TSE1

p_{max} up to 400 bar (5800 PSI)

Technical Features

- The pressure switch with the piezoelectric pressure sensor and stainless steel diaphragm
- Measuring repeatability ± 1 % of the whole range
- Adjustable hysteresis of the switching contact
- Easy adjustment of the switch with integrated buttons
- Rugged construction, vibration- and shock-proof, long-term stability
- Maximal switching frequency 100 Hz
- Rotatable housing in the range 320°

Functional Description

The **TSE1-N Electronic Pressure Switch** is simply adjusted after connection in the hydraulic circuit with the use of "teach" method. Once the required system pressure has been reached, the pressure value is saved in the processor memory by pressing the buttons integrated on the switch housing. Thanks to its small dimensions, it is also suitable for mobile applications. The pressure switch is available in two versions:
- With one switching output and an adjustable hysteresis
- With two adjustable outputs and a hysteresis ca 15 %

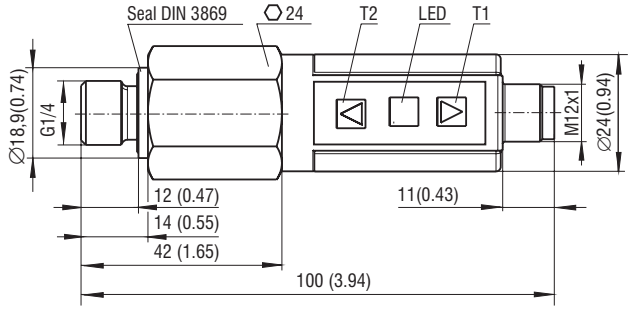
Technical Data

			TSE1-N
Sensor element			Piezoresistive silicone sensor
Process connection (male)			G1/4
Measuring ranges		bar (PSI)	0 ... 100 (0 ... 1500) / 0 ... 400 (0 ... 6000)
Proof pressure			150 (2200) / 600 (8700)
Linearity error at 25 °C (77 °F)		%	±5
Repeatability		%	±1
Fluid temperature range		°C (°F)	-25 ... +100 (-13 ... +212)
Ambient temperature range		°C (°F)	-10 ... +70 (+14 ... +158)
Compensation range		°C (°F)	-10 ... +70 (+14 ... +158)
Storage temperature		°C (°F)	-30 ... +80 (-22 ... +176)
Temperature influence		%	± 0.2
Mass		kg (lbs)	0.15 (0.33)
Material	wetted parts		Stainless steel, passivated, Al_2O_3
	housing		PA 6.6
	seals		Viton (FPM fluorelastomer)
Approvals, tests		vibration:	10 g / 20 to 2000 Hz
		shock:	100 g / 11 ms
Electrical data			
Electrical connection			Plug M12x1; 4-pin
Supply voltage (reverse polarity protected)		V DC	15 ... 32, reverse polarity protected (SELV, PELV)
Current consumption (without load)		mA	approx. 50
Local operating interface			2 push buttons
Enclosure type acc. to EN 60529*			IP65 (indoor only)
Switching outputs (PNP)			
Adjustment range and hysteresis		%	0 ... 100
Switching frequency		Hz	100
Contact rating (switching current)		mA	200 (short-circuit proof)

*The indicated IP protection level is reached only if the connector is properly mounted.

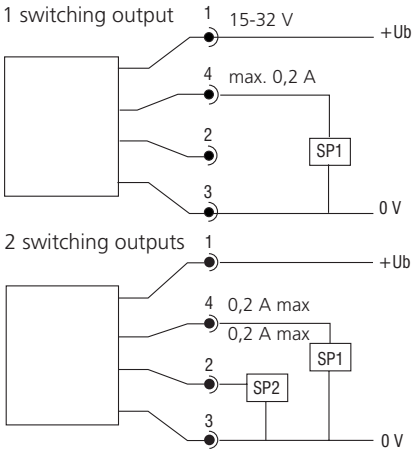
Dimension in millimeters (inches)

TSE1-N

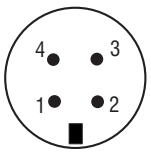


Electrical Connection Schematic

TSE1-N



4-pin connector M12x1



1 - brown
2 - white
3 - blue
4 - black

Ordering Code

TSE1 - □ - □ - □

Pressure switch, electronical

Model
without display **N**

Switching output
1 single switch with adjustable hysteresis
2 dual switch with ~15 % hysteresis

Pressure range
100 0 ... 100 bar (1500 PSI)
400 0 ... 400 bar (6000 PSI)

Standard versions / accessories	Ordering number	
1 Switching output with adjustable hysteresis	27878300	TSE1-N-1-400
2 Switching outputs with 15 % hysteresis	27940400	TSE1-N-2-400
Adapter G1/4 male thread IG G1/4 for optimum alignment of pressure switch	27885100	
Plug connector M12x1, 4-pin, with screw terminals, foldet	27940900	
Plug connector M12x1, 4-pin, with screw terminals, straight	27940800	

Programming pressure switch TSE-N

a) The switch with one adjustable pressure value for closing and adjustable hysteresis		
Programming activation	Press both buttons (T1, T2) for 4 seconds.	LED flashes red and green in turns for 12 seconds, during which time it is possible to set the required value. Then the switch returns to standard mode and the LED lights up green.
Setting the pressure value at contact (SP) closing	Press button T1 for 4 seconds. The pressure switch takes over the current circuit pressure value.	LED lights up red for 4 seconds. LED flashes red three times, then the new value is stored in the memory. LED then lights up green.
Setting the pressure value at contact (RS) opening	Press button T2 for 4 seconds. The pressure switch takes over the current circuit pressure value.	LED lights up green for 4 seconds. LED flashes green three times, then the new value is stored in the memory. LED then lights up green.
Cancelling the set pressure value at contact (SP) closing	Connect the pressure switch to power supply while the button T1 is pressed. Press buttons T1 and T2 for 4 seconds.	LED flashes for 12 seconds in red – green at ratio 1:3. LED then lights up green.
Cancelling the set pressure value at contact (RS) opening	Connect the pressure switch to power supply while the button T2 is pressed. Press buttons T1 and T2 for 4 seconds.	LED flashes for 12 seconds in green - red at ratio 1:3. LED then lights up green.
Error message		LED flashes green and red in turn
Note: Power supply connections is indicated by green luminous LED. Contacts closing is not indicated visually. - for switching on function at rising pressure select SP > RS - for switching on function at dropping pressure select SP < RS		
b) Switch with two adjustable closing pressure values		
Programming activation	Press both buttons (T1, T2) for 4 seconds.	LED flashes red and green in turns for 12 seconds, during which time it is possible to set the required value. Then the switch returns to standard mode and the LED lights up green.
Setting 1. pressure value for contact (SP1) closing	Press button T1 for 4 seconds. The pressure switch takes over the current pressure value in the circuit.	LED lights up red for 4 seconds. LED flashes red three times, then the new value is stored in the memory. LED then lights up green.
Setting 2. pressure value for contact (SP2) closing	Press button T2 for 4 seconds. The pressure switch takes over the current pressure value in the circuit.	LED lights up green for 4 seconds. LED flashes green three times, then the new value is stored in the memory. LED then lights up green.
Cancelling setting 1. pressure value for contact (SP1) closing	Connect the pressure switch to power supply while the button T1 is pressed. Press buttons T1 and T2 for 4 seconds.	LED flashes for 12 seconds in red – green at ratio 1:3. LED then lights up green.
Cancelling setting 2. pressure value for contact (SP2) closing	Connect the pressure switch to power supply while the button T2 is pressed. Press buttons T1 and T2 for 4 seconds.	LED flashes for 12 seconds in green - red at ratio 1:3. LED then lights up green.
Error message		LED flashes green and red in turn
Note: Contacts' opening hysteresis 15 %; using switching on function at rising pressure.		