Hydraulic pressure switch 20D
Standard

3 to 420 bar

High accuracy

Microswitch with gold plated contacts

Intrinsically safe operation

Electrical connection: connector acc. to DIN EN 175 301-803, form A or M20x1,5 (DIN 46320)

Robust metal housing



Technical data

Medium:
Hydraulic oil, oiled compressed air and other non-inflammable fluids with sliding properties

Operation:
Piston

Port size:
G1/4

Operating pressure range:
3 to 420 bar

Temperature:

Fluid	Ambient	at switching element
0°C to +80°C	0°C to +80°C	+80°C max.

Operating viscosity:
Up to 1000 mm^2/s

Repeatability:
±1% of final value
(depending on regulating pressure)

Degree of protection:
IP65 (acc. to DIN 40050)

Mounting position:
Vertical down

Allowable vibrations (to avoid, it possible):
Max. 4 g (sinusoidal), 5 Hz max.

Sealing:
< 10^{-7} mbar • l • s^{-1}

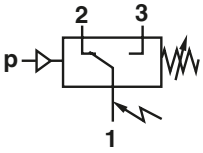
Switching cycles:
Max. 20/min.

Materials:

Housing: aluminium die cast (standard)
Sensor: brass and stainless steel
Elektrical connection/sensor combinations: see page 2
Sealing: steel piston with perbunan, lip seal or o-ring

Ordering example

See page 2



Switching function:
Microswitch SPDT (commutator)

Terminals 1 - 3:
Contacts close on rising pressure

Terminals 1 - 2:
Contacts open on rising pressure

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Pressure range for 181 (fixed switching difference)

Type	Switching pressure range *2), pvu min. to pvo max. (VDI 3283) (bar)	Final value *1) (bar)	Switching pressure difference (typical) Lower range (bar)	Upper range (bar)	See page
1816200	3 to 40	300	5	9	4
1816300	5 to 63	300	6	13	4
1816400	5 to 100	300	6	16	4
1816500	5 to 160	300	7	19	4
1816600 0000 001 00	10 to 220	300	10	25	4
1816700 0000 002 00	10 to 420	550	18	42	4

Pressure range for 180 (adjustable switching difference)

Type	Switching pressure range *2), pvu min. to pvo max. (VDI 3283) (bar)	Final value *1) (bar)	Switching pressure difference (typical) Lower range (bar)	Upper range Min. (bar)	Max. (bar)	See page
1806200	3 to 40	300	8	13	25	4
1806300	5 to 63	300	10	16	40	4
1806400	5 to 100	300	11	16	80	4
1806500	5 to 160	300	13	22	120	4
1806600 0000 001 00	10 to 220	300	14	28	120	4
1806700 0000 002 00	10 to 420	550	20	40	330	4

*1) In case of vibrations, please install a surgr damper; even short-term pressure peakes 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.

*2) Reference pressure is the atmospheric air pressure

Option selector

18★ ★★ 00

Switching pressure difference	Substitute
adjustable	0
fixed	1

Electrical connection	Substitute
DIN EN 175 301-803, form A	00
M20 x 1,5	05

Switching pressure range (bar)	Substitute
3 to 40	62
5 to 63	63
5 to 100	64
5 to 160	65
10 to 220	66
10 to 420	67

Ordering example

Pressure switch with fixed switching difference, switching point at 25 bar falling, port size G 1/4, electrical connection DIN EN 175 301-803, form A, medium: hydraulic oil
Type: 1816200

Warning

These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under '**Technical Data**'.

Before using these products with fluids other than those specified, for non-industrial applications, life-support systems, or other applications not within published specifications, consult NORGREN. Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes.

The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure.
System designers must 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 specific warnings found in instruction sheets packed and shipped with these products.

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Accessories

Connector	Connector	Brackets	Surge damper	Pressure port Reducing nipple
				
See page 4	**See page 5**	**See page 5**	**See page 5**	**See page 5**
0585418 (with LED)	0570110	0574772 (steel)	0553258 (stainless steel G1/4)	0550083 (G1/4 to G1/2)
		0553908 (stainless steel)	0574773 (brass/steel) G1/4)	0574764 (G1/4 to G3/8)
0585420 (with glow lamp)				0574765 (G1/4 to 1/4 NPT)

Switching capacity
Commutator with gold plated contacts

Load level	Current type	Load type	Umin [V]	Max. permanent current Imax [A] at U [V] 30 M 12x1	48	60	125	250	Contact life
Standard *3)	AC	ohmic	12	5	5	5	5	5	$\geqslant 10^7$ switching cycles
(z.B. contractors,	AC	inductive,							
solenoids)		cos $\varphi \approx 0,7$	12	3	3	3	3	3	
	DC	ohmic	12	5	1,2	0,8	0,4	–	
	DC	inductive,	12	3	0,5	0,35	0,05	–	
		L/R ≈ 10 ms							
Minor *4)	AC	ohmic	5 *6)	0,34	0,2	0,17	0,08	0,04	$\geqslant 10^7$ switching cycles
(z.B. electronic	DC	inductive,							
circuits)		L/R ≈ 10 ms	5 *6)	0,1	0,01	–	–	–	

Reference number: 30/min, Reference temperature: +30°C
Spark quenching with diode with DC and inductive load:
I max = 1,5 x I max of table
I min = 1 (mA)
Creepage and air paths correspond to insulation group B according to VDE Reg. 0110 (except contact clearance of microswitch).

*3) Gold-plating not required as it would decay.
Max. perm. in-rush current (appr. 30 ms) I AC = max. 15 A
*4) Gold-plating required (will not decay).
*6) Lower value of critical voltage guarantees sufficient contact safety.
Lower voltages permissible under favourable conditions.

Spark quenching with DC voltage

1. Diode D in parallel to inductive load.
   Observance of correct polarity (positive pole to cathode).

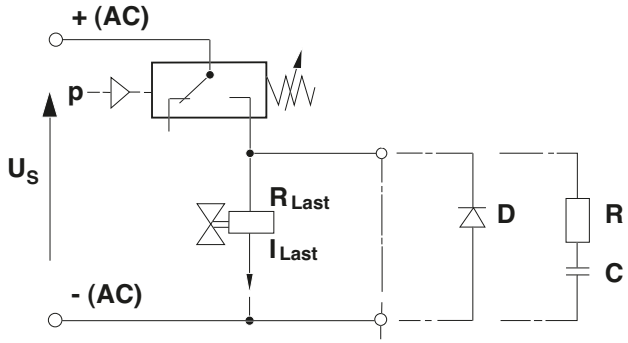
   Dimensioning specifications for quenching diode:
   Rated voltage at diode: UD $\geqslant$ 1,4 x Us

   Rated current at diode: $I_N \geqslant I_{Last}$

   Selection of a quick switching diode (recovery time trr $\leqslant$ 200 [ms]).

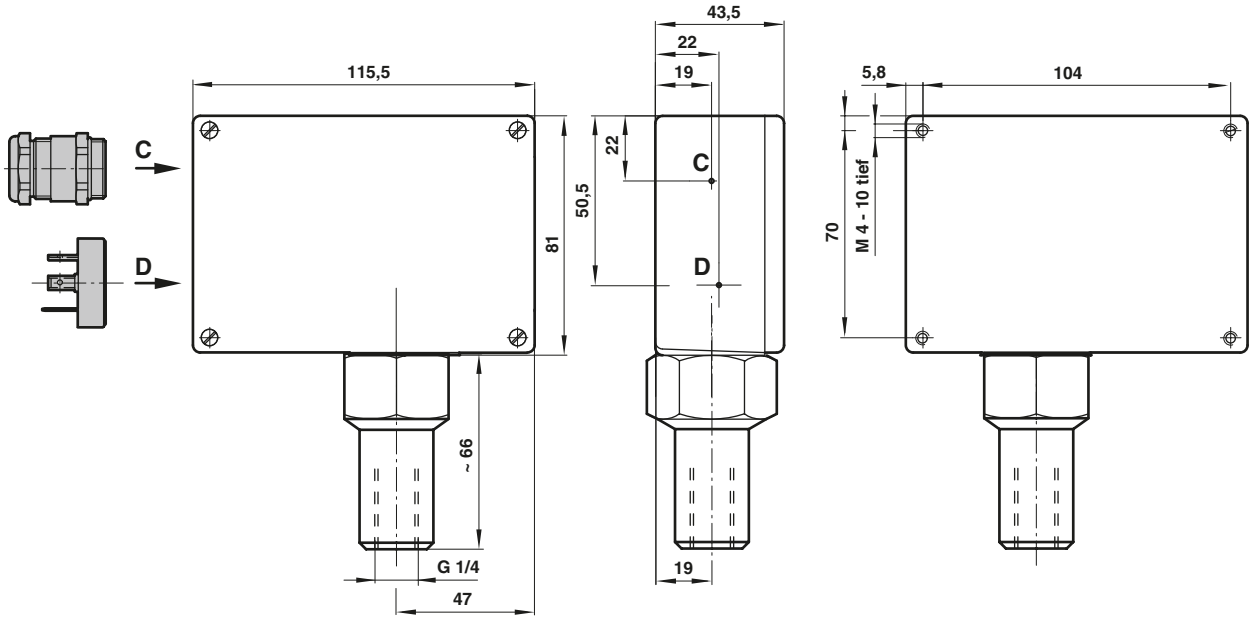
2. RC link in parallel to load in parallel to switching contact.
   Suited for DC and AC voltage.

   Dimensioning principles:
   R in Ω $\approx$ 0,2 x R_{Load} in Ω
   C in [µF] $\approx$ I_{Load} in [A]



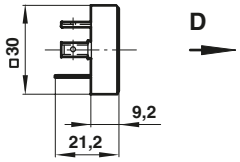
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Basic dimensions

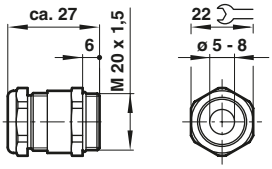


Electrical connection

Connector
acc. to DIN EN 175301-803 (form A)



Connector M20 x 1,5 acc. to DIN 46320

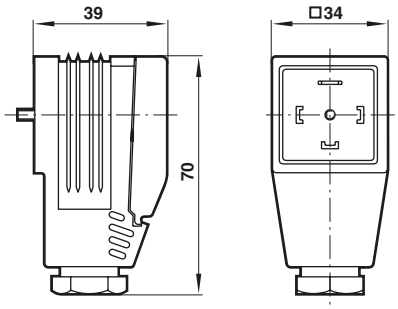


Accessories

Connectors (black) with light indicator

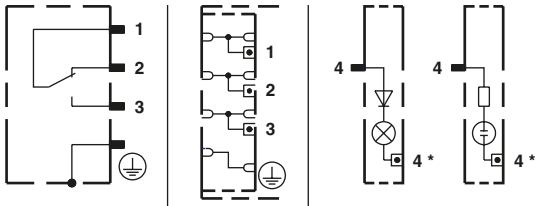
3-pin + protective conductor
Connection acc. to DIN EN 175301-803 (form A)
Optionally available for DC or AC

With LED	12 to 28 V	**Type: 0585418**
With glow lamp	90 to 130 V	**Type: 0585419**
With Glimmlampe	180 to 240 V	**Type: 0585420**



Pressure switch (with indicator) – pilot lamp

The pilot lamp shows the switching position of the connected pressure switch



Pressure switch with pin plate

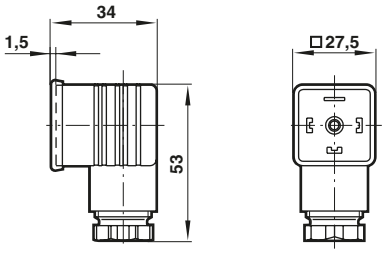
Soket

Indicator light is interchangeable optionally suitable for NC contact (2) or NO contact (3)

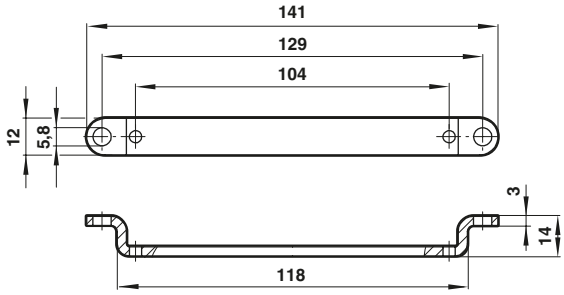
* For contact (4) a special lead (Mp resp.-) is required.

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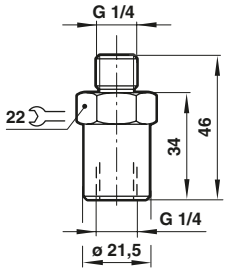
3-pin connector with protective conductor
Acc. to DIN EN 175301-803 (form A)
Type: 0570110



Brackets (2 brackets and 4 screws)
Steel **Type: 0574772**
Stainl. steel 1.4301 (AISI 304) **Type: 0553908**

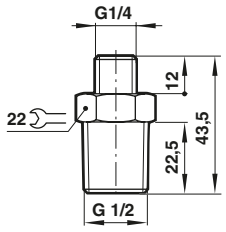


Surge damper
Stainless steel 1.4301 (AISI 304) **Type: 0553258**
Brass/steel **Type: 0574773**

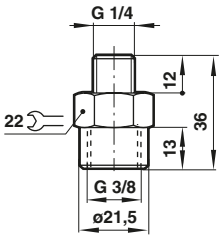


Pressure port/reducing nipple

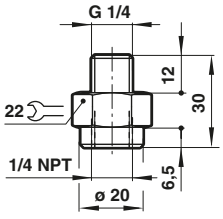
G1/4 A to G1/2 A
Stainless steel 1.4305
(AISI 303/304 S)
Type: 0550083



G1/4 A to G3/8
Steel
Type: 0574764



G1/4 A to 1/4 NPT I
Brass
Type: 0574765



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