20DD
Electro-mechanical allfluid pressure switches



- 0,5 ... 63 bar (7.3 ... 913 psi)
- Microswitch with gold plated contacts
- Intrinsically safe operation
- High accuracy (max. scattering <1,5%)
- Excellent sealing properties (better than < 10-7 mbar x l x s-1)
- For monitoring differential pressures with high accuracy and sensitivity

Technical features

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

Operation:
Diaphragm
Operating pressure:
0,2 ... 6 bar (2.9 ... 87 psi)

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

Port size:
G1/4

Sealing:
≤10-7 mbar · l · s-1

Switching cycles:
10/min maximum

Switching element:
Microswitch with gold plated contacts

Shock-/vibrations (to avoid if possible):
4 g max. (sinusoidal) / 5 Hz max.

Mounting position:
Optional

Degree of protection:
IP66 with cable gland

Electrical connection:
Cable gland

Weight:
1,1 kg (2.4 lbs)

Ambient/Media temperature:
Ambient:
-25 ... +80°C (-13 ... +176°F)
Media:
-10 ... +100°C (14 ... +212°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)

Materials:
Housing: aluminium diecast
Sensor: brass
Sealing: stainless steel-bellows

Technical data
Standard models — (switching pressure difference fixed one pressure sensor) *1)

Symbol	Differential pressure range *2) pvu min ... pvo max. (VDI 3283) (bar)	Switching pressure difference Lower (bar)	Upper (bar)	Operating pressure range *3) (bar)	Max. allowable pressure *4) (bar)	Drawing No.	Model
	0,2 ... 1	0,25	0,4	0,5 ... 16	20	1	1819115
	0,25 ... 2,5	0,3	0,5	0,5 ... 16	20	1	1819315
	0,5 ... 6	0,6	1	1 ... 25	30	2	1819515
	0,5 ... 16	0,8	1,4	1 ... 25	30	2	1819715
	1,0 ... 30	0,8	2	4 ... 63	70	3	1819815

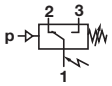
*1) Tested in accordance with DIN 89011, 5.2., within the frequency range 25 ... 100 Hz; within the frequency range 2 ... 25 Hz tested with amplitude 1.6 mm.
*2) The differential pressure is the pressure difference between both pressure sensing elements under operating conditions.
*3) The working pressure range indicates the required minimum pressure as well as the load on the pressure sensor under operating conditions.
*4) Even short pressure peaks must not exceed this value during actual operation (max. value = max. testing pressure)

Our policy is one of continued research and development. We therefore reserve the right to amend, without notice, the specifications given in this document. (2006 - 5294b) © 2015 Norgren GmbH

Accessories

Surge damper	Pressure port – reducing nipple	Brackets
		
Page 4	Page 4	Page 4
0553258 (stainless steel G1/4)	0550083 (G1/4 » G1/2)	0574772 (steel)
0574773 (brass/steel G1/4)	0574765 (G1/4 » 1/4 NPT)	0553908 (stainless steel)

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 *2)	U min	Max. permissible persistent current Imax [A] at U *1) M20 x 1,5					Electrical life-time
			[V]	30 V	48 V	60 V	125 V	250 V	
Standard *3) (contractors, solenoids)	a.c.	Ohmic	12	0,1	0,1	0,1	0,1	0,1	≥ 2 x 105 Switching cycles
	a.c.	Inductive, cos ϕ ≈ 0,7	12	3	3	3	3	3	
	d.c.	Ohmic	12	5	1,2	0,8	0,4	-	
	d.c.	Inductive, L/R ≈ 10 ms	12	3	0,5	0,35	0,05		
Minor *4) (electronic circuits)	a.c.	Ohmic	5 *5)	0,1					
	d.c.	Inductive, L/R ≈ 10 ms	5 *5)	0,1	0,01				

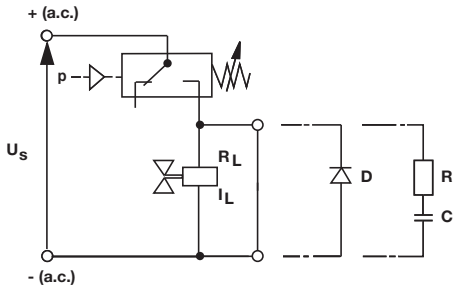
Reference number: 20/min, Reference temperature: +20°C.
Spark quenching with diode with DC and inductive load:
I min = 1 mA; I max = 1,5 x I max of table
Creepage and air paths correspond to insulation group B according to VDE Reg. 0110 (except contact clearance of microswitch).

*1) Higher currents (5 A max) will cause a reduction of the durability of the micro-switch contacts. 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) 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).
*5) Lower value of critical voltage guarantees sufficient contact safety.
Lower voltages permissible under favourable conditions.

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]

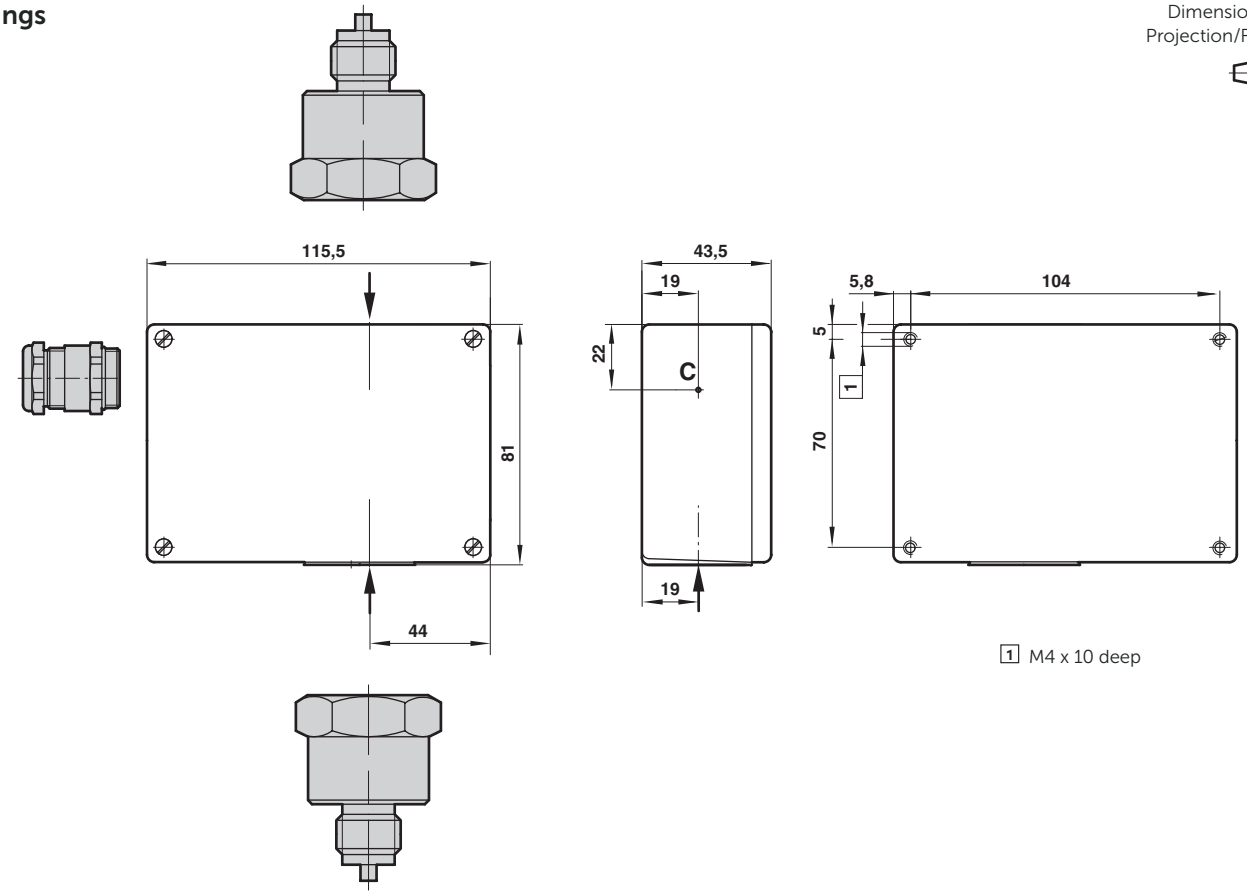


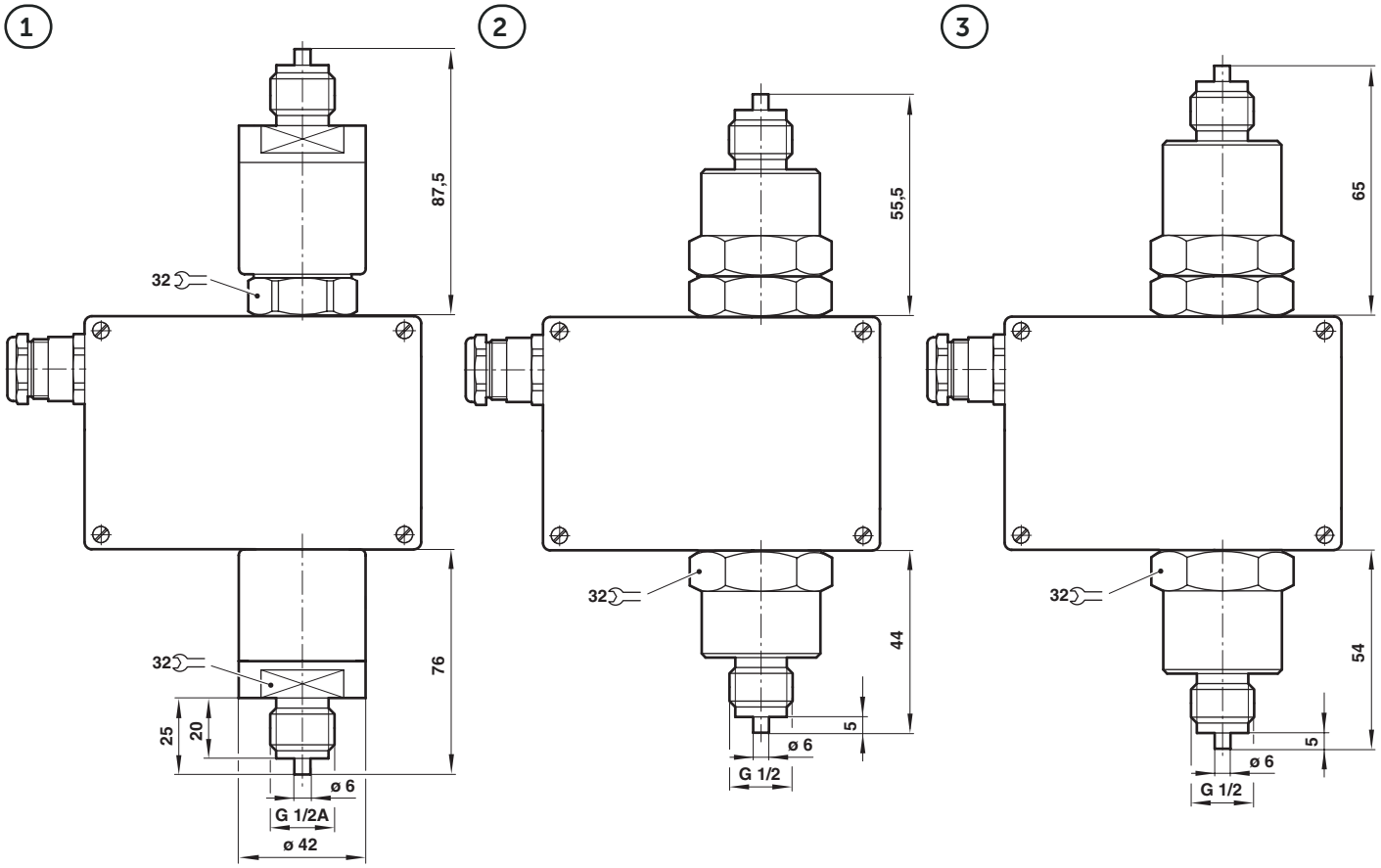
R_L = Load resistance
I_L = Load current

Our policy is one of continued research and development. We therefore reserve the right to amend, without notice, the specifications given in this document. (2006 - 5294b) © 2015 Norgren GmbH

Drawings

Dimensions in mm
Projection/First angle

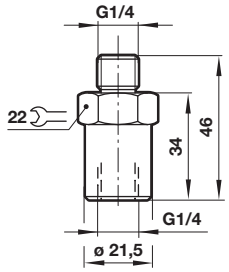




Our policy is one of continued research and development. We therefore reserve the right to amend, without notice, the specifications given in this document. (2006 - 5294b) © 2015 Norgren GmbH

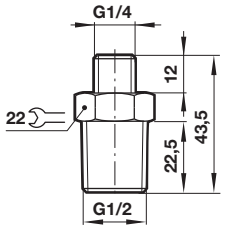
Surge damper

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

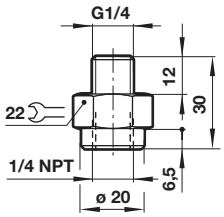


Pressure port/reducing nipple

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



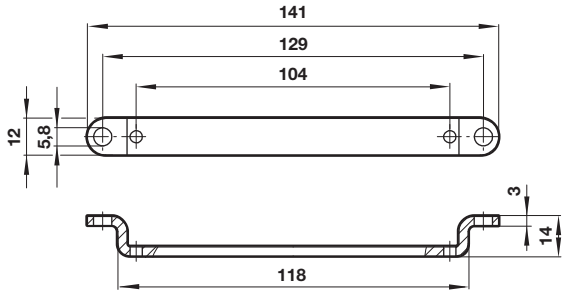
Model: 0574765 (brass)



Dimensions in mm
Projection/First angle

Brackets (2 brackets and 4 screws)

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



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.

Our policy is one of continued research and development. We therefore reserve the right to amend, without notice, the specifications given in this document. (2006 - 5294b) © 2015 Norgren GmbH