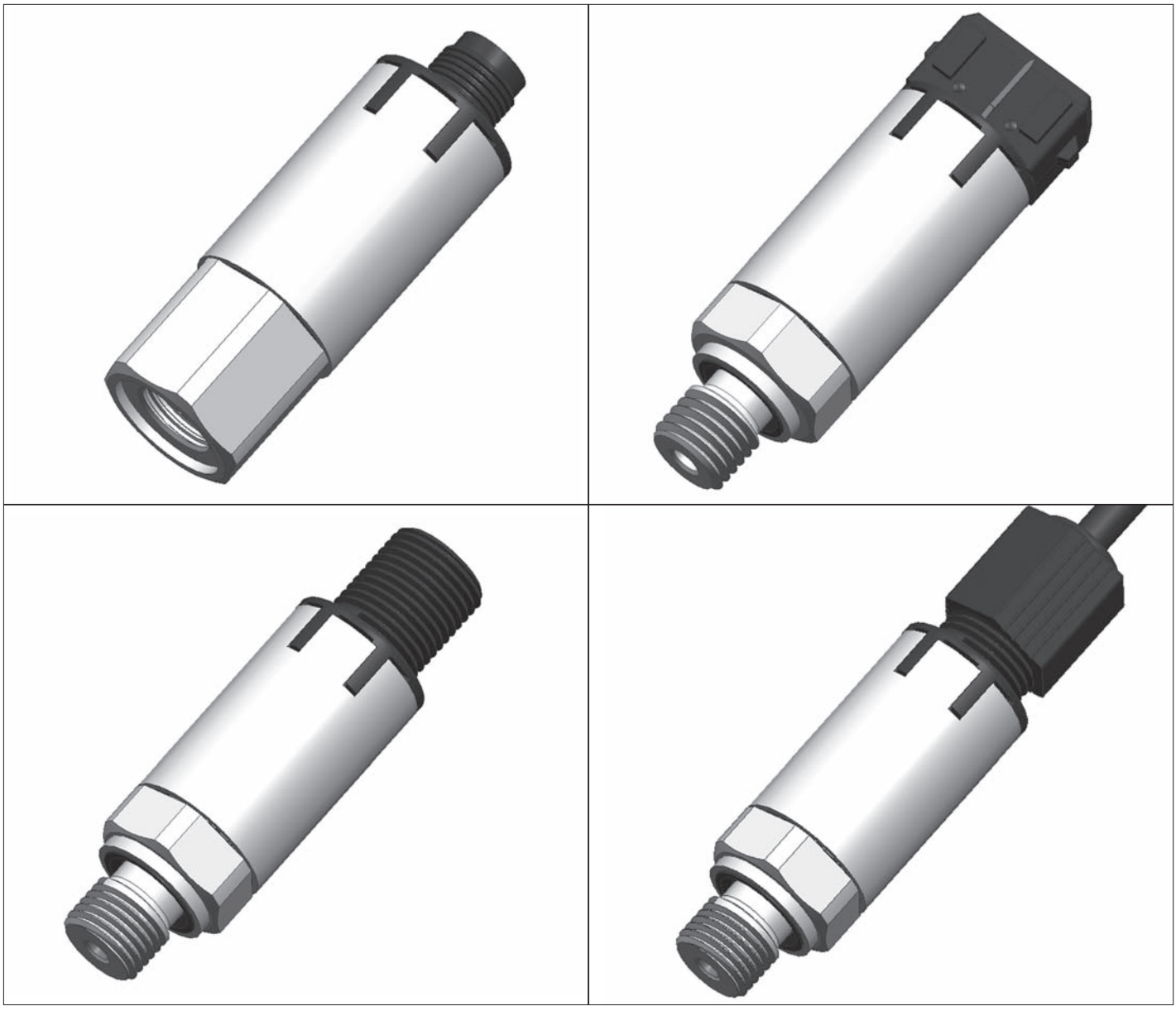
511

OEM Relativ- und Absolut-Druckschalter

OEM relative and absolute pressure switch

OEM Pressostat de pression relative et absolue

–1 … 0 – 600 bar

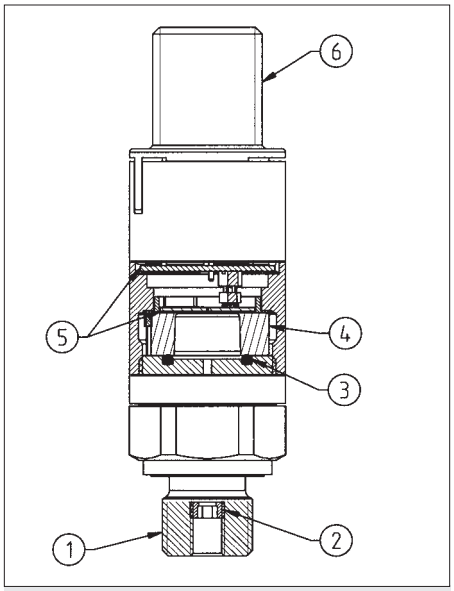


Huba Control

FEINE MESSIDEEN FÜR DRUCK UND STRÖMUNG
FOR FINE PRESSURE AND FLOW MEASUREMENT
LA FINESSE DES MESURES DE PRESSION ET DE DEBIT

Techniscal overview

These compact OEM pressure switchs type series 511 meet the highest specification for mechanical stress, EMC compatibility, and operational reliability, which means that this range is particulary suitable for all demanding industrial applications.
Switching loads up to 150 mA resp. 500 mA are possible because of an electronic semiconductor switch. The upper and lower switching point ist free eligible between 5 and 100% fs in function N/C and N/O.
This sensor utilises a ceramic technology, developed by Huba Control and for the last 10 years, in millions of applications, used in combination with unique integrated electronic design, means that the type 511 series have a high degree of accuracy for all temperature ranges. These units are available in small or production quantities, with an excellent price to performance ratio.



Legend to cross-section drawing

1 Pressure connection
2 Protection of media leakage
3 Sealing
4 Ceramic cell
5 Electronic with EMC-protection
6 Electrical connection (example Quickon)

The distinct advantages

- Compact, rugged construction for highest operational reliability
- Protection IP 67 standard
- No media egress when exceeding rupture pressure (patented)
- Negligible temperature influence on accuracy
- Excellent EMC-capacity
- Saving time by quick cable mounting by the customer with Quickon-System

Medium

Liquids and neutral gases

Pressure ranges

Absolute	0 ... 25 bar
Relative	-1 ... 0 - 600 bar

Other pressure ranges on request

Overload

3.0 x full scale at	-1 … 4 bar
2.5 x full scale at	6 … 600 bar
but as a maximum	900 bar

Higher overload on request

Rupture pressure

3.0 x full scale at	-1 … 4 bar
2.5 x full scale at	6 … 600 bar
but as a maximum	900 bar

Higher rupture pressure on request

Media stop system

Patented to prevent media egress when exeeding rupture pressure range
(≥ 40 bar nominal value)

Materials in contact with the medium

Ceramic Al_2O_3 / Stainless steel 1.4305
Media stopper: PPS
Sealing material: option FPM, NBR, others on request

Housing material

Casing stainless steel 1.4305 (AISI 303)

Application temperature

Medium temperature with sealing:

FPM	-15 … +125 °C
NBR	-25 … +85 °C
FPM spec.	-40 … +150 °C

Ambient temperature:
Ratiometric output

with connnector AMP	max. 125 °C
for all other versions	max. 85 °C

(Versions up to 150 °C on request)

Power supply

8 … 33 VDC

Output

Semiconductor (open collector)

Switchcontact
High-Side Switch
(PNP) N/C contact or N/O contact
Low-Side Switch
(NPN) N/C contact or N/O contact

Switch last

High-Side Switch (PNP)	max. 500 mA
Low-Side Switch (NPN)	max. 100 mA

Adjustment of switching points

Factory set

Upper switching point	8 … 100% fs
Lower switching point	5 … 97% fs
Min. hysteresis	3% fs

Current consumption

< 4 mA

Dynamic response

Suitable for static and dynamic measurements.

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

Protection

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

Installation arrangement

unrestricted

Insulation voltage

Standard	500 VDC / 350 VAC
Optional	1000 VDC / 700 VAC

Tests / Admissions

Shock acc. IEC 68-2-27
100 G, 11 ms half sine wave, all 6 directions. Free fall from 2 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 … 2000 Hz, 2 … 9 Hz with amplitude ± 15 mm, 1 Octave/min. all 3 directions, 50 constant load.

UL according to standard 873

Weight

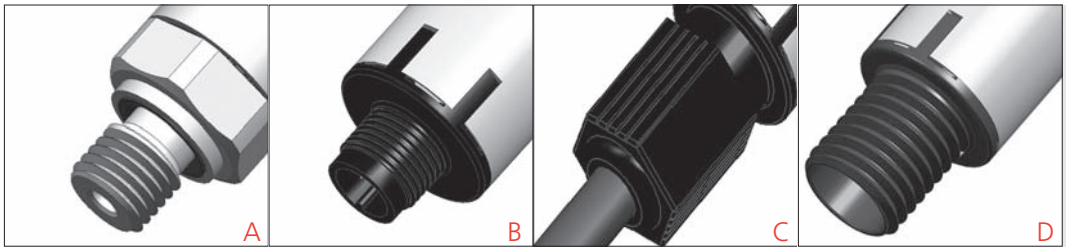
Version inside thread	approx. 85 g
Version outside thread	approx. 95 g

Packaging

Please state on order

Single packaging
in cardboard, accessories integrated

Multiple packaging
in cardboard (25 pcs)



Versions

A – Outside thread G ¼
B – Connector M12x1
C – Cable 1.5 m
D – Quickon

Order code selection table

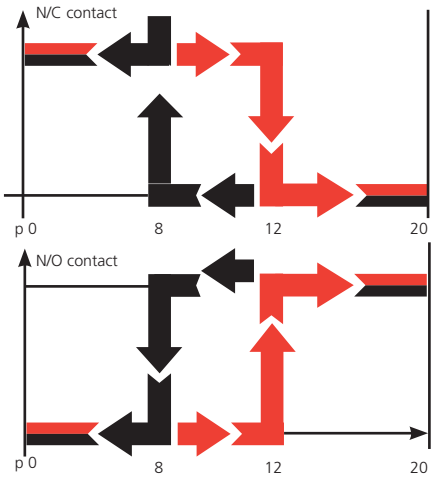
					511.	X	X	X	X	X	X	X	X	X	X
Relative pressure						9									
Absolute pressure						8									
Pressure ranges [1]	- 1… + 0 bar					9	0	0							
	0 … + 1 bar						1	1							
	0 … + 1.6 bar						1	2							
	0 … + 2.5 bar						1	4							
	0 … + 4 bar						1	5							
	0 … + 6 bar						1	7							
	0 … + 10 bar						3	0							
	0 … + 16 bar						3	1							
	0 … + 25 bar						3	2							
	0 … + 40 bar					9	3	3						2,4	
	0 … + 60 bar					9	4	0						2,4	
	0 … + 100 bar					9	4	1						2,4	
	0 … + 160 bar					9	4	2						2,4	
	0 … + 250 bar	not free of oil and grease					9	4	3					2	
	0 … + 250 bar	free of pil and grease [2]		FPM spec. seal only		9	4	4	6					4	
	0 … + 400 bar	free of pil and grease [2]		FPM spec. seal only		9	5	3	6					4	
	0 … + 400 bar	not free of oil and grease		FPM spec. seal only		9	5	4	6					2	
	0 … + 600 bar	not free of pil and grease		FPM spec. seal only		9	5	5	6					2	
	▲ Full scale signale at these pressures														
Sealing materials [3]	FPM	Fluoro-elastomer			-15 … + 125 °C				0						
	NBR	Butadiene Acrylonitrile			-25 … + 85 °C				2						
	FPM	Fluoro-elastomer spec.			-40 … + 150 °C				6						
Switching contact	Contact N/O	Highside-Switch	PNP							2	L				
	Contact N/C	Highside-Switch	PNP							2	M				
	Contact N/O	Lowside-Switch	NPN							2	N				
	Contact N/C	Lowside-Switch	NPN							2	P				
Electrical connections	Cable 1.5 m				IP 67 max. 85 °C							0			
	Quickon including cable screwing				IP 67 max. 85 °C							1			
	Connector AMP (without female connector)				IP 67 max. 125 °C							2			
	Connector M12x1 (without female connector)				IP 67 max. 85 °C							5			
Pressure connections [4]	Inside thread	G ¼ with O-ring sealing											1		
	Outside thread	G ¼ sealed at back, DIN 3852/E											4		
	Outside thread	¼-18 NPT											3		
	Outside thread	R ¼, DIN 2999											7		
	Outside thread	M12x1.5 sealed at back, DIN 3852/E											5		
	Outside thread	M14x1.5 sealed at back, DIN 3852/E											6		
Process connections	without pressure tip orifice													1	
	with pressure tip orifice (standard from ≥ 40 bar on)													2	
	without pressure tip orifice, free of oil and grease, only seal FPM, not compound filled, up to 160 bar								6					3	
	with pressure tip orifice (standard from ≥ 40 bar on), free of oil and grease, only seal FPM, not compound filled, up to 160 bar								6					4	
Switching points [4]	Indicate W and state switching points on order														W

Acessories

		Order number
Female connector for connector M12x1	(not included in delivery)	106975
Female connector AMP (Junior Power Timer) 2-wire	(not included in delivery)	110442
Female connector AMP (Junior Power Timer) 3-wire	(not included in delivery)	108767
Quickon cable screwing	(included in delivery)	107359

[1] Other pressure ranges on request
[2] Until 85°C Medium and Ambient temperature only
[3] According to ISO standard R 1629, other sealing materials on request
[4] Other pressure connections and materials on request
[5] Switching points factory-set in psi on request

Operation / Switch status indication

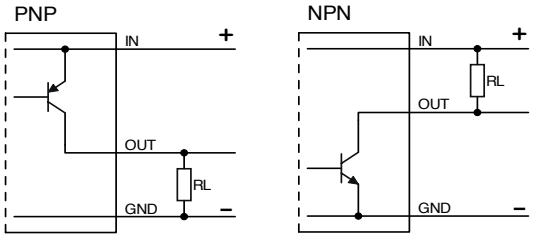


N/C contact: When pressure is applied ($p_0 \rightarrow p_{max}$) the switch will disconnect the applied load as soon as the upper switching point is reached. As the pressure falls ($p_{max} \rightarrow p_0$) the switch will connect the load as soon as the lower switching point is reached.

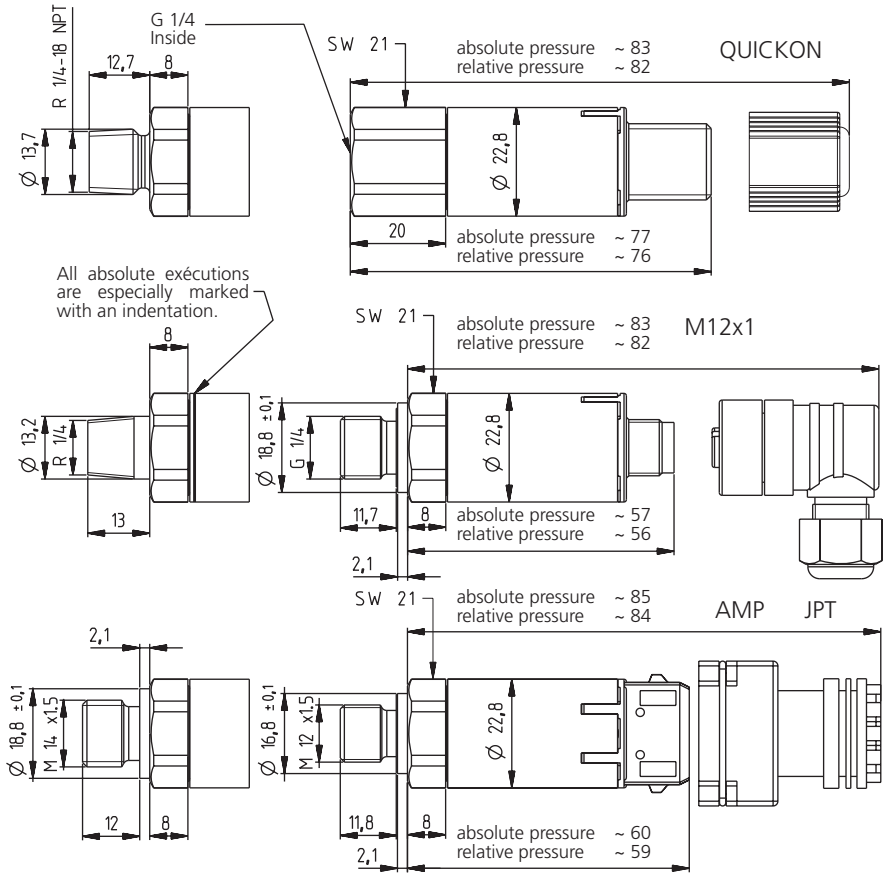
N/O contact: When pressure is applied ($p_0 \rightarrow p_{max}$) the switch will connect the applied load as soon as the upper switching point is reached. With a fall in pressure($p_{max} \rightarrow p_0$) the switch will disconnect the load as soon as the lower switching point is reached.

Example: p_{FS} 20 bar

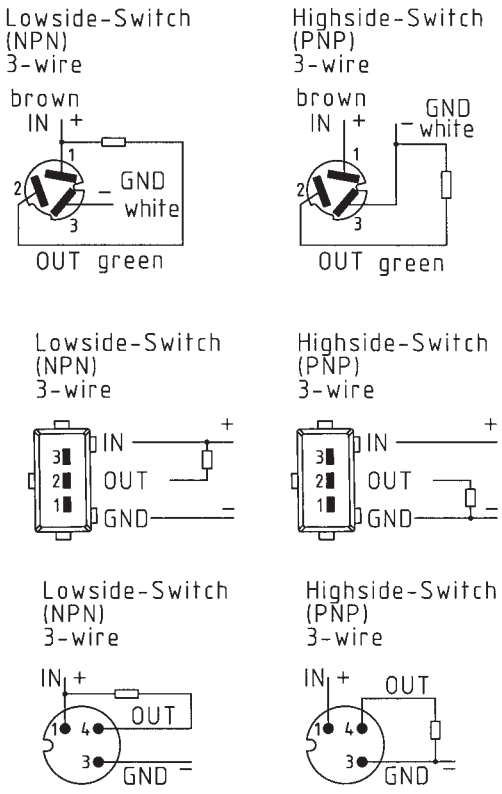
Upper witching point	12 bar
Lower switching point	8 bar



Dimensions in mm



Electrical connections



Electromagnetic compatibility

CE conformity (EMC) by application of harmonised standards: EN 61000-6-2, EN 61000-6-3 und EN 61326-1.

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