

High density (better 10^{-7} mbar · l · s⁻¹)

**High switching precision
(with pressure regulation dispersion < 1%)**

Gold plated contacts microswitch

**Electrical connection:
Pin-and-socket connector HAN 7 D**

(Crimp contacts gilded) with strain relief

Wire breakage monitoring resistance R = 47 kΩ



Technical data

Medium:
Neutral, aggressive, non-combustible gases and liquids

Fluid port:
G1/2 A

Switching pressure range:
-1 ... 100 bar

Temperature:
Fluid Surrounding
-20°C ... +100°C -10°C ... +80°C

Operating viscosity:
1000 mm²/s max.

Reproducibility:
±1% from the final value of range (referring to pressure regulation)

Protection rating:
IP65 (according to DIN 40050)

Mounting position:
Optional
Resistance to shocks and vibrations (if possible avoid them):
4 g max. (sinusoidal) / 5 Hz max.

Material:

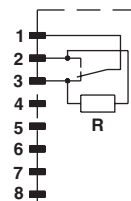
Housing: die-cast aluminium
Sealing: stainless steel - bellow
Pressure sensor: all parts made of stainless steel 1.4301 or 1.4404 coming into contact with the pressure fluid.

Ordering Information

See page 2

Accessories

See page 3



Switching function:
1-pin microswitch (commutator)

Terminal 1- 3: with rising
control value
contact closing

Terminals 1 – 2:
with rising control value
contact opening



Pressure range for 181 (fixed switching pressure difference)

Model	Switching pressure range pvu min. to max. (VDI 3283) bar	Switching pressure difference (typ. value) bar at range beginning	Switching pressure difference (typ. value) bar at range end	Limit value ³⁾ bar	Switching number 1/min) ²⁾	Pressure sensor variants	See page
1810112	-1 ²⁾ ... 0	0,08	0,09	10	max. 20	A	4
1810212	-1 ²⁾ ... 1	0,07	0,08	10	max. 20	A	4
1810412	-1 ²⁾ ... 2,5	0,09	0,12	10	max. 20	A	4
1811112	0,05 ... 1	0,09	0,11	10	max. 20	A	4
1811312	0,1 ... 2,5	0,11	0,15	10	max. 20	A	4
1811412	0,5 ... 4	0,3	0,33	20	max. 20	D	4
1811512	0,5 ... 6	0,3	0,35	20	max. 20	D	4
1811612	0,5 ... 10	0,3	0,4	20	max. 20	D	4
1811712	1,0 ... 16	0,7	0,8	50	max. 20	G	4
1811812	1,0 ... 25	0,7	0,9	50	max. 20	G	4
1811912	5,0 ... 63	1,0	2,0	85	max. 20	H	4
1811012	5,0 ... 100	3,0	7,0	150	max. 20	H	4

Pressure range for 180 (adjustable pressure difference)

Model	Switching pressure range pvu min. to max. (VDI 3283) bar	Switching pressure difference (typ. value) bar At range beginning Smallest ⁴⁾	Switching pressure difference (typ. value) bar At range end largest	Limit value ³⁾ bar	Switching number z (1/min) ²⁾	Pressure sensor variant	See page
1800112	-1 ²⁾ ... 0	0,12 ... 0,13	0,7	10	max. 20	A	4
1800212	-1 ²⁾ ... 1	0,19 ... 0,21	1,0	10	max. 20	A	4
1800412	-1 ²⁾ ... 2,5	0,22 ... 0,24	2,5	10	max. 20	A	4
1801112	0,05 ... 1	0,15 ... 0,16	0,7	10	max. 20	A	4
1801312	0,1 ... 2,5	0,20 ... 0,25	2,0	10	max. 20	A	4
1801412	0,5 ... 4	0,8 ... 0,8	2,5	20	max. 20	D	4
1801512	0,5 ... 6	0,8 ... 0,9	5,0	20	max. 20	D	4
1801612	0,5 ... 10	0,9 ... 1,9	8,0	20	max. 20	D	4
1801712	1,0 ... 16	1,7 ... 1,9	12,0	50	max. 20	G	4
1801812	1,0 ... 25	1,8 ... 2,8	20,0	50	max. 20	G	4
1801912	5,0 ... 63	2,3 ... 3,5	20,0	85	max. 20	H	4
1801012	5,0 ... 100	4,0 ... 9,0	55,0	150	max. 20	H	4

- 1) Reference pressure is the atmospheric air pressure.
- 2) With reference of the switching pressures to 100 % vacuum the switching point deviations caused by atmospheric air pressure variations (high, low pressure) are to observe. No sudden pressure changes or vibrations.
- 3) Short-term pressure peaks are not allowed to exceed this limit value during operation. Operative utilization of the limit value is not permitted. The limit value corresponds to the maximum testing pressure
- 4) The smallest switching pressure difference indicated are maximum values. The smaller one is valid for the beginning and the larger one for the end of the switching pressure range.

Option selector

18★ ★★ 12

Switching pressure range	Substitute
adjustable	0
fixed	1

Switching pressure range (bar)	Substitute
-1 ... 0	01
-1 ... 1	02
-1 ... 2,5	04
0,05 ... 1	11
0,1 ... 2,5	13
0,5 ... 4	14
0,5 ... 6	15
0,5 ... 10	16
1,0 ... 16	17
1,0 ... 25	18
5,0 ... 63	19
5,0 ... 100	10

Ordering information

Switching pressure for max. operating pressure 8 bar, fixed switching pressure difference, pressure connection, G 1/2 exterior, switching point rising with 6 bar

Quote: **1811612**

Warning:

These products are intended for use in industrial compressed air or hydraulic systems only. Do not use these products where pressures and temperatures can exceed those listed in "Technical Data". Please consider the corresponding catalogue sheets. Before using these products with fluids other than those specified, for non-industrial applications, life-support systems, or other applications not within published specification, please consult **NORGREN**. Through misuse, age, or malfunction, components used in fluid power systems can fall in various modes.

The system designers are warned to consider the failure modes of all component parts used in fluid systems and to provide adequate safeguards to prevent personal injury or damage of equipment in the event of such failure.

System designers have to provide a warning to end users in the system instructional manual, if protection against a failure mode cannot be adequately provided.

System designers and end users are cautioned to review warnings found in instruction sheet as packed and shipped with these products.



Accessories

Swivel nut



See page 4

0550145 (Ø 6,2)

0579516 (Ø 8,2)

Surge dampers



See page 4

0551894

7D Bracket



See page 4

0574772

Switching capacity – Microswitch with gilded contacts

Current type	load type	Switching voltage US max.	
		24 V	48 V
AC	ohmic	10	10
AC	inductive, $\cos \approx 0.7$	4	2.5
AC	inductive, spark extinction with RC element	6	4
DC	ohmic	2	0.9
DC	inductive L/R ≈ 10 ms	1	0.3
DC	inductive, spark extinction with diode	1.5	0.7

Microswitch with gilded contacts

U_{min} and I_{min} no limits,
useful upper limit:

U_{max} approx.. 48 V, I_{max} approx. 20 mA;

Operating the pressure switch with $U > 48$ VDC and/or $I > 20$ mA the gold layer the contacts will be damaged. The pressure switch can only be utilized for currents exceeding 20 mA .

The switching capacity with the remaining silver jump contacts is indicated in the table.

Reference switching number: 60/min

Reference temperature: + 30 °C

(with + 70 °C max. switching current 50% of the table values).

Contact durability

referred to max. switching current $\approx 1 \times 10^6$ switchings (with 50% of the max. switching current approximately 3-times longer durability)

The creep and air distance as per VDE 0110 of the insulation group B (except the contact distance of the micro switch).

Proposal for spark extinction with direct voltage

1. Diode D parallel to the inductive load.

Observe correct polarity with connection (positive pol at cathode).

Dimensioning specifications for erasing diode:

Nominal voltage of the diode $U_D \geq 1,4 \times U_s$.

Nominal current of the diode $I_N \geq I_{load}$.

Select fast switching diodes (blocking recovery time $t_{tr} \leq 200$ [ms]).

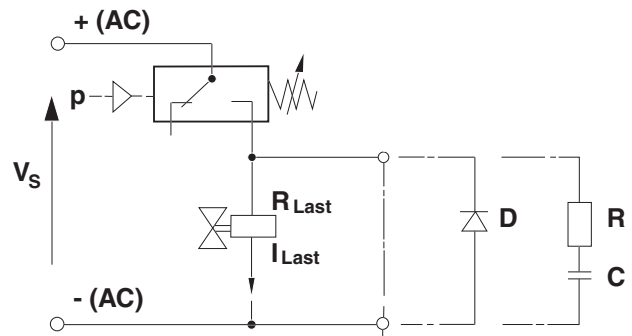
2. RC element parallel to the load (or parallel to the switching contact).

Suitable for direct voltage and alternating voltage.

Dimensioning principles:

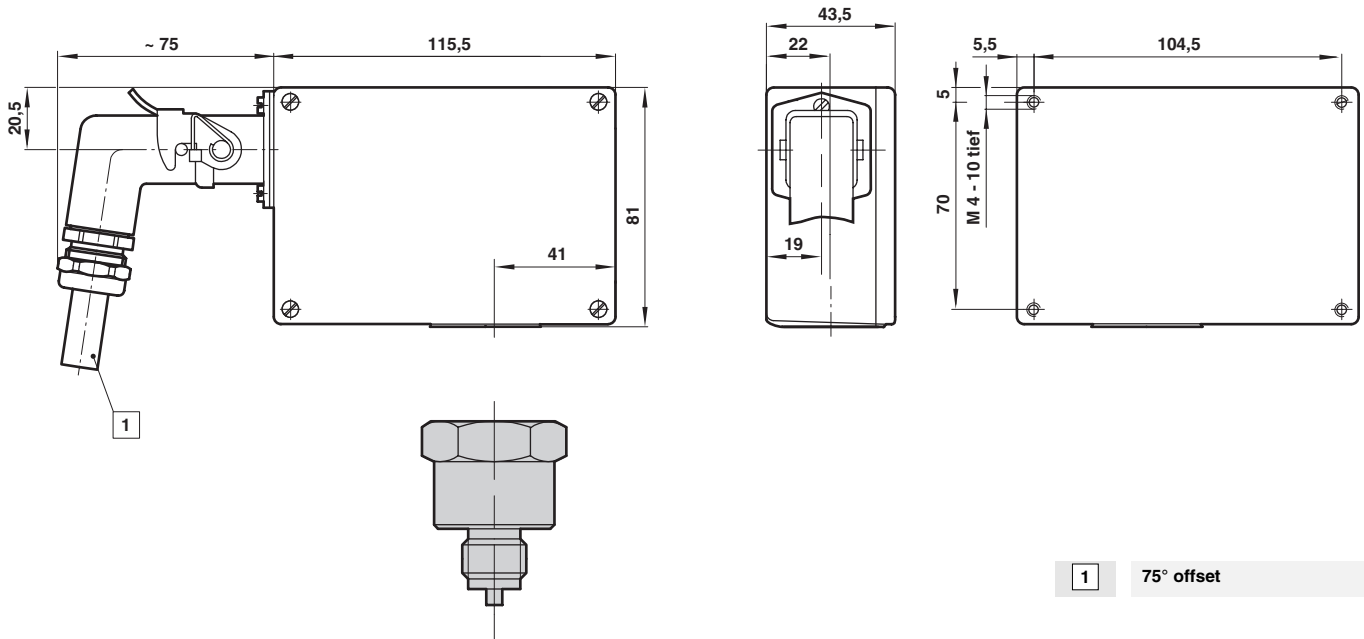
R in [Ω] $\approx 0,2 \times R_{load}$ in [Ω]

C in [μF] $\approx R_{load}$ in [A]




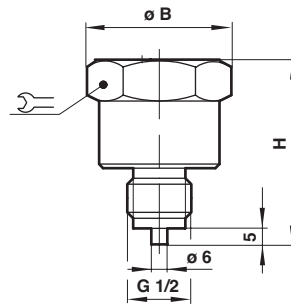


Basic dimensions



Pressure sensor dimensions

Pressure sensor variants	H	B	
A	61	47,5	41
D	52	47,5	41
G	43,5	37	32
H	53	37	32



Accessories

Swivel nut G 1/2

Sealing with welding tube
(Material 1.4301)

Ø D = 6,2 mm / Typ: **0550145**

Ø D = 8,2 mm / Typ: **0579516**

Surge damper

G 1/2

Model: **0551894**

Bracket

(2 clamps and 4 screws)

Model: **0574772**

