

## DSL, DSH: Pressure limiters of special construction

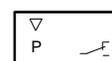
Used for monitoring pressure in liquids, vapours and gases. Tested according to VdTÜV (German Authority for Technical Standards), Instruction Sheet 'Pressure 100/1' to DIN 3398, Part 4 (e.g. for installations as per EN 12828 and TRD 604). Also conforms to the European regulations on pressure equipment 97/23/EC Cat. IV (Module B and D).

Compact housing for fitting onto pipes or walls; transparent, impact-proof, thermoplastic cover; setting screw for the switching point, with scale, sealable; manual reset; micro-switch with single-pole change-over, gold-plated silver contacts; pressure connection G $\frac{1}{2}$ , male thread. Housing-mounted plug with cable connector (included in delivery). With touch protection as per EN 60730); for flexible cable of 6 - 10 mm external diameter.



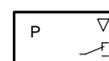
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DSL



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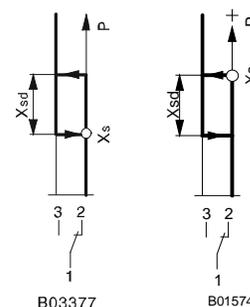
DSH



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Type	Setting range bar	Min. change for reset <sup>1)</sup> bar	Max. pressure bar	Max. sensor temp. °C	Weight kg
Locks on falling pressure (SDBF); pressure sensor of brass for non-aggressive media					
<b>DSL 140 F001</b>	0...2,5	+0,4	12	70	0,5
<b>DSL 143 F001</b>	0...6	+0,5	16	70	0,5
<b>DSL 152 F001</b>	6...16	+1,2	30	70	0,4
Locks on rising pressure (SDB); pressure sensor of stainless steel for aggressive media					
<b>DSH 127 F001</b>	-1...5	-0,4	16	110	0,5
<b>DSH 143 F001</b>	0,5...6	-0,45	16	110	0,5
<b>DSH 146 F001</b>	1...10	-0,8	18	110	0,5
<b>DSH 152 F001</b>	2...16	-1,5	60	110	0,3
<b>DSH 158 F001</b>	5...25	-1,8	60	110	0,3
<b>DSH 170 F001</b>	15...40	-2,0	60	110	0,3

Contact rating as silver contacts <sup>2)</sup>	10(4) A, 250 V~ 50 W, 250 V=	Degree of protection	IP 65 (EN 60529)
minimum	100 mA, 24 V	Protection class	I (IEC 60730)
as gold contacts <sup>3)</sup>	400 mA, 24 V; 10 VA	Test marks <sup>4)</sup>	
minimum	4 mA, 5 V	DSL	SDBF ID: 0000006022
Permissible vacuum loading	-1,0 bar	DSH	SDB ID: 0000006023
Type 140; 143	-0,7 bar	DIN CERTO: DIN 3398-4	3C03705
Ambient temperature	-20...70 °C	PET	Cat. IV
		Connection diagram	A01503
		Dimension drawing	M07815
		Fitting instructions	MV 505560
		Declaration on materials	MD 23.770



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### Accessories

- 0035465 000** Brass throttling screw for damping pressure surges.
- 0114467 000\*** Steel capillary tube (1 m) for arresting pressure surges.
- 0192222 000\*** Cap nut with solder connector.
- 0192700 000\*** Copper capillary tube (1 m) for arresting pressure surges.
- 0214120 000** Stainless-steel throttling screw for damping pressure surges.
- 0259239 000\*** Brass adaptor (G $\frac{1}{2}$  to  $\frac{1}{16}$ " 20-UNF-2A) for copper pipes of  $\varnothing$  6 mm.
- 0292001 000** Setpoint as per customer's specifications ( $\pm$  3% of setting range, but at least  $\pm$  0,2 bar).
- 0292004 000** Sealed setpoint screw (with accessory 0292001 only).
- 0292018 001\*** Throttling screw for damping pressure surges in low-viscosity media.
- 0292150 001\*** Fixing bracket
- 0296936 000\*** Fixing bracket for rails (top-hat rail EN 50022, 35  $\times$  7,5 or 35  $\times$  15); with accessory 0292150 only.
- 0311572 000\*** Brass screw fitting for copper pipes of  $\varnothing$  6 mm.
- 0381141 001\*** Copper gasket for G $\frac{1}{2}$ ".

<sup>\*)</sup> Dimension drawing or wiring diagram are available under the same number

- 1) Averages
- 2) See technical notes: *RC circuit under inductive load*
- 3) If the contacts are ever used above 160 mA and 50 V, the gold plating will be destroyed. They then they lose the properties of gold contacts and can thereafter be used only as silver contacts
- 4) Certificates can be downloaded from [www.tuv.com](http://www.tuv.com)



### Operation

DSL minimum pressure limiter:

When the pressure falls below the lower switching point (variable setpoint  $X_S$ ), the pressure limiter locks mechanically and switches the contacts from 1-3 to 1-2. When the pressure exceeds the lower switching point by the amount of the minimum rise in pressure  $X_{Sd}$ , the contacts can be switched back from 1-2 to 1-3 by pulling the release button with a screwdriver.

DSH maximum pressure limiter:

When the pressure exceeds the upper switching point (variable setpoint  $X_S$ ), the pressure limiter locks mechanically and switches the contacts from 1-2 to 1-3. When the pressure falls below the upper switching point by the amount of the minimum pressure drop  $X_{Sd}$ , the contacts can be switched back from 1-3 to 1-2 by pulling the release button with a screwdriver.

### Engineering and fitting notes

The pressure limiters conform to European regulation 97/23/EEC on pressure equipment and, as safety components, belong to equipment category IV. They are approved for liquids and gases that are covered by the areas of usage stated in DIN 3398, Part 4. The devices also comply with low-voltage regulation 2006/95/EC and EMC regulation 2004/108/EC. They can be used as assemblies in accordance with machine regulation 89/37/EEC Appendix II.B.

### Additional information

Materials which come into contact with the medium:-

Pressure sensor of brass (DSL): brass, stainless steel and nitrile rubber.

Pressure sensor of stainless steel (DSH): stainless steel, material nos. 1.4104 and 1.4541.

### Further specifications

Switching system causes minimal radio interference	as per EN 55014	Electrical life expectancy for: $\cos \varphi = 1$ :- 10 A, 250'000 switching operations 5 A, 400'000 switching operations 2 A, ca. $10^6$ switching operations $\cos \varphi = 0.6$ :- 3 A, 400'000 switching operations $\cos \varphi = 0.3$ <sup>1)</sup> 3 A, 250'000 switching operations 2 A, 400'000 switching operations 1 A, 700'000 switching operations Mechanical life expectancy DSH/DSL: as per 'Pressure 100/1' > $2 \times 10^6$ movements
Complies with:- Directive 2006/95/EC EMC directive 2004/108/EC PED 97/23/EC, Cat. IV	EN 60730-1/ EN 60730-2-6 EN 61000-6-1/ EN 61000-6-2 EN 61000-6-3/ EN 61000-6-4 Pressure 100/1 DIN 3398 T4	
1) $\cos \varphi < 0,3$ : substantial reduction in life expectancy; with RC circuitry, life expectancy is as for $\cos \varphi > 0,3$ (see also technical notes).		

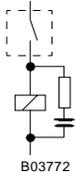
### Technical notes

#### RC circuit under inductive load

For the optimum RC circuitry, refer to the specifications supplied by the manufacturers of the relays, contactors etc.

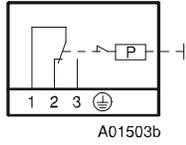
If these are not available, the inductive load can be reduced by applying the following rule of thumb:-

- Capacitance of the RC circuitry ( $\mu\text{F}$ )  $\geq$  operating current (A)
- Resistance of the RC circuitry ( $\Omega$ )  $\approx$  coil resistance ( $\Omega$ )

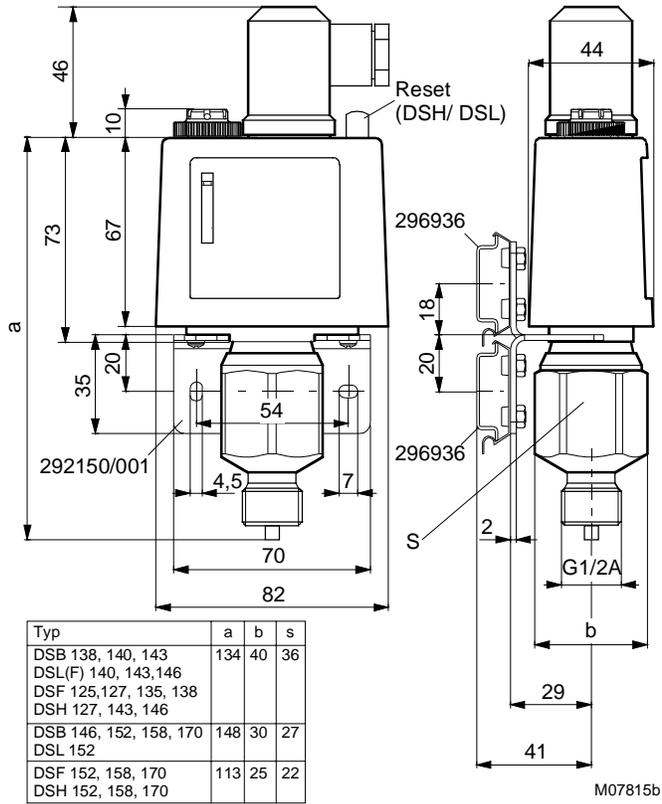


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Connection diagram



Dimension drawing



**Accessories**

