

Relative and absolute pressure switch type 529

Pressure range
-1 ... 0 – 60 bar



The compact type 529 pressure switch is based upon the Huba Control developed unique ceramic technology used for the last 20 years in millions of applications.

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
		FPM -15 ... +125 °C
		EPDM -40 ... +125 °C
Temperature	Medium	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

Protection class

Protection class III

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

Protection standard

IP 67

Electrical connection

Swift connector without or with cable 1.5 m

Connector M12x1

Pressure connection

Inside thread	G ¼	with O-Ring seal FPM (-30 ... +135 °C)
	½ -14 NPT	
	7/16 - 20 UNF	
	7/16 - 20 UNF	
	¾ -18 NPT	
Outside thread	G ¼	sealed at back DIN 3852-E with Profile seal ring in FPM (-30 ... +135 °C)
	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

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

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)

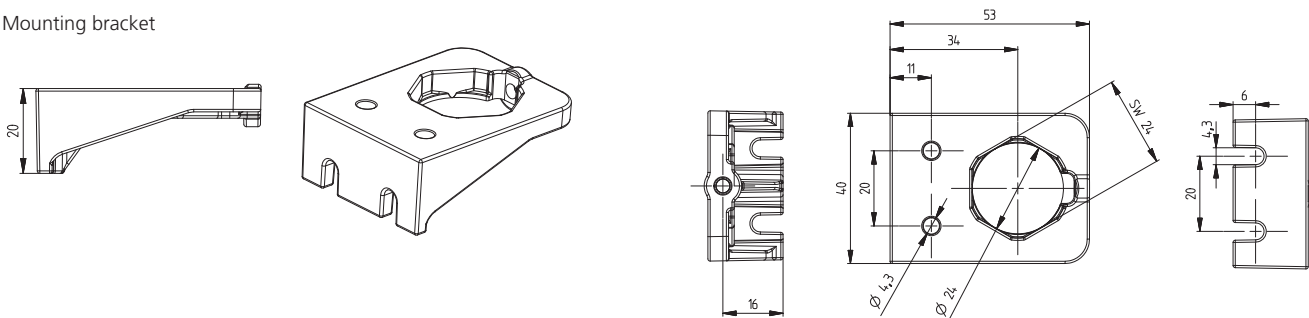
²⁾ -15 ... 85 °C

Order code selection table in bar		1	2	3	4	5	6	7	8	9	10	11
		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					
Switching contact	Contact N/O High-Side-Switch PNP							1				
	Contact N/C High-Side-Switch PNP							2				
Electrical connection	Swift connector								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 3852-E 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		
Version	without pressure tip orifice										1	1
	with pressure tip orifice										2	1
Switching points	Indicate W and state switching points on order (e.g.: W40/30bar)											W

Accessories

				Order number
Swift connector				117312
Straight-wire box for connector M12x1		3-pole		114570
Straight-wire box for connector M12x1 with cable		3-pole	200 cm	114605
Corner-wire box for connector M12x1 with cable		3-pole	200 cm	114604
Corner-wire box for connector M12x1		3-pole		106975
Mounting bracket with screw				118716
Calibration certificate				104551

Mounting bracket

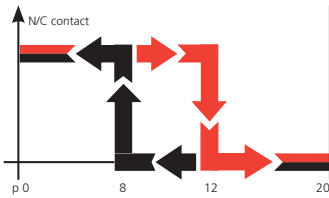


¹⁾ Other pressure ranges on request

²⁾ Delivery without female connector

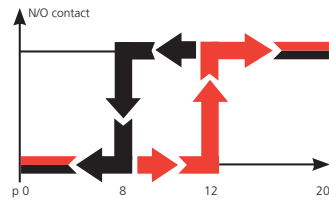
³⁾ Other pressure connections on request

Function

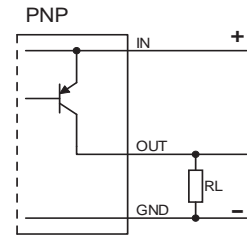


N/C contact: When pressure is applied ($p_0 \rightarrow p_{max}$) the switch will disconnect the applied load as soon as the upper switching point is reached. As the pressure falls ($p_{max} \rightarrow p_0$) the switch will connect the load as soon as the lower switching point is reached.

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



Order code selection table in psi

		1	2	3	4	5	6	7	8	9	10	11	
		529. X X 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									
0 ... 200 psi	8	C	1										
Sealing material	FPM					0							
	EPDM					1							
	NBR					2							
	MVQ					3							
Application	standard					0							
	for oxygen applications					0	1						
Switching contact	Contact N/O High-Side-Switch PNP							1					
	Contact N/C High-Side-Switch PNP							2					
Electrical connection	Swift connector								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 3852-E 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				
Version	without pressure tip orifice									1	1		
	with pressure tip orifice									2	1		
Switching points	Indicate W and state switching points on order (e.g.: W30/16psi)											W	

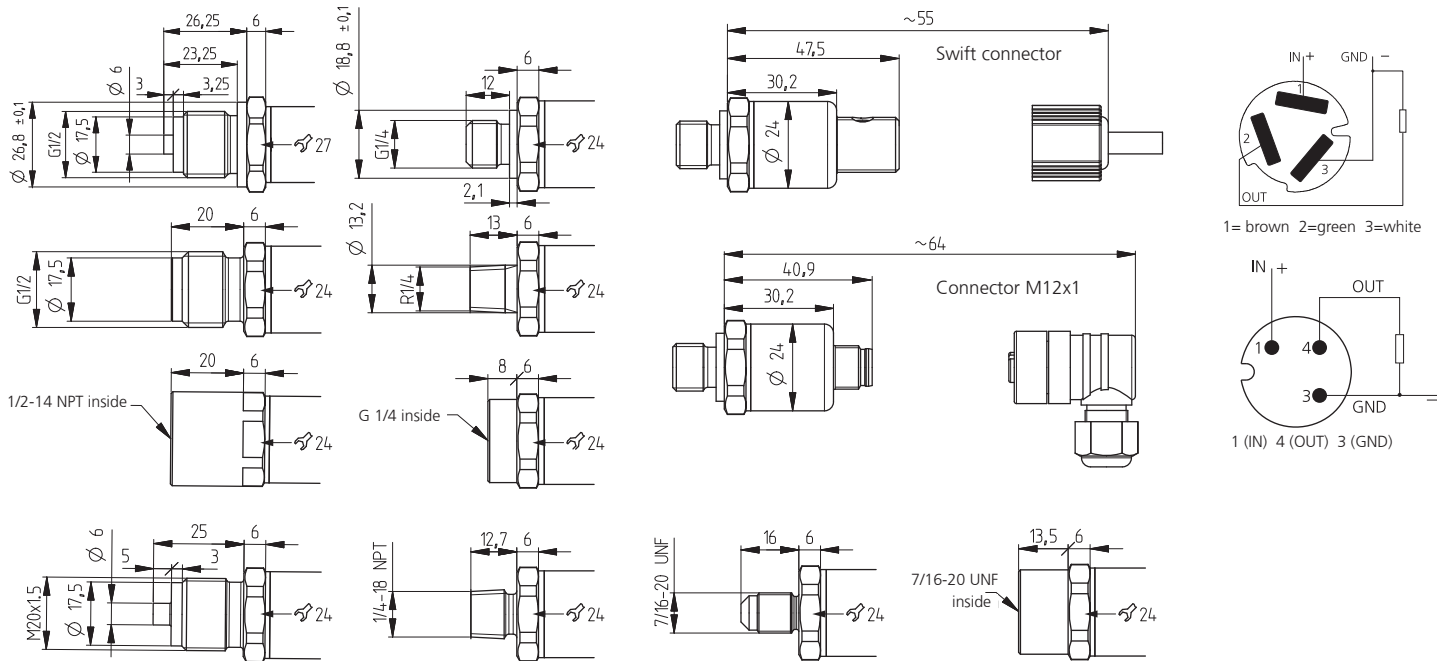
¹⁾ Other pressure ranges on request

²⁾ Delivery without female connector

³⁾ Other pressure connections on request

Order code selection table in MPa			1	2	3	4	5	6	7	8	9	10	11	
			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							
Switching contact	Contact N/O	High-Side-Switch PNP							1					
	Contact N/C	High-Side-Switch PNP							2					
Electrical connection	Swift connector										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		
	Outside thread	7/16 -20 UNF											2	
		1/4 -18 NPT											3	
		G 1/4 sealed at back DIN 3852-E 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			
Version	without pressure tip orifice											1	1	
	with pressure tip orifice											2	1	
Switching points	Indicate W and state switching points on order (e.g.: W4/1.2MPa)												W	

Dimensions in mm / Electrical connections



¹⁾ Other pressure ranges on request

²⁾ Delivery without female connector

³⁾ Other pressure connections on request

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