

## SC400 / SC410 / SC420

### Electronic pressure switch with a four digit LED display

**SC400 - with two switching outputs**

**SC410 - with one switching output and an analogue output (4 ... 20 mA or 0 ... 10 V)**

**SC420 - with two switching outputs and an analogue output (4 ... 20 mA)**



### Description

The pressure switches SC400 / SC410 / SC420 with display provide continuous pressure monitoring. It is easy to configure the switching point and reset point without pressurizing, or to change the type of contact (NO / NC), the damping, the delay and n- / p-switching. In addition, authorised personnel can quickly and easily access the user menu to alter the switching points. The analogue signal of S2410 and S2420 can be scaled down to 20% of the span. Switching currents from a few  $\mu\text{A}$  up to 500 mA can be switched by the output transistors.

By the use of time tested ceramic or thin film sensors, this pressure switch features a high level of repeatability and durability, even in the case of a high number of pressure cycles. The turnable display and the turnable process connection (optional) allow the usage of this pressure switch even under difficult installation conditions.

The high-quality stainless steel housing qualifies the SC400 / SC410 / SC420 also for the usage under adverse conditions. For the higher pressure ranges all wetted parts are made of stainless steel, therefore working with almost every media. The SC400 / SC410 / SC420 are multifunctional applicable for measurement tasks within hydraulic and pneumatic applications. If used outdoors, we recommend the optional cap AZM90X101010.

### Features

- Adjustment ranges from -1 up to 700 bar
- Sensing element ceramic or thin-film
- Repeatability 0.2 % of full scale
- Switching points, reset points and switching function (NO / NC) and switching output (pnp / npn) configurable
- Configurable analogue output
- Integrated password protection
- Attenuation of the output signals, up to 2000 ms
- Delay of the switching outputs, up to 99.9 s
- Min- / Max- memory

### Applications

- Hydraulic power unit
- Mechanical engineering
- Vacuum technology
- Filter monitoring

Sensor element	Adjustment range (bar)	Overload limit (bar)	Burst pressure (bar)
Ceramic cell	-1 ... 2	5	6
	-1 ... 3	5	6
	-1 ... 5	10	12
	-1 ... 10	20	25
	0 ... 2	5	6
	0 ... 5	10	12
	0 ... 10	20	25
	0 ... 20	40	50
Thin film cell	0 ... 50	100	120
	0 ... 100	200	800
	0 ... 160	320	1,000
	0 ... 250	500	1,200
	0 ... 400	800	1,700
	0 ... 600	1,000	2,400
	0 ... 700	1,000	2,400

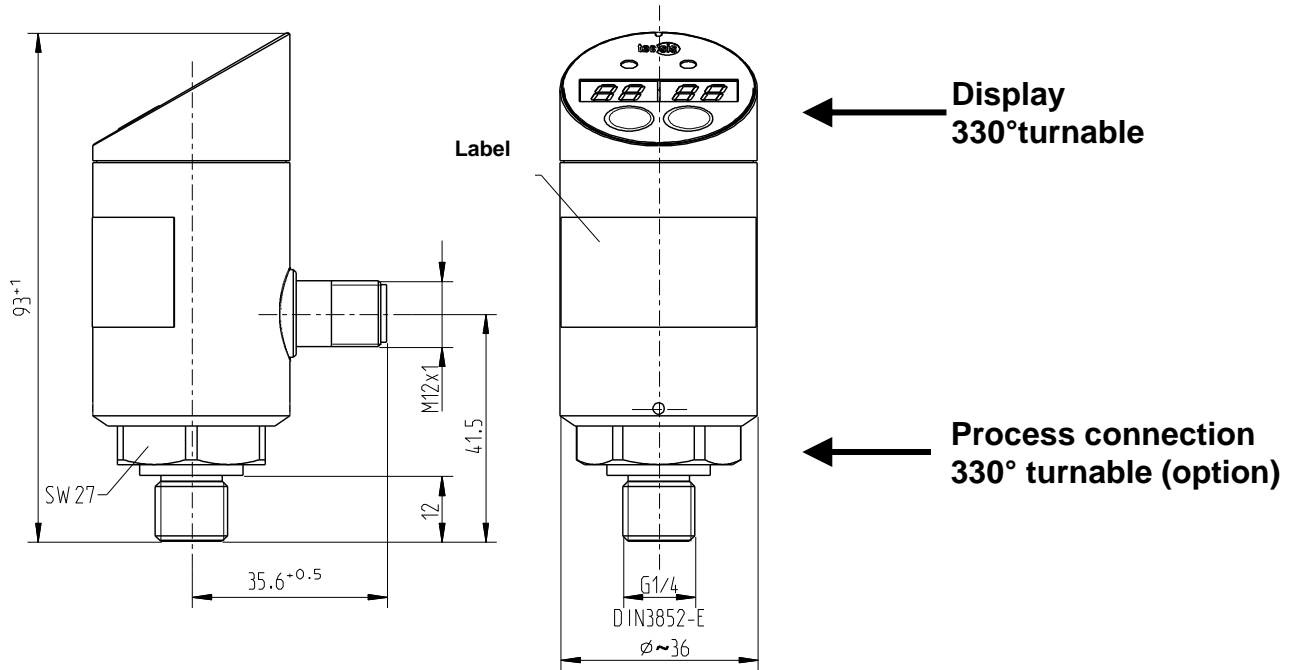
Model: S2400, S2410, S2420

## Technical data

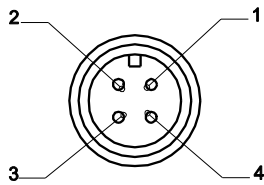
	SC400	SC410	SC420
Model No.	S2400	S2410	S2420
<b>Version</b> Pressure type Pressure resistance (neg.)	gauge pressure, positive or negative all switches are resistant down to -1 bar		
<b>Units</b>	bar or psi		
<b>Process connection</b> Standard Option	G1/4 DIN 3852-E 1/4NPT, others on request		
<b>Materials</b> Measuring element Pressure connection Housing	≤ 50 bar: ceramic with NBR-O-ring > 100 bar: stainless steel stainless steel stainless steel, display unit: plastics		
<b>Load cycles</b>	> 10 million pressure cycles		
<b>Supply voltage</b>	12 ... 30 V DC, reverse polarity protected and overload-proof, ripple < 10 %		
<b>Power consumption</b>	typ. ≤ 25 mA, without load current		
<b>Outputs</b>	configurable via the display		
<b>Switching outputs</b> Number	model S2400 two switching outputs	model S2410 one switching output and an analogue output	model S2420 two switching output and an analogue output
Switching function Damping ( option ) Delay ( option ) Power rating	normally close (NC) or normally open (NO) 0...2,000 ms 0...99.99 s max. 0.5 A p- or n-switching   n-switching		
Adjustment - set point - reset point	1 ... 100 % of span 0 ... 99 % of span		
Response time	≤ 6 ms		
<b>Analogue output</b> - Standard - Option - Scaling Load resistance Hysteresis	-	4 ... 20 mA; 3 - wire 0 ... 10 V; 3 - wire   - 20 ... 100 % of span Current output: $R < (U_b - 8) / I_{max}$ Voltage output: min. 10 kOhm   - 0.3 % of span (ceramic cell) 0.2 % of span (thin film cell)	
<b>Display</b>	7 segment LED, red, 7.6 mm high 4 digits (-999 ... 9999)		
<b>Accuracy*</b>	1% of span ± 1 digit		
<b>Repeatability</b>	0.2 % of span		
<b>Temperature ranges</b> Storage Media Ambient T <sub>k</sub>	-30 ... +80 °C -20 ... +80 °C -20 ... +70 °C 0.3 % per 10 K		
<b>Electrical connection</b>	Round connector M 12x1; 4-pin		M 12x1; 5-pin
<b>Protection class</b>	IP65 according to IEC 529		
<b>CE</b>	emission and interference according to EN 61 326		
<b>Electrical protection</b>	reverse polarity and over voltage protection		
<b>Loading capacity</b> Shock (mechanical) Vibration (under resonance)	50 g according to IEC 60068-2-27 10 g according to IEC 60068-2-6		
<b>Weight</b>	approx. 0.3 kg		

\* Accuracy includes hysteresis, non-repeatability, zero point and final value deviation

## Dimensions

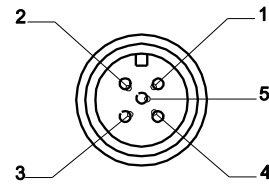


## Electrical connection



**Round connector M 12 x 1 (4 - pin)**  
(S2400 and S2410)

Signal	Pin
Supply: UB	1
Supply: 0V	3
Switching output: S 1	4
Switching output: S 2 (S2400) or analogue output (S2410)	2



**Round connector M 12 x 1 (5 - pin)**  
(S2420)

Signal	Pin
Supply: UB	1
Supply: 0V	3
Switching output: S 1	4
Switching output: S 2	2
4...20 mA	5

Colour of optional wires
Brown
Blue
Black
White
Grey

The operating instructions enclosed to the device contain connection examples.

We recommend our accessories:

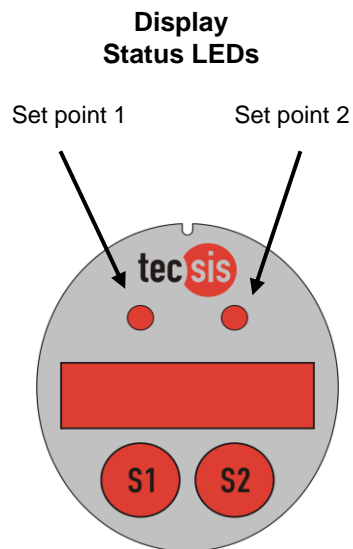
### M12x1 cable socket, 4-pin with 2 m wire

- Straight version, order no.: EZE53X011010
- Angled version, order no.: EZE53X011011

### M12x1 cable socket, 5-pin with 2 m wire

- Angled version, order no.: EZE53X011045

## Configuration



### **Switching on:**

After power on the switch performs an initialisation routine. The display and the status LEDs are switched on. The nominal pressure is displayed for a short time. During this routine the outputs are not active.

### **Operating mode:**

After this initialization the switch is in normal operation mode. The pressure is displayed, the switching outputs are active and the LEDs display the status.

### **Functioning of keys S1 and S2:**

#### **Simultaneous pressing of keys S1 and S2**

- < 3 sec. - Brief pressing of the keys S1 + S2 takes you into the user menu.  
The switching points can be set here.
- > 3 sec. - Long pressing of the keys S1 + S2 takes you into the set-up menu.  
The device can be configured here.

#### **Pressing the S1 key in the menu**

- The menu items are stepped through here
- The settings are changed

#### **Pressing the S2 key in the menu**

- You enter the menu item
- Entries are confirmed – Return to the menu item

### **Adjusting the switching points:**

By briefly pressing S1 or S2 the programmed switching points are displayed. During this time the status LEDs are flashing.

A longer push (press the button until the display shows “Stor”) sets the switching point to the actual pressure. The hysteresis (span) remains unchanged. You need to confirm the new switching point (S2, S1, S2).

A detailed explanation of configuration is part of the operating instructions, which is attached to every device.

Subject to technical alterations