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

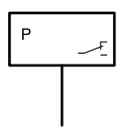
DFC17B76F001

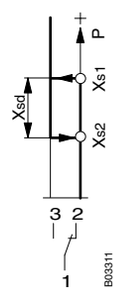
How energy efficiency is improved

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 VAC (25 W), 250 VDC
	Minimum load with silver-plated contacts	100 mA, 24 V
Ambient conditions		
	Media temperature	≤ 110 °C
	Ambient temperature	−40...70 °C
Construction		
	Housing	Transparent cover
	Housing material	Light alloy
	Cable inlet	PG 13.5
	Screw terminals	For electrical cables up to 2.5 mm²
	Pressure connection	G½" A
Standards, directives		
	Type of protection	IP44 (EN 60529)
	Protection class	I (IEC 60730)
	Test mark[3]	TÜV DWFS (SDBF) ID: 06018 DWFS (SDB) ID: 06019 DB (SDBF) ID: 06017
	Mode of operation	Type 2 B (EN 60730)
CE/UKCA conformity	LV-D 2014/35/EU (CE)	EN 60730-1, EN 60730-2-6
	EESR-2016 (UKCA)	EN 60730-1, EN 60730-2-6
	EMC-D 2014/30/EU (CE)	EN 61000-6-1, EN 61000-6-2 EN 61000-6-3, EN 61000-6-4
	EMC-2016 (UKCA)	EN 61000-6-1, EN 61000-6-2 EN 61000-6-3, EN 61000-6-4
	Machinery-D 2006/42/EC (CE)	EN ISO12100:2018
	SMSR-2008 (UKCA)	EN ISO12100:2018

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. The certificates are not valid in the United Kingdom (UK).*

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RoHS-D 2011/65/EU & 2015/863/EU (CE)	EN IEC 63000:2018
RoHS-2012 (UKCA)	EN IEC 63000:2018
PED 2014/68/EU (CE)	VdTÜV pressure information sheet 100, sheet 1, cat. IV EN 12952-11, EN 12953-9
PESR-2016 (UKCA)[4)]	Article 8.3 of the Reg. AD 2000 Rulebook

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
0300360007	Capillary throttle, stainless steel, length 1 m, G½"-G½"
0292018001	Damping screw for absorbing pressure surges in low viscosity media
0259189000	Holder for raised wall mounting
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

If the pressure rises above the upper switching point (adjustable on the right-hand scale), the contact switches from 1-2 to 1-3.

If the pressure falls below the lower switching point (adjustable on the left-hand scale), the contact switches from 1-3 to 1-2.

The vibration-proof snap-action switch has a pre-loaded spring that only activates the switching mechanism when the switching 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 allowed to be used in HVAC building systems for control and regulation purposes. Other uses require the prior consent of the manufacturer.

[4)] *For the United Kingdom (UK): Use as a safety pressure limiter is not permitted. The use of an electrical interlock is not permitted.*

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The section “Description of operation” and all product instructions in this data sheet must be observed.
Modifying or converting the product is not permitted.

Improper use

The pressure switch is not suitable for:
- Safety applications in the United Kingdom (UK)
- Transport applications and at altitudes above 2000 metres
- Use outdoors and in areas where there is a risk of condensation

Engineering and fitting notes

For the EU: The pressure limiters conform to the European Directive on pressure equipment (PED) 2014/68/EU and belong to device category IV as safety components. They are permitted for liquid combustibles and heat transfer oils.
For the United Kingdom (UK): Use as a safety pressure limiter is not permitted. The use of an electrical interlock is not permitted.

Admissible fluids for pressure switches with a safety function:

- Fluid group I, danger potential categories IV or V as per article 13 of PED 2014/68/EU
- Fluid 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.[5)]
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

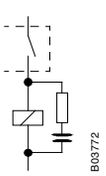
- Mechanical serviceable life[6)]: 2 × 10^6 switch strokes

cos φ[7)] = 0.6...1
2 A, 5,000 switchings[8)]
0.6 A, 250,000 switchings[9)]

Error detection

- Regular operational checks must be performed in the installations.
- The frequency must be in accordance with local regulations or 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

5) Certificates can be downloaded from www.certipedia.com. The certificates are not valid in the United Kingdom (UK).
6) Based on VdTÜV pressure information sheet 100, section 6.2.3
7) cos φ = 0.3 is not permitted
8) Based on VdTÜV pressure information sheet 100, section 6.2.3
9) Based on EN 12953.- / EN 12952-11, section 4.4.2.6

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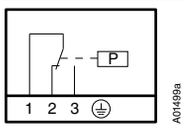
For the optimum RC circuitry, see the information from manufacturers of gates, relays, etc.
If this is not available, the inductive load can be reduced by applying the following rule of thumb:

- 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

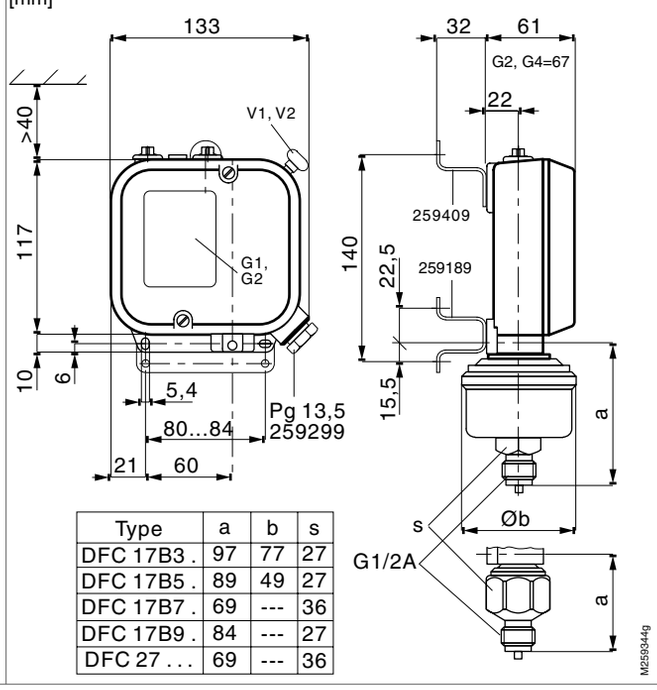
Materials that come into contact with the medium:
Pressure sensor made of brass (DFC 17): brass, stainless steel, nitrile rubber.
Pressure sensor made of stainless steel (DFC 27): stainless steel, material no. 1.4104 and 1.4541

Connection diagram



Dimension drawing

[mm]



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

Accessories

0259239000

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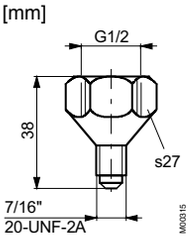

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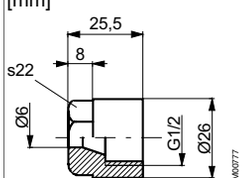

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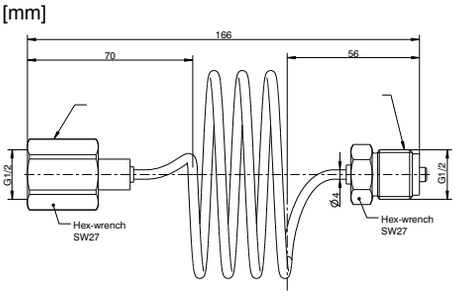

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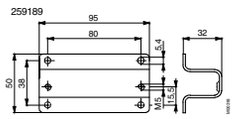
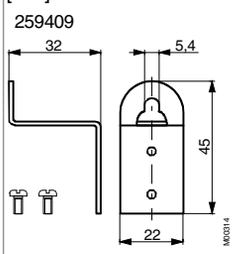
[mm] 	[mm] 
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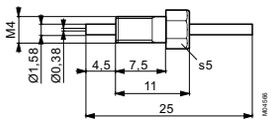
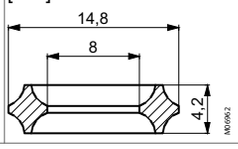
[mm] 	[mm] 

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