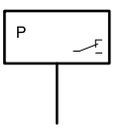
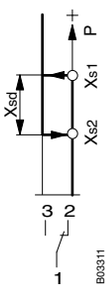
DFC 17B, 27B: Heavy-duty pressure switch

DFC17B76F001





How energy efficiency is improved

Control and monitoring according to needs and with no auxiliary energy.

Features

- For regulating and monitoring pressure in liquids, gases and vapours
- Especially suitable for installations subject to vibrations
- Contact rating 1 mA/6 V to 10 A/400 V
- Gold-plated silver contacts, vibration-proof snap-action switch with single-pole change-over switch
- Upper and lower switching points can be set independently of each other
- Sealable
- Splashproof
- DFC17B**F001: Pressure sensor made of brass for non-aggressive media
- DFC27B**F002: Pressure sensor made of stainless steel for aggressive media

Technical data

Power supply		
	Maximum load with gold-plated contacts[1)]	200 mA, 50 V
	Minimum load with gold-plated contacts	1 mA, 6 V
	Maximum load with silver-plated contacts[2)]	10(2) A, 400 V~ (25 W), 250 V=
	Minimum load with silver-plated contacts	100 mA, 24 V
Ambient conditions		
	Temperature of medium	≤ 110 °C
	Admissible ambient temperature	–40...70 °C
Construction		
	Housing	Transparent cover
	Housing material	Light metal
	Cable inlet	PG 13.5
	Screw terminals	For electrical cables of up to 2.5 mm²
	Pressure connection	G½" male
Standards and directives		
	Type of protection	IP44 (EN 60529)
	Protection class	I (IEC 60730)
	Test marks[3)]	TÜV DWFS (SDBF) ID: 0000006018 DWFS (SDB) ID: 0000006019 DB (SDBF) ID: 0000006017
	Mode of operation	Type 2 B (EN 60730)
CE conformity according to	Low-Voltage Directive 2014/35/EU	EN 60730-1, 60730-2-6
	EMC Directive 2014/30/EU	EN 6100-6-1, EN61000-6-2 EN 61000-6-3, EN 61000-6-4
	PED 2014/68/EU	VdTÜV pressure information sheet 100, sheet 1, cat. IV, DIN 3398 T4 EN 12952-11, EN 12953-9

1) *If the contacts are subjected to a load greater than 200 mA, 50 V, the gold plating will be destroyed. They are then classed merely as silver contacts and lose the properties of gold-plated contacts*

2) *Take the RC circuitry into account for inductive loads*
230/400 V networks
From 70 °C media temperature, the current must be reduced to 6 A

3) *Certificates can be downloaded from www.certipedia.com*

Overview of types						
Type	Setting range (bar)	Min. switching difference (bar)	Maximum pressure (bar)	Max. temp., sensor (°C)	Admissible vacuum loading (bar)	Weight (kg)
DFC17B54F001	0...2.5	0.14	16	70	-0.7	1.2
DFC17B58F001	0...6.0	0.18	16	70	-1.0	1.2
DFC17B59F001	-1...5.0	0.20	16	70	-1.0	1.2
DFC17B76F001	0...10	0.50	40	70	-1.0	1.1
DFC17B78F001	0...16	0.50	40	70	-1.0	1.1
DFC17B79F001	16...32	0.80	42	70	-1.0	1.1
DFC17B96F001	0...25	1.70	100	70	-1.0	1
DFC17B97F001	25...50	2.00	100	70	-1.0	1
DFC17B98F001	0...40	1.80	100	70	-1.0	1
DFC27B26F002	-1...2.5	0.30	21	110	-1.0	0.9
DFC27B43F002	0.5...6.0	0.30	21	110	-1.0	0.9
DFC27B46F002	1...10	0.30	21	110	-1.0	0.9
DFC27B52F002	2...16	0.30	21	110	-1.0	0.9

The switching difference must be within the setting range of the switching point. The minimum values of the switching difference are only possible in the lower setting range.

Accessories	
Type	Description
0259239000	Reduction nipple G½" on 7/16" 20-UNF-2A for copper tubes of Ø 6 mm, brass
0311572000	Screw fitting for copper tubes of Ø 6 mm, brass
0035465000	Throttle screw for absorbing pressure surges, brass
0214120000	Throttle screw for absorbing pressure surges, stainless steel
0192700000	1 m capillary tube for absorbing pressure surges, copper
0292018001	Damping screw for absorbing pressure surges in low viscosity media
0259189000	Holder for raised wall mounting
0259409000	Fixing bracket (provides 3-point fixing with accessory 0259189)
0292019001	Setpoint adjustment for each switching point according to customer's wishes (setting accuracy: ±3% of the setting range)
0292019002	Sealing of the adjustment screw for each switching point (only with accessory 0292019001)
0381141001	Profile sealing ring, copper, for G½"

Description of operation

When the pressure exceeds the upper change-over point (which is set in the scale on the right), the contacts switch from 1-2 to 1-3.
When the pressure falls below the lower change-over point (which is set in the scale on the left), the contacts switch from 1-3 to 1-2.
The vibration-proof snap-action switch has a pre-loaded spring that only activates the change-over mechanism when the change-over point has been reached. As a result, the contact force is maintained up to the change-over point even when the switch is activated very slowly.

Intended use

This product is only suitable for the purpose intended by the manufacturer, as described in the “Description of operation” section.
All related product regulations must also be adhered to. Changing or converting the product is not admissible.

Engineering and fitting notes

The pressure limiters conform to the European Directive on pressure equipment (PED) 97/23/EC and belong to device category IV as safety components. They are permitted for liquid combustibles and heat transfer oils.

Permissible fluids for pressure switches with safety function:

- Fluids Group I, hazard potential Categories IV or V according to Article 13 of the PED 2014/68/EU
- Fluids Group II

The devices also conform to Low-Voltage Directive 2014/35/EU and EMC Directive 2014/30/EU.

The devices can be used as safety pressure limiters (SDBF) for falling pressure when an electrical interlock circuit is used (see application examples) and the requirements of EN 50156-1 are fulfilled.
The electrical plant devices must adhere to VDE 0660 or VDE 0435.
TÜV-tested types as pressure controllers for steam and hot water generators:
DFC 17 B54...98 F001
DFC 17 B54, 58, 78, 79 F001 with external electrical locking as minimum pressure limiter.
DFC 27 B26, 43, 46, 52 F002 with external electrical locking as safety pressure limiter.

Electrical serviceable life for safety applications

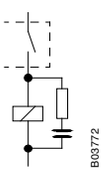
- Mechanical serviceable life[4]: 2 × 10^6 switch strokes

cos φ[5] = 0.6...1
2 A, 5,000 switchings[6]
0.6 A, 250,000 switchings[7]

Error detection

- Regular operational checks must be performed in the installations.
- The frequency must be in accordance with local specifications or in accordance with the specifications of the owner-operator.
- If it is possible that the failure of a device could cause damage, additional protective systems / devices must be provided.

Technical appendix



RC circuitry for inductive load
For the optimum RC circuitry, see the information from manufacturers of gates, relays, etc.
If this is not available, the inductive load can be reduced by applying the following rule of thumb:

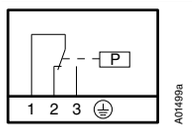
- Capacity of the RC circuitry (µF) equal to or greater than the operating current (A)
- Resistance of the RC circuitry (Ω) approx. the same as the resistance of the coil (Ω)

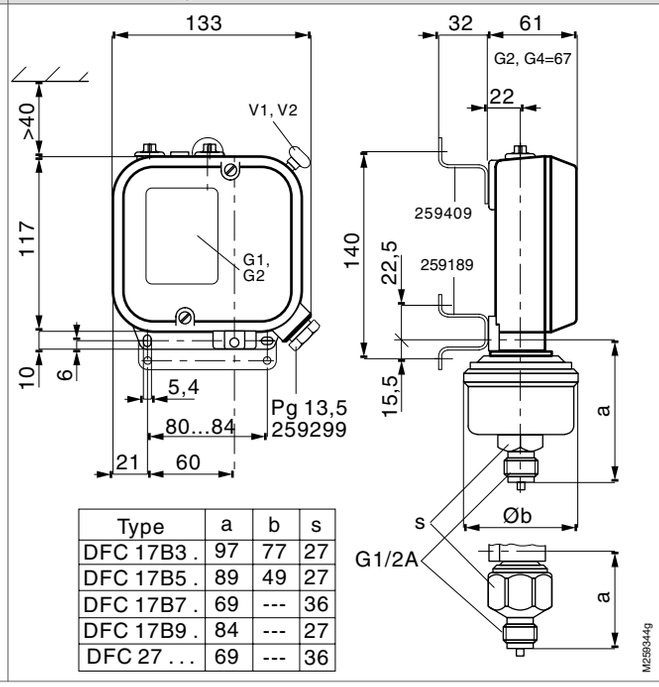
Materials

Materials that come into contact with the medium:
Pressure sensor made of brass (DFC 17): brass, stainless steel, nitrile rubber.
Pressure sensor made of stainless steel (DFC 27): stainless steel, material no. 1.4104 and 1.4541

[4] *Based on VdTÜV pressure information sheet 100, section 6.2.3*
[5] *cos φ = 0.3 is not permitted*
[6] *Based on VdTÜV pressure information sheet 100, section 6.2.3*
[7] *Based on EN 12953.- / EN 12952-11, section 4.4.2.6*

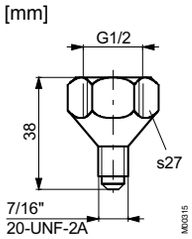
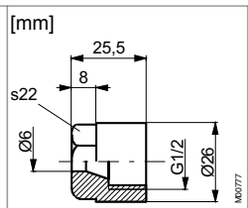
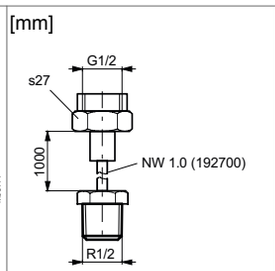
Connection diagram	Dimension drawing





Type	a	b	s
DFC 17B3 .	97	77	27
DFC 17B5 .	89	49	27
DFC 17B7 .	69	---	36
DFC 17B9 .	84	---	27
DFC 27 . . .	69	---	36

Accessories

[mm]	[mm]	[mm]	
			
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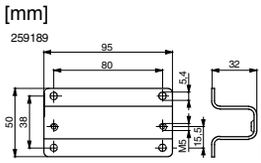	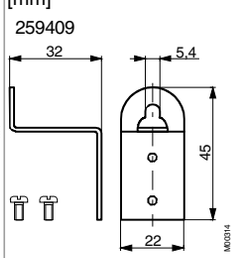	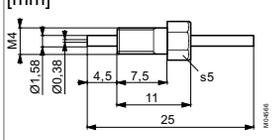	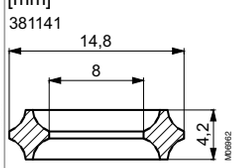
0259189000	0259409000	0292018001	0381141001

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