

phased out in 2017

**Technical Features**

- › Pressure control with internal stainless steel diaphragm
- › High accuracy (0.5 %) with fully adjustable deadband
- › 2 solid state PNP contacts or 1 solid state PNP contact and 1 analog output
- › Digital display readout, configurable via keypad
- › Rugged construction, vibration- and shock-proof, long-term stability
- › Suitable for rapid cycling (100 times per second)
- › Rotatable 320 ° housing
- › Sensor element: piezoresistive silicone device
- › Microprocessor, self-monitoring with error code display, keypad lock
- › cULus approved

**Functional Description**

The **TSE1-N Electronic Pressure Switch** provides accuracy, long life and durability with features and functions that mechanical switches cannot provide. The features include an accuracy of +/- 1 % over the full range, a pressure range from 0... 400 bar (5800 PSI), a 320 ° rotatable housing and either two switching outputs or 1 switching output with adjustable hysteresis. The TSE1-N allows precise, quick and easy set point adjustment, even while installed on an application. Its small size makes it perfect for applications where space is an issue, as in mobile hydraulics, hydraulic power units, machine tools, injection molding machinery and factory automation.

The **TSE1-D Electronic Pressure Switch** offers the accuracy of an electronic pressure switch in an economical package. The electronic pressure switch is available in two different configurations: as a dual pressure switch or as a single switch with an integrated 4... 20 mA analog output. Setpoints and deadband are easily adjusted through the keypad and the user-friendly menu. The analog transducer output is scalable from 25 % to 100 % of the full adjustable range. A 10-bit microprocessor provides built-in self diagnostics and allows for switch time delays and pressure cycling up to 100 times per second.

**Technical Data**

		TSE1-N	TSE1-D
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	± 0.5
Repeatability	%	± 1	± 0.1
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)	0.2 (0.44)
Material	wetted parts	Stainless steel, passivated, Al <sub>2</sub> O <sub>3</sub>	
	housing	PA 6.6	Aluminum
	seals	Viton (FPM fluorelastomer)	
Approvals, tests	vibration: shock:	10 g / 20 to 2000 Hz 100 g / 11 ms	
Certification cULus			file No. E42816
<b>Electrical data</b>			
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	3 push buttons
Enclosure type acc. to EN 60529**		IP65 (indoor only)	
<b>Switching outputs (PNP)</b>			
Adjustment range and hysteresis	%	0... 100	0... 125
Switching frequency	Hz	100	
Contact rating (switching current)	mA	200 (short-circuit proof)	400 (short-circuit proof)

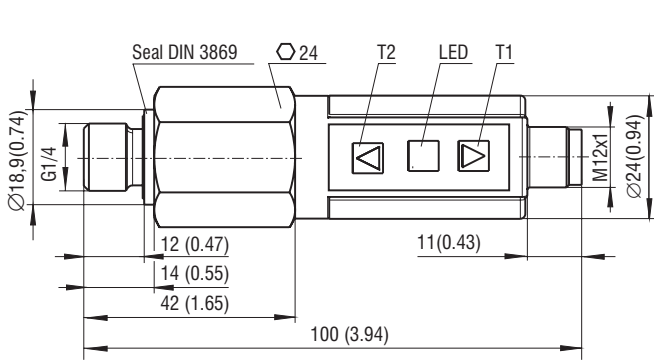
  

A/D-Converter		TSE1-D
Resolution	10 bit (1.024 steps per measure span)	
Refresh rate	1/s	200 (for peak value memory)
<b>Analog output</b>		
Current output	mA	4... 20
Max. load resistance	Ω	$R_L = (U_o - 12 V) / 20 mA$ $R_L = 600 \Omega$ at 24 V DC
Load influence		0.3 % / 100 Ω
Scanning rate	ms	5
Voltage output	V DC	0... 10
Rating (short circuit-proof)	mA	max. 10
Adjustment range	%	25... 100
Transistor switching output(s) PNP		normally open / normally closed
Switching function		standard / window-mode
Digital display	3-digit 7-segment LED display, height 10 mm, (0.39 in), red	
Display range		-1 to 999
Display rate	1/s	20
Delay (adjustable)	s	0.0... 9.9
Status display(s)		green LED (s)
Error display		orange LED (alarm)

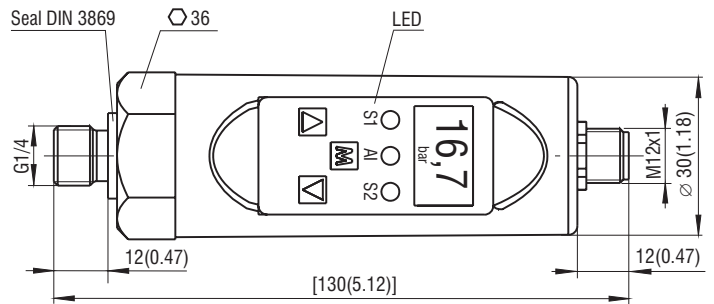
\*\*The indicated IP protection level is reached only if the connector is properly mounted.

Dimension in millimeters (inches)

TSE1-N



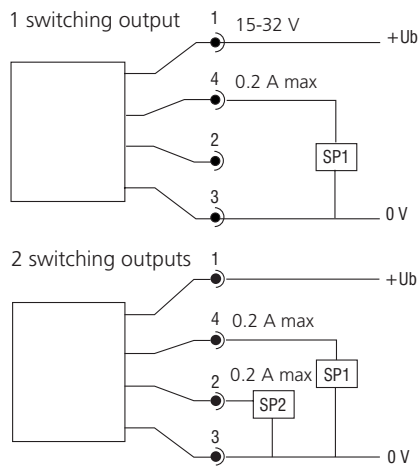
TSE1-D



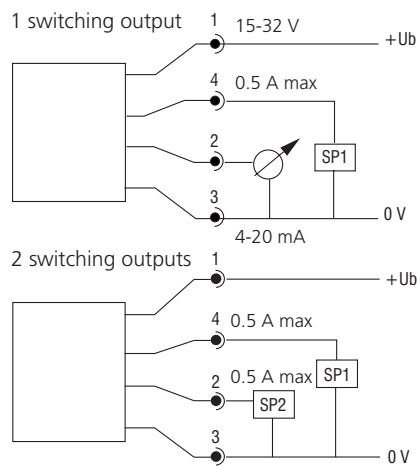
Standard versions / accessories	Ordering number	
1 Switching output with adjustable hysteresis	27878300	TSE1-N-1-400
2 Switching outputs with 15 % hysteresis	27940400	TSE1-N-2-400
1 Switching output and 1 analog output 4... 20 mA	27878600	TSE1-D-1-400
2 Switching outputs	27878500	TSE1-D-2-400
Adapter 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	

## Electrical Connection Schematic

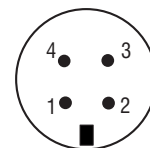
TSE1-N



TSE1-D



4-pin connector  
M12x1



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

## Ordering Code

