

Pressure Switches

hydraulic-electronic signal converter, optionally with Teach-In function
 2 switching outputs / 1 analogue output (optional), pressure range 5 to 600 bar



Application

Pressure switches provide an electrical switching command or signal for further work steps when a preset pressure value is reached or exceeded.

Pressure switches are used, for example, to switch pump motors or valves on and off and to control power units, machines and systems.

Description

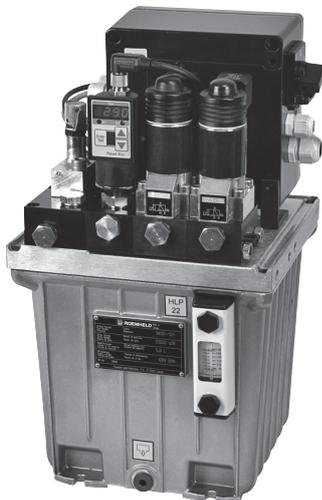
These pressure switches measure the pressure in hydraulic systems and convert it into electrical signals.

All devices are provided with 2 outputs. While output 1 is a freely programmable switching output, output 2 can be selected as analogue output, switching output or alarm output.

The switching and reset points, the output logic and time delays can be programmed through the membrane keyboard.

Display and analogue output are equipped with adjustable damping for dynamic measurements.

Installation example



Advantages

- Sturdy stainless steel piezoma cell
- Two PNP transistor switching outputs
- Analogue output with adjustable start and end point
- 4 x 7 segment LED display
- Continuous ACTUAL pressure display
- Accuracy $\pm 0.1\%$ of the final value
- Optionally with teach-in function
- Any mounting position
- Operating and display panel can be rotated by 350°
- Display rotatable by 180°
- Remanent cycle counter
- Keyboard lock
- Switch-on and switch-off delay separately adjustable
- Self-monitoring function: Overload, cable break and sensor function
- Fast pressure peak detection 500 measurements per second
- LED display for switching contact status
- Many helpful additional functions

Versions

There are 2 different versions, which differ in the type of adjustment option.

Pressure switch with classic parameterisation

Part no. 9740049A

The desired switching and reset points are entered using a classic 3-button control panel. This version can be parameterised conventionally for all applications, independent of the pressurisation of the pressure switch.

Pressure switch with TEACH-IN function

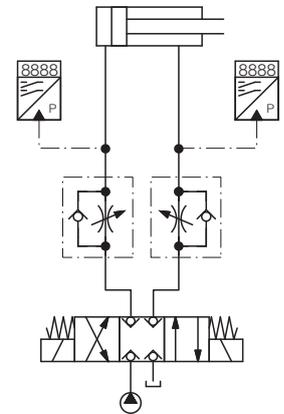
Part no. 9740050A

With the Teach-In procedure, a present pressure is stored in the pressure switch by pressing a button (Enter/Set button). This pressure value corresponds to the operating pressure. The pressure switch automatically calculates the optimum switching and reset point for output 1 (e.g. pump control/sequence control) and output 2 (e.g. machine control/release). It is useful to adjust the operating pressure with the pressure relief valve. Detailed instructions can be found in the operating manual BA 9734.

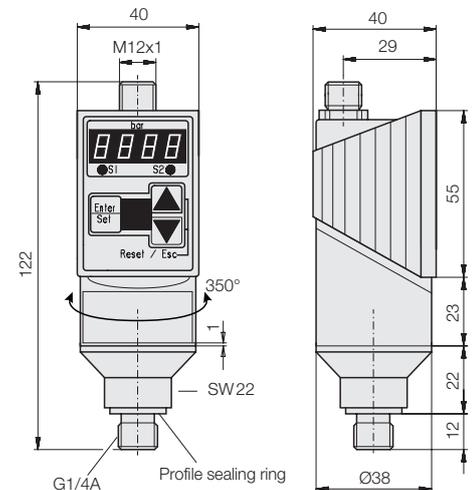
The factory setting is 10 % hysteresis (output 1) and 20 % hysteresis (output 2).

Automatic parameterisation at the touch of a button (Teach-In) allows the pressure switch to be adapted very quickly to changing pressures. Furthermore, setting errors are avoided.

Application example



Dimensions

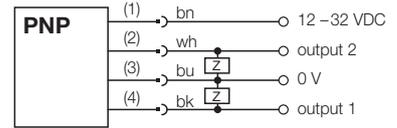


Technical Data and Accessories

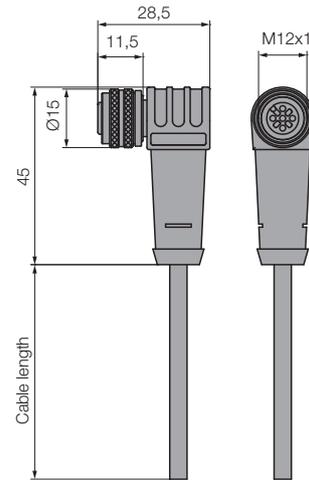
Technical data

Port	M12 connector 4-pin	
Pressure range	5–600 bar	
Overload	50% of the nominal pressure (P_n) in bar	
Pressure pick-up	Peak-value memory every 2 ms	
Operating voltage	12 ... 32 VDC	
Protected against short circuits	+	
Protected against reverse battery	+	
Voltage drop (max. load)	< 2 V	
Current consumption (without load)	< 60 mA	
Switching outputs	2 x pnp switching no/nc each 250 mA	
Delay time adjustable		
switch-on delay	0 ... 20 s	
switch-off delay	0 ... 20 s	
Adjustment range		
Switching point	1 ... 100% of P_n	
Reset point	0 ... 99% of P_n	
Switching frequency	max. 125 Hz	
Reproducibility	< ± 0.1 % of the final value	
Analogue output	0/4 ... 20 mA or 20 ... 0/4 mA	
Load	max. $R_L [\Omega] = (U_b - 8V) / 20mA$	
Error detection analogue output	in case of line break	
Rise time	5 ms (10 ... 90% of P_n)	
Damping adjustable	0 ... 20 s	
Linearity deviation	max. ± 0.25 % of P_n	
System pressure display	4 x 7 segment LED	
Display damping adjustable	0 ... 20 s	
Switching function display	2 x LED red	
Operating temperature	-20 ... +80 °C	
Temperature drift	< ± 0.2 % / 10 K (-10 ... +70 °C)	
Pressure port	G 1/4 A, SW22, rotatable	
Sensor head material	stainless steel 1.4435	
Body material	Polyamide	
Code class (EN 60529)	IP65	
MTTFd	280 years	
Switching cycles	> 10 million	
Weight	0.350 kg	
Part no.	Pressure switch with classic parameterisation 9740049 A	Pressure switch with Teach-In function 9740050 A

Connection 4-pole



Accessory



Cable socket angled

Cable length approx. 2 m

Part no. 3829 283

Cable socket angled

for analogue operation, cable shielded

Cable length approx. 5 m

Part no. 3829 282

Further accessories

See data sheet F 9.300, (page 6).