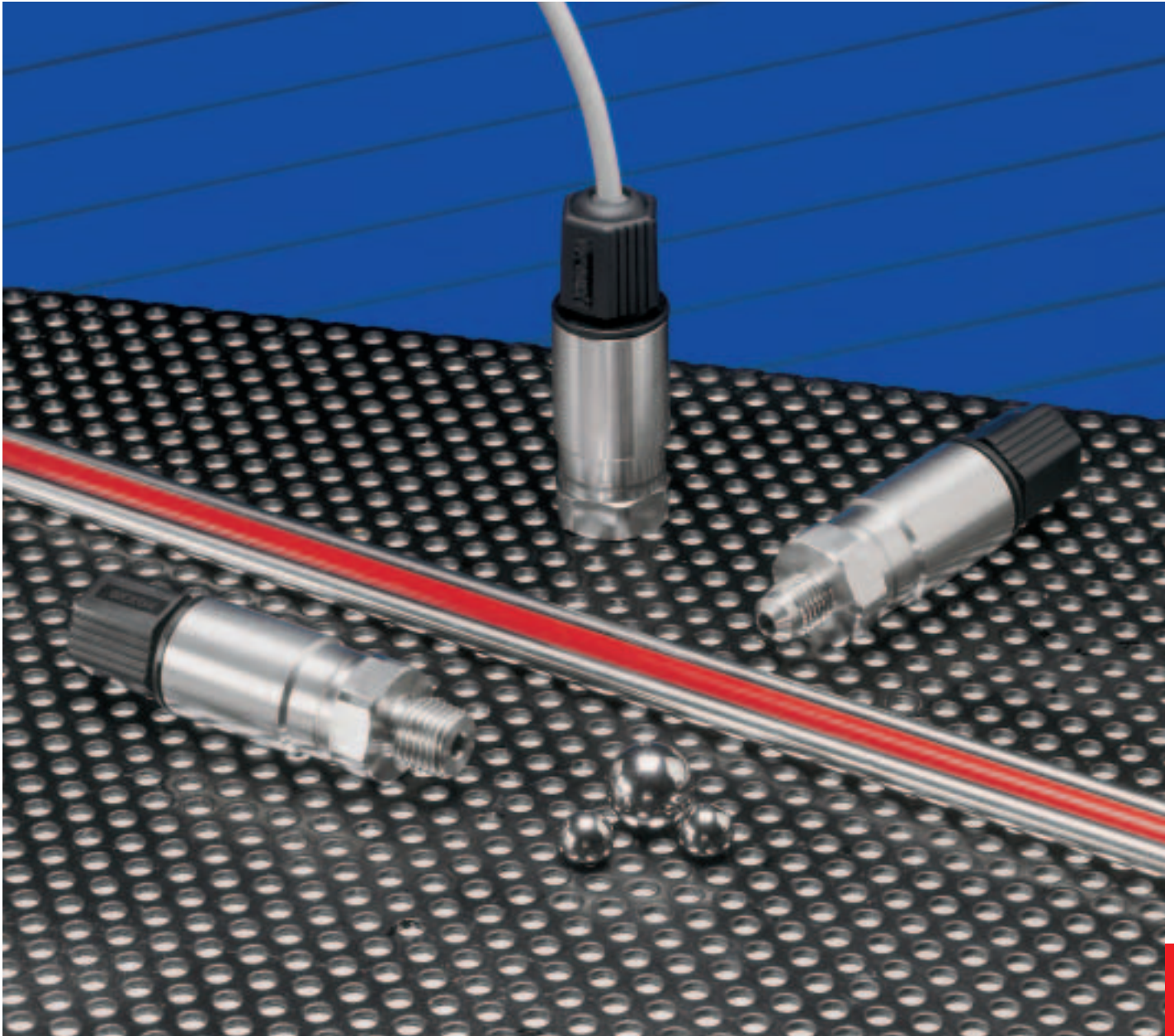


510

OEM

**Pressure transmitter for
refrigeration technology
Relative pressure –1 to 160 bar**



EDITION 03/2003

HUBA-REGISTERED TRADE MARK

Huba Control

FOR FINE PRESSURE AND FLOW MEASUREMENT



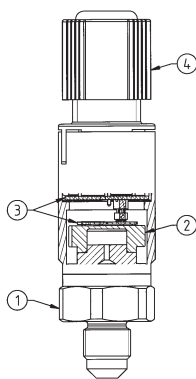
EDITION 03/2003

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 ammoniac. 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.



The distinct advantages

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

Legend to cross-section drawing

- 1 Connection fitting
- 2 Steel cell welded
- 3 Electronic with EMC-protection
- 4 Electrical connection (example Quickon)

Pressure ranges

Relative pressure (Gage)
(differential measurement of pressure relative to ambient pressure).
Ranges see order code selection table.

Overload

3.0x Full scale

Rupture pressure

6.0x Full scale

Accuracy

Total of linearity, hysteresis and repeatability
< +/- 0.5% fs
Adjustment accuracy zero point and full scale
< +/- 0.3% fs

Housing material

Casing:
Stainless steel 1.4305 (AISI 303)

Materials in contact with the medium

Sensor: Stainless steel 1.4305

Application temperature

Medium temperature
-40 ... + 150 °C
Ambient temperature with
Cable 1.5 meters max. 85 °C
Quickon max. 85 °C

Temperature influences

TC zero point < +/- 0.03% fs/K
TC sensitivity < +/- 0.015% fs/K
temperature range -40 ... + 125 °C

Dynamic response

Suitable for static and dynamic measurements.
Response time < 2 ms
typ. 1 ms

Pressure connections

See order code selection table

Weight

Version inside thread 88 grams
Version outside thread 98 grams

Installation arrangement

Unrestricted

Outputs / Power supply

See order code selection table

• Short circuit-proof and protected against polarity reversal. Each connection against other with max. +/- supply voltage.
Electric strength 500 VDC, on request 1000 VDC

Load

0 - 5 V	> 10 kOhm < 100 nF
1 - 6 V	> 10 kOhm < 100 nF
0 - 10 V	> 10 kOhm < 100 nF
4 - 20 mA	$\leq \frac{\text{Supply voltage} - 8 \text{ V}}{0.02 \text{ A}}$ [Ohm]
ratiometric	> 10 kOhm < 100 nF

Current consumption

With max. signal output:

0 - 5 V	< 4 mA
1 - 6 V	< 4 mA
0 - 10 V	< 4 mA
4 - 20 mA	$\leq 20 \text{ mA}$
ratiometric	< 4 mA

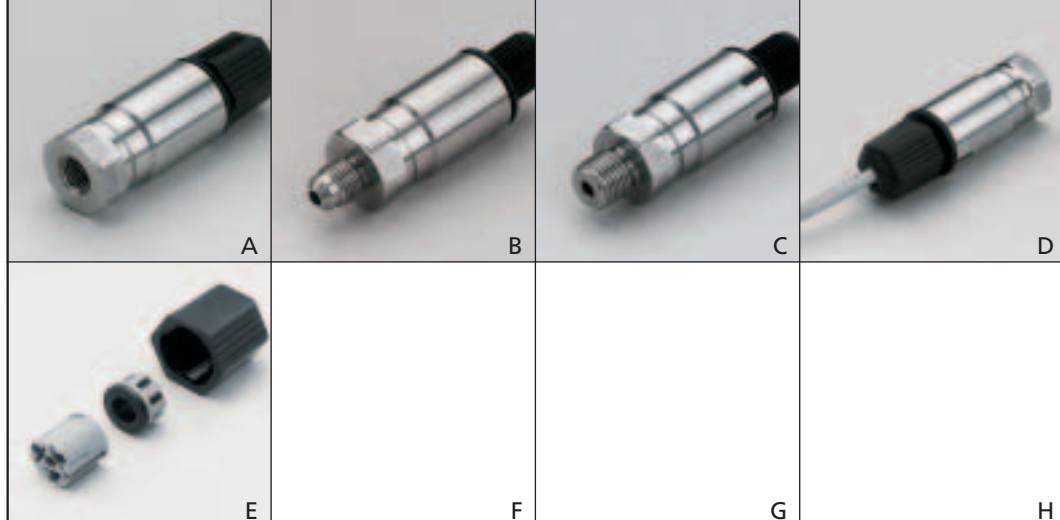
Electrical connections / Protection standard

See order code selection table

Tests

Shock acc. IEC 68-2-27
75 G, 11 ms half sine wave, all 3 directions. Free fall from 1 m on concrete (6x).
Constant shock acc. IEC 68-2-29
40 G for 6 ms, 1000 x all 3 directions.
Vibration acc. IEC 68-2-6
20 G, 9 ... 200 Hz, 2 ... 9 Hz with amplitude +/- 15 mm, 1 Octave / minute all 3 directions, 50 constant load

EMC-behaviour see on the back
UL according to standard 873



- A – Inside thread
7/16 UNF Schrader
- B – Outside thread
7/16-20 UNF
- C – Outside thread
1/4-18 NPT
- D – Cable, 1.5 meters
- E – Quickon
cable screwing

Versions

Order code selection table

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510

		9	X	X	X	X	X	X	X	X	X	X	X	
Relative pressure		9												
Pressure range	Customer side (-1 ... 160 bar) (- 14.5 – 2000 PSI) (minimum 7 bar fs) (minimum 100 PSI fs)		X	X										
Sealing materials	None (cell welded)				S									
Calibration	Factory calibrated in bar Factory calibrated in PSI					0								
Outputs and power supply	0 – 5 V 8.0 – 33.0 VDC 3-wire-cable 1 – 6 V 8.0 – 33.0 VDC 3-wire-cable 0 – 10 V 11.4 – 33.0 VDC 3-wire-cable 0 – 10 V 16 – 34 VDC/24 VAC +/- 15% 3-wire-cable 4 – 20 mA 8.0 – 33.0 VDC 2-wire-cable 0.5 – 4.5 V, ratiometric 5 VDC (4.75 – 5.25) 3-wire-cable							1						
							6							
							2							
							7							
							3							
							4							
Electrical connections	Cable, 1.5 meters (Photo G, Quickon) IP 67 including Quickon cable screwing, without cable IP 67									0				
										1				
Pressure connections¹	Inside thread 7/16-20 UNF Schrader Outside thread 7/16-20 UNF Outside thread 1/4-18 NPT										0			
											2			
											3			
Process connection	Stainless steel 1.4305											0		
Pressure range	Indicate W and mention range on order												W	

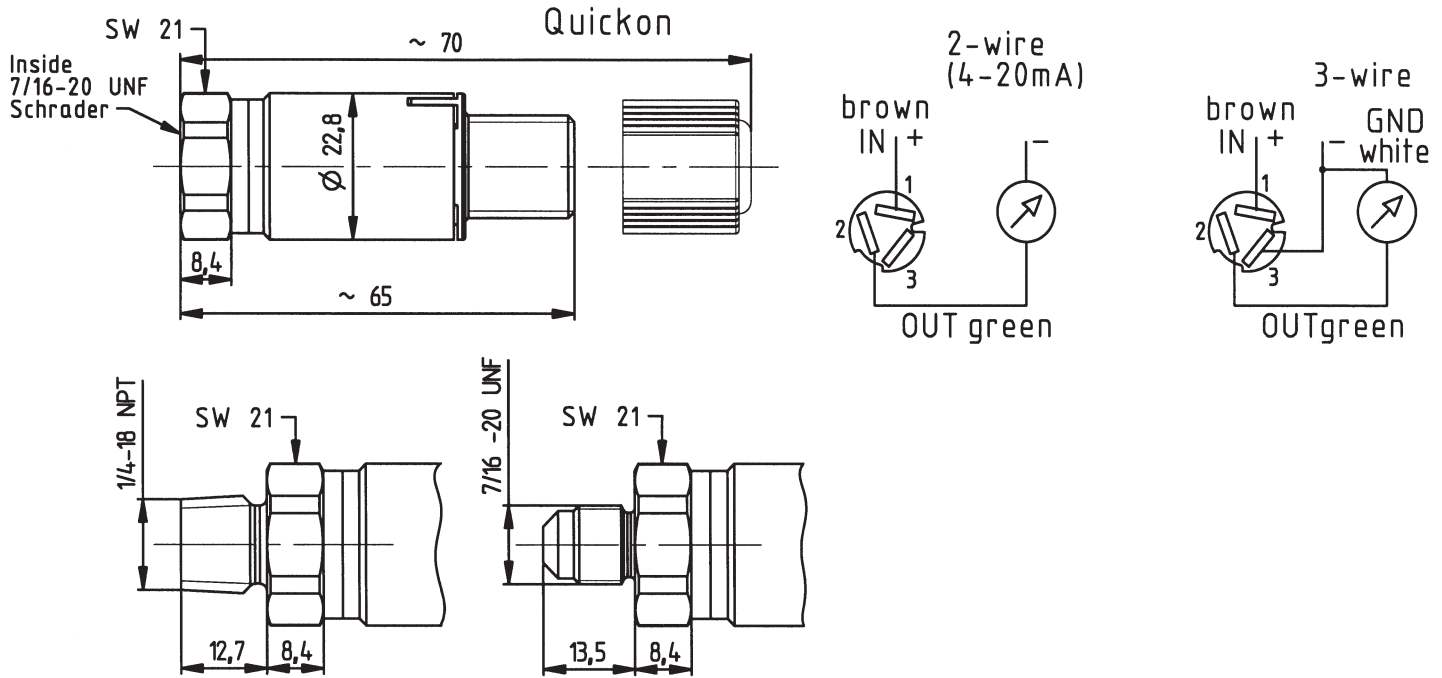
Accessories Quickon cable screwing (included in delivery)

1 0 7 3 5 9

Packaging Mention on order • **single packaging** / • **multiple packaging (25 pcs)**

- Single packaging, accessories integrated
- Multiple packaging (25 pcs), Quickon cable screwing enclosed

¹ Other pressure connections and materials on request.



Electromagnetic compatibility:
 CE conformity (EMC) by application of harmonized standards: Interference stability EN 50082-2, IEC 61000-6-2 and EN 61326-1, interference emit EN 50081-1, EN 55022, CISPR 22, EN 61326-1

Interference stability	Test standard	Effects
Electrostatic discharge (ESD)	EN 61000-4-2 15 kV air discharge, 8 kV contact discharge	No effect
High-frequency electromagnetic radiation (HF)	EN 61000-4-3 200 V/m, 80 ... 100 Mz	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 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 (optional 1000 VDC) 350 VAC (optional 700 VAC)	No effect
Interference emit	Test standard	Effects
Conducted interference	EN 55022 0.15 ... 30 MHz	No emission
Radiation from housing	30 ... 1000 MHz, 10 meters	No emission

Internet: www.hubacontrol.com

Huba Control Switzerland
 Headquarters
 Industriestrasse 17
 CH-5436 Würenlos
 Phone ++41 (0) 56 436 82 00
 Fax ++41 (0) 56 436 82 82
 e-mail: info.ch@hubacontrol.com

Huba Control United Kingdom
 Unit 3 Network Point
 Range Road
 GB-Witney Oxfordshire OX29 0YD
 Phone 01 993 776 667
 Fax 01 993 776 671
 e-mail: info.uk@hubacontrol.com

Huba Control France
 e-mail: info.fr@hubacontrol.com
Huba Control Germany
 e-mail: info.de@hubacontrol.com
Huba Control Netherlands
 e-mail: info.nl@hubacontrol.com

Agent for: