

Relative and absolute pressure switch

Type 529

Switching points set in factory are available both N/C and N/O function. Various electrical and pressure connections are available to suit given applications.

- + Compact, rugged construction
- + Negligible temperature influence on accuracy
- + Large selection of connections available.
- + Saving time by quick cable mounting by the customer with swift connector

Technical overview

Pressure range

Relative	-1 ... 0 – 60 bar
Absolute	0 ... 1 – 16 bar

Operating conditions

Medium	Liquids and gases	
Temperature	Medium	FPM -15 ... +125 °C
		EPDM -40 ... +125 °C
		NBR -20 ... +100 °C
		MVQ -40 ... +125 °C
	Ambient	-30 ... +85 °C
	Storage	-50 ... +100 °C
Tolerable overload / Rupture pressure	≤ 4 bar	3.0 x fs
	> 4 bar	2.5 x fs

Materials

Pressure Connection	Stainless steel 1.4404 / AISI 316L	
Plug accommodation	Polyarylamide 50% GF UL 94 V-0	
Materials in contact with medium	Pressure connection	Stainless steel 1.4404 / AISI 316L
	Sensor	Ceramic Al ₂ O ₃ (96%)
	Sealing material	FPM, EPDM, NBR, MVQ

Electrical overview

Output	Semiconductor (open collector)	
Switching contact	High-Side Switch (PNP)	N/C contact or N/O contact
Switch load	High-Side Switch (PNP)	max. 200 mA
Power supply	7 ... 33 VDC	
Current consumption	< 4 mA	
Insulation voltage	500 VDC	

Dynamic response

Response time	< 2 ms, 1 ms typ.
Load cycle	< 100 Hz

Adjustment of switching points (factory set)

Upper switching point	8 ... 100% fs
Lower switching point	5 ... 97% fs
Hysteresis	≥ 3 % fs

Electrical connection

	Protection standard	Protection class
Swift connector with or without cable 1.5 m	IP 67	III
Connector M12x1	IP 67	III

Pressure connection

Inside thread	G ¼	with O-Ring seal FPM (-30 ... +135 °C)
	½ -14 NPT	
	7/16 - 20 UNF	sealing cone 45°
	7/16 - 20 UNF	
Outside thread	¼ -18 NPT	sealed at back DIN EN ISO 1179-2 with Profile seal ring in FPM (-30 ... +135 °C)
	G ¼	
	R ¼	EN 10226
	G ½	sealed at back and manometer (combi) with Profile seal ring in FPM (-30 ... +135 °C)
	M20x1.5	sealed at front and manometer (combi)
	G ½	sealed at front

Installation arrangement

Unrestricted	Recommendation: Pressure connection facing downwards
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Tests / Admissions

Electromagnetic compatibility	CE conformity acc. EN 61326-2-3 and 50121-3-2	
Shock acc. IEC IEC 68-2-27	100 g, 11 ms half sine wave, all 6 directions, free fall from 1 m on concrete (6x)	
Constant shock acc. IEC 68-2-29	40 g for 6 ms, 1000x all 3 directions	
Vibration acc. IEC 68-2-6	20 g, 15 ... 2000 Hz, 15 ... 25 Hz with amplitude ± 15 mm, 1 Octave/min. all 3 directions, 50 constant load	
UL	ANSI/UL 61010-1 acc. E325110	
EAC		

Weight

~ 90 g

Packaging (Please state on order)

Single packaging in cardboard	accessories integrated
Multiple packaging in cardboard (25 pcs)	

Accuracy

Parameter		Unit	
Switching points ¹⁾		% fs	± 0.5
Resolution		% fs	0.1
Thermal characteristic ²⁾	max.	% fs/10K	± 0.2
Long term stability acc. IEC EN 60770-1	max.	% fs	± 0.25

Test conditions: 25°C, 45% RH, power supply 24 VDC

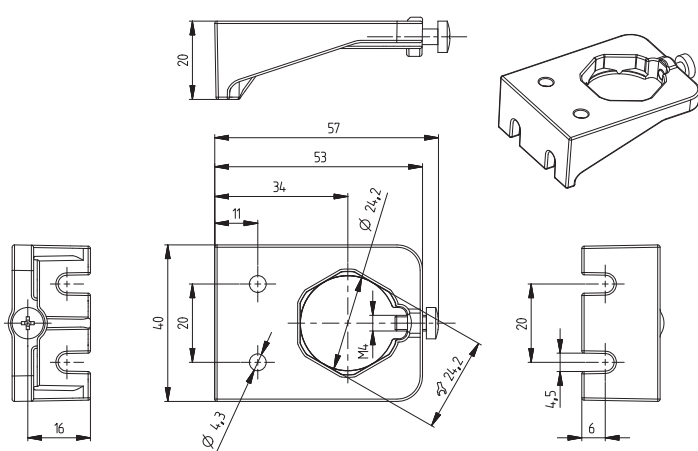
¹⁾ typ. ; max. 1.0% fs (incl. hysteresis and repeatability)

²⁾ -15 ... 85 °C

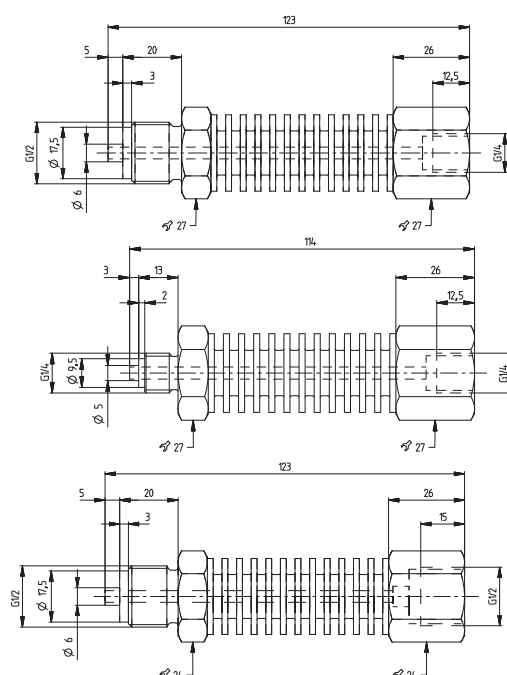
		1	2	3	4	5	6	7	8	9	10	11
Order code selection table in bar		529.	X	X	X	X	X	X	X	X	X	X
Pressure range (relative) ¹⁾	-1 ... 0 bar	9	0	1								
	0 ... 1 bar	9	1	1								
	0 ... 1.6 bar	9	1	2								
	0 ... 2.5 bar	9	1	4		0						
	0 ... 4 bar	9	1	5		0						
	0 ... 6 bar	9	1	7		0						
	0 ... 10 bar	9	3	0		0						
	0 ... 16 bar	9	3	1		0						
	0 ... 25 bar	9	3	2		0						
	0 ... 40 bar	9	3	3		0						
	0 ... 60 bar	9	4	0		0						
Pressure range (absolute) ¹⁾	0 ... 1 bar	8	1	1								
	0 ... 1.6 bar	8	1	2								
	0 ... 2.5 bar	8	1	4								
	0 ... 4 bar	8	1	5								
	0 ... 6 bar	8	1	7								
	0 ... 10 bar	8	3	0								
	0 ... 16 bar	8	3	1								
Sealing material	FPM Fluoro elastomer					0						
	EPDM Ethylene propylene					1						
	NBR Butadiene Acrylonitrile					2						
	MVQ Silicone polymer					3						
Application	standard					0						
	for oxygen applications				0	1				1		
Switching contact	Contact N/O High-Side-Switch PNP						1					
	Contact N/C High-Side-Switch PNP						2					
Electrical connection	Swift connector without cable							0				
	Connector M12x1 ²⁾							3				
	Swift connector with cable 1.5 m							L				
Pressure connection ³⁾	Inside thread									1		
	G ¼ with O-Ring seal FPM									D		
	½ -14 NPT									K		
	7/16 -20 UNF									2		
	7/16 -20 UNF									3		
	¼ -18 NPT									4		
	G ¼ sealed at back DIN EN ISO 1179-2 with Profile seal ring in FPM									7		
	R ¼ acc. to EN 10226									8		
	G ½ sealed at back and manometer with Profile seal ring in FPM									E		
	M20x1.5 sealed at front and manometer (combi)									9		
Pressure orifice	without										1	1
	with										2	1
Switching points	Indicate W and state switching points on order (e.g.: W40/30bar)											W

Accessories <i>(supplied loose)</i>	Order number
Swift connector	117312
Corner-wire box for connector M12x1 with cable 2.0 m	114604
Straight-wire box for connector M12x1	114570
Straight-wire box for connector M12x1 with cable 2.0 m	114605
Mounting bracket with screw	118716
Heat sink with outside thread G ½ sealed at front - inside thread G ½	105631
Heat sink with outside thread G ½ sealed at front - inside thread G ¼	105073
Heat sink with outside thread G ¼ sealed at front - inside thread G ¼	105074
Calibration certificate (at factory set switching points)	104551

Mounting bracket



Heat sink



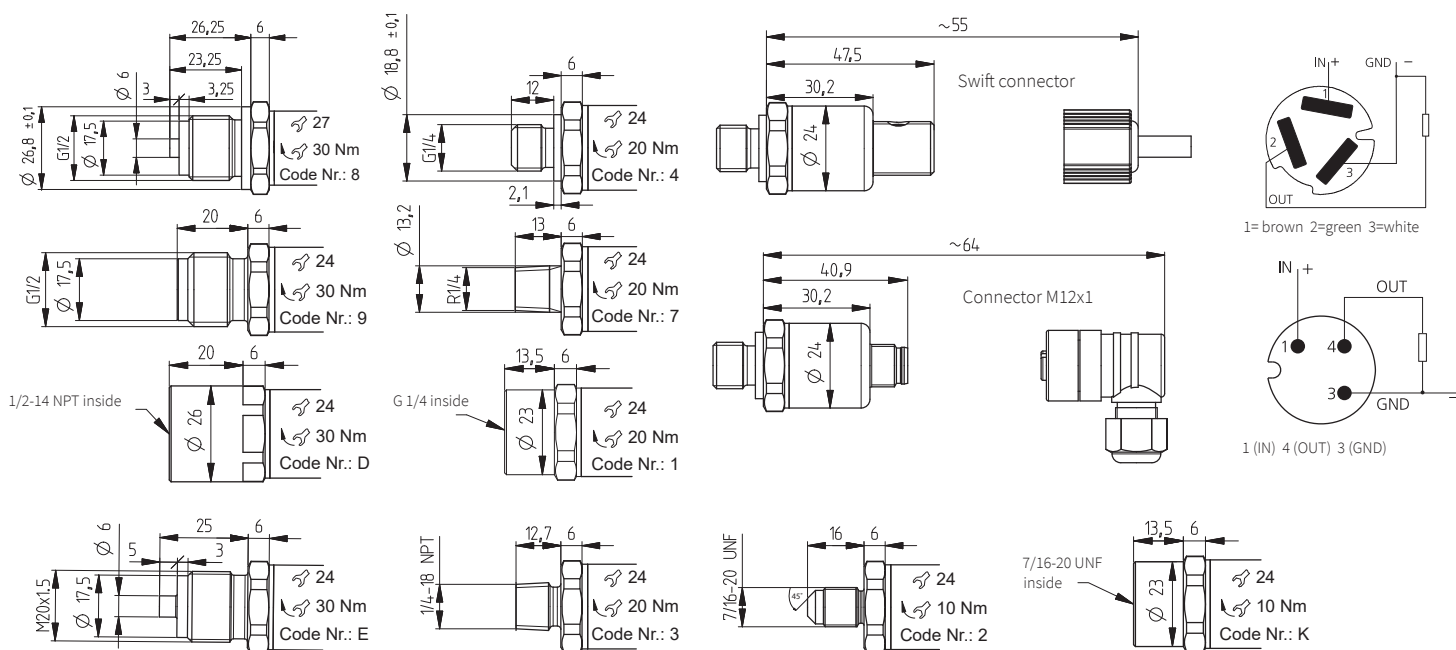
¹⁾ Other pressure ranges on request

²⁾ Delivery without female connector

³⁾ Other pressure connections on request

			1	2	3	4	5	6	7	8	9	10	11
Order code selection table in psi			529.	X	X	X	X	X	X	X	X	X	X
Pressure range (relative) ¹⁾	-30 ... 0"hg		9	B	0								
	0 ... 15 psi		9	B	1								
	0 ... 20 psi		9	B	2								
	0 ... 30 psi		9	B	4		0						
	0 ... 60 psi		9	B	5		0						
	0 ... 100 psi		9	B	7		0						
	0 ... 150 psi		9	C	0		0						
	0 ... 200 psi		9	C	1		0						
	0 ... 300 psi		9	C	2		0						
	0 ... 500 psi		9	C	3		0						
	0 ... 750 psi		9	D	0		0						
Pressure range (absolute) ¹⁾	0 ... 15 psi		8	B	1								
	0 ... 20 psi		8	B	2								
	0 ... 30 psi		8	B	4								
	0 ... 60 psi		8	B	5								
	0 ... 100 psi		8	B	7								
	0 ... 150 psi		8	C	0								
Sealing material	FPM	Fluoro elastomer					0						
	EPDM	Ethylene propylene					1						
	NBR	Butadiene Acrylonitrile					2						
	MVQ	Silicone polymer					3						
Application	standard						0						
	for oxygen applications					0	1				1		
Switching contact	Contact N/O	High-Side-Switch PNP						1					
	Contact N/C	High-Side-Switch PNP						2					
Electrical connection	Swift connector without cable								0				
	Connector M12x1 ²⁾								3				
	Swift connector with cable 1.5 m								L				
Pressure connection ³⁾	Inside thread	G 1/4 with O-Ring seal FPM									1		
		1/2 -14 NPT									D		
		7/16 -20 UNF									K		
		7/16 -20 UNF									2		
	Outside thread	1/4 -18 NPT									3		
		G 1/4 sealed at back DIN EN ISO 1179-2 with Profile seal ring in FPM									4		
		R 1/4 acc. to EN 10226									7		
		G 1/2 sealed at back and manometer with Profile seal ring in FPM									8		
		M20x1.5 sealed at front and manometer (combi)									E		
		G 1/2 sealed at front									9		
Pressure orifice	without										1	1	
	with										2	1	
Switching points	Indicate W and state switching points on order (e.g.: W30/16psi)												W

Dimensions in mm / Electrical connections



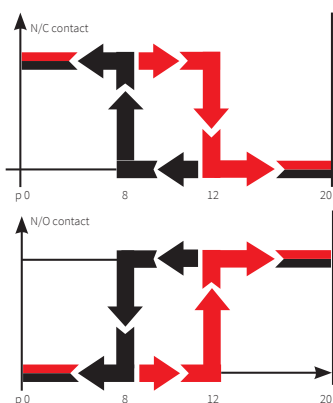
¹⁾ Other pressure ranges on request

²⁾ Delivery without female connector

³⁾ Other pressure connections on request

			1	2	3	4	5	6	7	8	9	10	11
Order code selection table in MPa			529.	X	X	X	X	X	X	X	X	X	X
Pressure range (relative) ¹⁾	-0.1 ... 0 MPa		9	G	0								
	0 ... 0.1 MPa		9	G	1								
	0 ... 0.16 MPa		9	G	2								
	0 ... 0.25 MPa		9	G	4	0							
	0 ... 0.4 MPa		9	G	5	0							
	0 ... 0.6 MPa		9	G	7	0							
	0 ... 1 MPa		9	H	0	0							
	0 ... 1.6 MPa		9	H	1	0							
	0 ... 2.5 MPa		9	H	2	0							
	0 ... 4 MPa		9	H	3	0							
	0 ... 6 MPa		9	K	0	0							
Pressure range (absolute) ¹⁾	0 ... 0.1 MPa		8	G	1								
	0 ... 0.16 MPa		8	G	2								
	0 ... 0.25 MPa		8	G	4								
	0 ... 0.4 MPa		8	G	5								
	0 ... 0.6 MPa		8	G	7								
	0 ... 1 MPa		8	H	0								
	0 ... 1.6 MPa		8	H	1								
Sealing material	FPM	Fluoro elastomer				0							
	EPDM	Ethylene propylene				1							
	NBR	Butadiene Acrylonitrile				2							
	MVQ	Silicone polymer				3							
Application	standard					0							
	for oxygen applications					0	1				1		
Switching contact	Contact N/O	High-Side-Switch PNP						1					
	Contact N/C	High-Side-Switch PNP						2					
Electrical connection	Swift connector without cable								0				
	Connector M12x1 ²⁾								3				
	Swift connector with cable 1.5 m								L				
Pressure connection ³⁾	Inside thread	G ¼ with O-Ring seal FPM								1			
		½ -14 NPT								D			
		7/16 -20 UNF								K			
	Outside thread	7/16 -20 UNF								2			
		¼ -18 NPT								3			
		G ¼ sealed at back DIN EN ISO 1179-2 with Profile seal ring in FPM								4			
		R ¼ acc. to EN 10226								7			
		G ½ sealed at back and manometer with Profile seal ring in FPM								8			
		M20x1.5 sealed at front and manometer (combi)								E			
		G ½ sealed at front								9			
Pressure orifice	without										1	1	
	with										2	1	
Switching points	Indicate W and state switching points on order (e.g.: W4/1.2MPa)												W

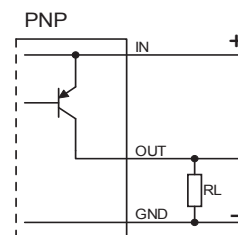
Function



N/C contact: When pressure is applied ($p_0 \rightarrow p_{max}$) the switch will disconnect the applied load as soon as the upper switching point is reached. As the pressure falls ($p_{max} \rightarrow p_0$) the switch will connect the load as soon as the lower switching point is reached.

N/O contact: When pressure is applied ($p_0 \rightarrow p_{max}$) the switch will connect the applied load as soon as the upper switching point is reached. With a fall in pressure ($p_{max} \rightarrow p_0$) the switch will disconnect the load as soon as the lower switching point is reached.

Example: p_0 20 bar
 Upper switching point 12 bar
 Lower switching point 8 bar
 max. switching load 100 mA



¹⁾ Other pressure ranges on request

²⁾ Delivery without female connector

³⁾ Other pressure connections on request



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