20D – ATEX
Electro-mechanical pneumatic pressure switches

- 0 ... 0,6 bar
  Port size: G1/4
- Microswitch with gold plated contacts
- Robust metal housing in weather resisting version
- For Ex applications conforming to Zone 1 and 2 category II2G (gases):
  Ex db eb IIC T6 Gb and Zone 21 and 22 category II2D (dusts):
  Ex tb IIIC T80°C Db



Technical features

Medium:
For neutral, non-inflammable gases and fluids

Operation:
Diaphragm

Operating pressure:
0 ... 0,6 bar (0 ... 8.7 psi)

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

Port size:
G1/4

Media viscosity:
Up to 1000 mm^2/s

Sealing:
$\leq 10^{-7}$ mbar · l · s^{-1}

Pulsations:
Not permitted
Switching pressure

difference/hysteresis:
Optional fixed or adjustable

Switching cycles:
20/min

Life cycle of mechanical parts:
10^7 switching cycles

Switching element:
Microswitch with gold plated contacts

Shock-/vibrations:
4 g max. (sinusoidal) / 5 Hz max.

Mounting position:
Optional

Degree of protection:
IP65

Electrical connection:
Cable gland M20 x 1,5

Weight:
1,1 kg (2.4 lbs)

Ambient/Media temperature:
-10°/0° ... +60°C (+14°/32° ... +140°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)

Materials:
Housing: aluminium diecast
Sensor: stainless steel
Fluid contact parts: stainless steel 1.4305/1.4301
Sealing: diaphragm (NBR)

Technical data
Standard models — 184xxxx (fixed switching pressure difference)

Symbol	Pressure range *1)		Over pressure *2)		Switching pressure difference Lower range minimum		Upper range maximum		Model
	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	
	0 ... 0,16	0 ... 2.32	0,5	7.2	0,015	0.217	0,02	0.29	1842715
	0 ... 0,6	0 ... 8.7	15	217	0,06	0.87	0,16	2.32	1844115

Standard models — 185xxxx (adjustable switching pressure difference)

Symbol	Pressure range *1)		Over pressure *2)		Switching pressure difference Lower range		Upper range minimum		Upper range maximum		Model
	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	
	0 ... 0,16	0 ... 2.32	0,5	7.2	0,007	0.101	0,025	0.362	0,12	1.74	1852715
	0 ... 0,6	0 ... 8.7	15	217	0,09	1.30	0,16	2.32	0,5	7.2	1854115

*1) Setpoints should be ideally in the middle of the switching pressure range. Reference pressure = atmospheric pressure. Switching pressure must not exceed the indicated values.
*2) Short-term pressure peakes are not allowed to exceed this limit value during operations. Operative utilization of the limit value is not permitted. The limit value corresponds to maximum testing pressure.

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Option selector

18★★★15

Switching pressure difference	Substitute
Fixed	4
Adjustable	5

Operating pressure range (bar)	Substitute
0 ... 0,16	27
0 ... 0,6	41

Accessories

Surge damper



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0553258 (stainless steel G1/4)
0574773 (brass/steel G1/4)

Pressure port – reducing nipple



Page 4

0550083 (G1/4 » G1/2)
0574765 (G1/4 » 1/4 NPT)

Brackets



Page 4

0574772 (steel)
0553908 (stainless steel)

Cable gland Protection class Ex e (ATEX),

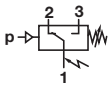


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Thread	Cable Ø	Material	Protection class (ATEX)	Model
M20 x 1,5	6 ... 14 mm	Nickel plated brass	II 2 GD Ex e	0589654

Cable gland in scope of delivery

Switching function



Connector DIN EN 175301-803, form A
Microswitch SPDT
Terminals 1 - 3: Contacts close on rising pressure.
Terminals 1 - 2: Contacts open on rising pressure.

Switching capacity
Commutator with gold plated contacts

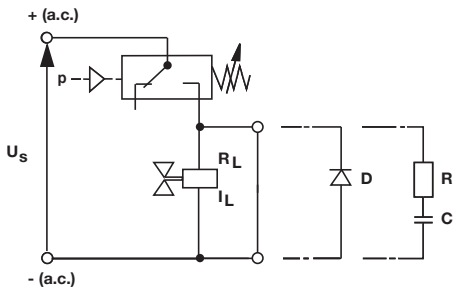
Load level	Current type	Load type	Max. permissible persistent current Imax [A] at U *1); *2) 30 V	250 V	Electrical life-time
Standard *3) (contractors, solenoids)	a.c.	Ohmic	7 *3)	5	≥ 2 x 10^5 Switching cycles
	a.c.	Inductive, cos φ ≈ 0,6	5	3	
	d.c.	Ohmic	7 *3)	0,4	
	d.c.	Inductive, L/R ≈ 3 µs	5	0,03	

Creepage and air paths correspond to insulation group B according to VDE Reg. 0110 (except contact clearance of microswitch).
*1) Futhermore additional measures has to be taken to fulfil the EMV regulation 2004/108/EG by the manufacturer
*2) Spark quenching/overload protection will be necessary using inductive loads.
*3) Ambient temperature at +50 ... +60°C limited to 6 A;

Recommended circuit
Spark quenching and EMV intrinsically safe

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: $U_D \geq 1{,}4 \times U_S$
   Rated current at diode: $I_N \geq I_{Load}$
   Selection of a quick switching diode (recovery time trr ≤ 200 ms)

2. RC link in parallel to load in parallel to switching contact.
   Dimensioning principles:
   R_L in Ω ≈ 0,2 x R_{Load} in Ω
   C in [µF] ≈ I_{Load} in [A]

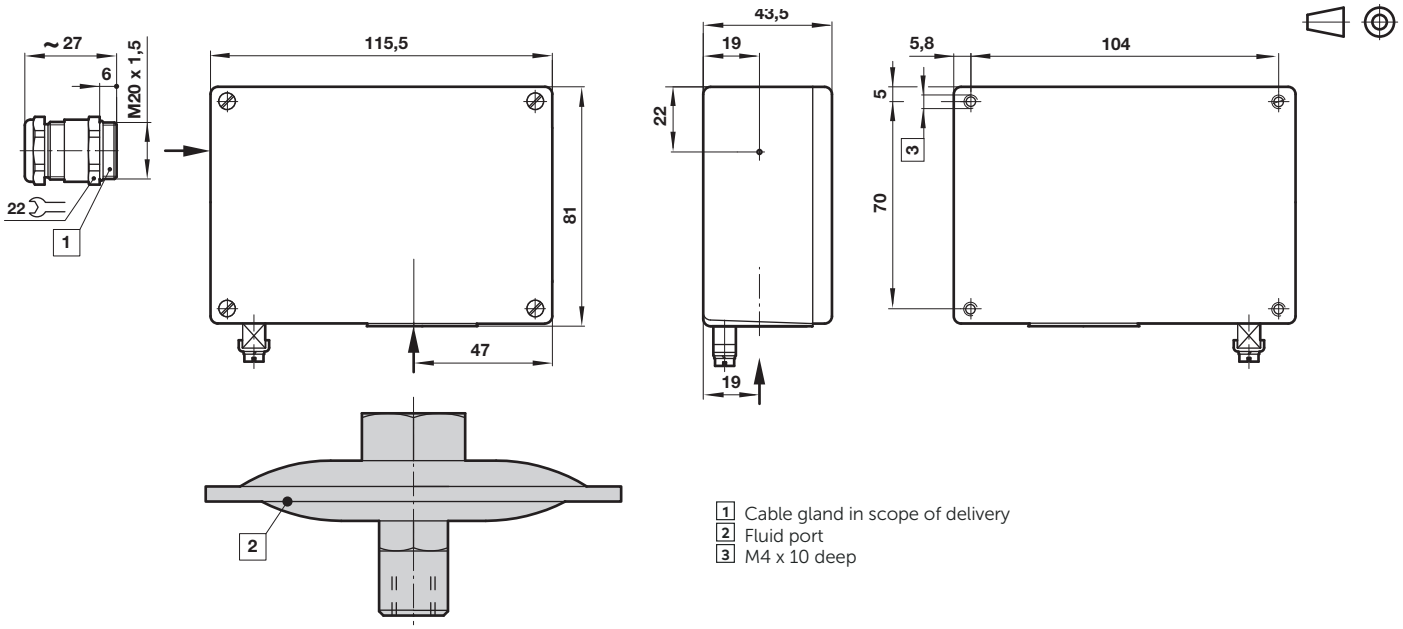


R_L = Load resistance
I_L = Load current

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Drawings

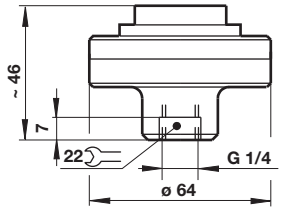
Dimensions in mm
Projection/First angle



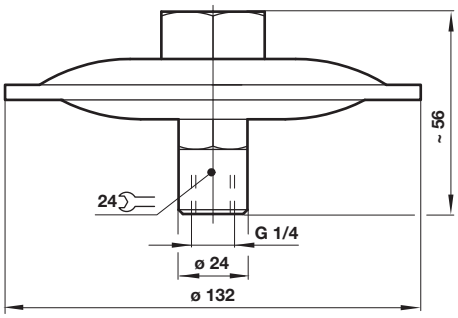
1 Cable gland in scope of delivery
2 Fluid port
3 M4 x 10 deep

Fluid port

For operating pressure: 0 ... 0,6

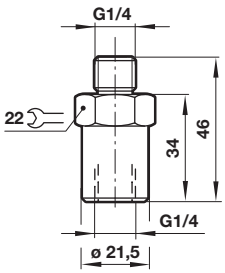


For operating pressure: 0 ... 0,16



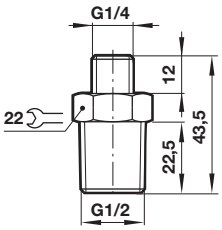
Surge damper

Model: 0574773 (brass)
0553258 (stainless steel 1.4301 AISI 304)

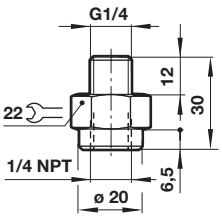


Pressure port/reducing nipple

Model: 0550083
(stainless steel 1.4305 AISI 303/304 S

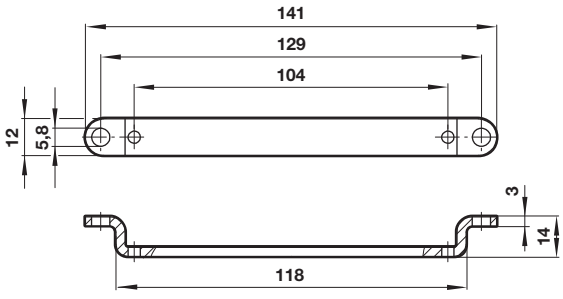


Model: 0574765
(brass)



Brackets (2 brackets and 4 screws)

Model: 0574772 (steel)
0553908 (stainless steel 1.4301 AISI 304)



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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 features/ 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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