

# ELECTRONIC PRESSURE SWITCH

We are a leading international supplier of high quality sensors and monitoring instruments for measurement of pressure and temperature. The Electronic Pressure Switch EPN-LS is based on the well-proven EPN transmitter family. It stands for reliable accuracy over a wide temperature range and excellent long-term stability even in harshest environments in the shipbuilding and railway industry. The switchpoint is factory set or can be programmed on site using Sensor Communicator SC.



## Applications

- Shipbuilding
- Engine manufacturing
- Railways
- Machine tools
- Hydraulics
- HVAC



## Features

- Rugged design for harsh environments
- Wide temperature range
- Excellent long-term stability
- Very compact design
- Switchpoint factory set or programmable on site  
Sensor Communicator SC

## Technical Data

|                      |                                                          |                       |                                                                    |
|----------------------|----------------------------------------------------------|-----------------------|--------------------------------------------------------------------|
| Measuring principle  | Thin film on steel                                       | Media temperature     | -40°C ... +125°C                                                   |
| Measuring range      | 0 ... 2.5 to 0 ... 600 bar<br>0 ... 30 to 0 ... 7500 psi | Ambient temperature   | Standard: -25°C ... +85°C<br>Option accessory 67: -40°C ... +125°C |
| Output signal        | Transistor (open source)                                 | Approval / conformity | DNV-GL                                                             |
| Accuracy @ 25°C typ. | ± 0.5 % FS typ. (Switchpoint)                            |                       |                                                                    |

## Ordering information/type code

|                               |                                                                                                                                               |                     |                      | EPN-LS 8320 . XX |                                  |                     | XX                   | XX        | XX        | XX        | XX |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------------|------------------|----------------------------------|---------------------|----------------------|-----------|-----------|-----------|----|
| Measuring range <sup>1)</sup> | Pressure measurement range [bar]                                                                                                              | Over pressure [bar] | Burst pressure [bar] |                  | Pressure measurement range [psi] | Over pressure [psi] | Burst pressure [psi] |           |           |           |    |
|                               | 0 ... 2.5                                                                                                                                     | 5                   | 100                  | <b>75</b>        | 0 ... 30                         | 30                  | 720                  | <b>G5</b> |           |           |    |
|                               | 0 ... 4                                                                                                                                       | 8                   | 100                  | <b>76</b>        | 0 ... 50                         | 115                 | 860                  | <b>G6</b> |           |           |    |
|                               | 0 ... 6                                                                                                                                       | 12                  | 100                  | <b>77</b>        | 0 ... 100                        | 170                 | 1450                 | <b>G7</b> |           |           |    |
|                               | 0 ... 10                                                                                                                                      | 20                  | 200                  | <b>78</b>        | 0 ... 150                        | 290                 | 2900                 | <b>G8</b> |           |           |    |
|                               | 0 ... 16                                                                                                                                      | 32                  | 200                  | <b>79</b>        | 0 ... 250                        | 464                 | 2900                 | <b>G9</b> |           |           |    |
|                               | 0 ... 25                                                                                                                                      | 50                  | 300                  | <b>80</b>        | 0 ... 400                        | 725                 | 4350                 | <b>H0</b> |           |           |    |
|                               | 0 ... 40                                                                                                                                      | 80                  | 300                  | <b>81</b>        | 0 ... 500                        | 1160                | 4350                 | <b>H1</b> |           |           |    |
|                               | 0 ... 60                                                                                                                                      | 120                 | 500                  | <b>82</b>        | 0 ... 1000                       | 1740                | 5800                 | <b>H2</b> |           |           |    |
|                               | 0 ... 100                                                                                                                                     | 200                 | 500                  | <b>83</b>        | 0 ... 1500                       | 2900                | 7250                 | <b>H3</b> |           |           |    |
|                               | 0 ... 160                                                                                                                                     | 320                 | 1000                 | <b>85</b>        | 0 ... 2000                       | 4640                | 10850                | <b>H5</b> |           |           |    |
|                               | 0 ... 250                                                                                                                                     | 500                 | 1000                 | <b>74</b>        | 0 ... 3000                       | 7250                | 14500                | <b>G4</b> |           |           |    |
|                               | 0 ... 400                                                                                                                                     | 800                 | 1500                 | <b>84</b>        | 0 ... 5000                       | 11600               | 21750                | <b>H4</b> |           |           |    |
|                               | 0 ... 600                                                                                                                                     | 1000                | 2000                 | <b>86</b>        | 0 ... 7500                       | 14500               | 29000                | <b>H6</b> |           |           |    |
| <b>Sensor</b>                 | Relative pressure                                                                                                                             |                     |                      |                  |                                  |                     |                      | <b>23</b> |           |           |    |
| <b>Pressure connection</b>    | G1/4" male (Seal)                                                                                                                             |                     |                      |                  |                                  |                     |                      | <b>17</b> |           |           |    |
|                               | 1/4" NPT male                                                                                                                                 |                     |                      |                  |                                  |                     |                      | <b>30</b> |           |           |    |
|                               | G1/2" male (DIN3852-A) <sup>2)</sup>                                                                                                          |                     |                      |                  |                                  |                     |                      | <b>21</b> |           |           |    |
|                               | M14x1.5 male (DIN3852-A) <sup>2)</sup>                                                                                                        |                     |                      |                  |                                  |                     |                      | <b>22</b> |           |           |    |
|                               | 1/2" NPT male <sup>2)</sup>                                                                                                                   |                     |                      |                  |                                  |                     |                      | <b>51</b> |           |           |    |
| <b>Electrical connection</b>  | Male electrical plug: EN 175301-803-A (DIN43650-A)                                                                                            |                     |                      |                  |                                  |                     |                      | <b>04</b> |           |           |    |
|                               | Cable with shield: Material: FDR 25 (Raychem) 4 x 0.5mm <sup>2</sup> , -40°C ... +125°C, (Cable length see "Accessories")                     |                     |                      |                  |                                  |                     |                      | <b>78</b> |           |           |    |
|                               | Cable with shield: Material: Radox Tenuis-TW 600V MM S (EN45545), 4 x 0.5mm <sup>2</sup> , -40°C ... +120°C, (Cable length see "Accessories") |                     |                      |                  |                                  |                     |                      | <b>88</b> |           |           |    |
| <b>Output signal</b>          | 1 Transistor out: switchpoint "ON": ... (bar); switchpoint "OFF": ... (bar); delay time: standard 5 (ms), ... (ms) range: 5...10000 (ms)      |                     |                      |                  |                                  |                     |                      |           | <b>T1</b> |           |    |
| <b>Accessories</b>            | Pressure peak damping element ø 0.4 mm                                                                                                        |                     |                      |                  |                                  |                     |                      |           |           | <b>44</b> |    |
|                               | Pressure peak damping element ø 1.0 mm                                                                                                        |                     |                      |                  |                                  |                     |                      |           |           | <b>40</b> |    |
|                               | Female electrical connector EN 175301-803-A (DIN43650-A)/NBR, -40°C ... +90°C                                                                 |                     |                      |                  |                                  |                     |                      |           |           | <b>58</b> |    |
|                               | 🚂 Railways version (500 VAC/DC), with shielded cable only                                                                                     |                     |                      |                  |                                  |                     |                      |           |           | <b>11</b> |    |
|                               | Higher operating temperature: -40°C ... +125°C                                                                                                |                     |                      |                  |                                  |                     |                      |           |           | <b>67</b> |    |
|                               | Cable length 1.5 m                                                                                                                            |                     |                      |                  |                                  |                     |                      |           |           | <b>1M</b> |    |
|                               | Cable length 3.0 m                                                                                                                            |                     |                      |                  |                                  |                     |                      |           |           | <b>3M</b> |    |
|                               | Cable length 5.0 m                                                                                                                            |                     |                      |                  |                                  |                     |                      |           |           | <b>5M</b> |    |

<sup>1)</sup> Customized pressure ranges upon request

<sup>2)</sup> Please ask us



## Programming device Sensor Communicator SC

### Ordering No.

- Sensor Communicator SC: F88030
- Programming cable with connector EN 175301-803A: F88049

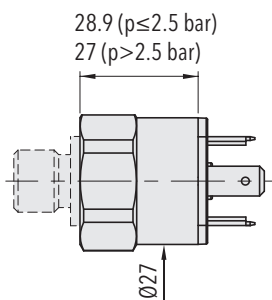


| Specifications           |                                                                          |                                                                                                                                                                                                            |
|--------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Accuracy                 | Accuracy @ 25°C typ.                                                     | ± 0.5 % FS typ. (Switchpoint)                                                                                                                                                                              |
|                          | Temperature dependence switching point                                   | Switchpoint @ +25°C: ± 0.5 % FS typ.<br>Switchpoint @ -25°C ... +85°C: ± 1.0 % FS typ.<br>Switchpoint @ -40°C ... +125°C: ± 1.3 % FS typ.<br>(Accessory 67: higher operating temperature -40°C ... +125°C) |
|                          | Long term stability 1 year typ.                                          | ≤ ± 0.15 % FS typ.                                                                                                                                                                                         |
| Electrical Data          | Supply voltage                                                           | 24 (9 ... 32) VDC                                                                                                                                                                                          |
|                          | Resistance of insulation                                                 | > 10 MΩ, 250 VDC<br> > 10 MΩ, 500 VDC                                                                                   |
|                          | Dielectric strength                                                      | 250 VAC, 50 Hz<br> 500 VAC, 50 Hz                                                                                       |
|                          | Output / supply voltage                                                  | Transistor (open source): 24 (9 ... 32) VDC                                                                                                                                                                |
|                          | Inverse-polarity protection, short-circuit strenght @ 25°C during 5 min. | integrated                                                                                                                                                                                                 |
|                          | Current consumption                                                      | ≤ 15 mA                                                                                                                                                                                                    |
| Environmental conditions | Media temperature                                                        | -40°C ... +125°C                                                                                                                                                                                           |
|                          | Ambient temperature                                                      | Standard: -25°C ... +85°C<br>Option accessory 67: -40°C ... +125°C                                                                                                                                         |
|                          | Protection                                                               | Electrical connection 04: IP65 (IP67)<br>Electrical connection 78/88: IP69K                                                                                                                                |
|                          | Humidity                                                                 | Max. 95 % relative                                                                                                                                                                                         |
|                          | Vibration                                                                | 15 g (50...2000 Hz)                                                                                                                                                                                        |
|                          | Shock                                                                    | 50 g / 11 ms                                                                                                                                                                                               |
| EMC Protection           | Emission                                                                 | EN/IEC 61000-6-3                                                                                                                                                                                           |
|                          | Immunity                                                                 | EN/IEC 61000-6-2                                                                                                                                                                                           |
| Mechanical Data          | Sensor (wetted parts)                                                    | 1.4542 (AISI630)                                                                                                                                                                                           |
|                          | Pressure connection (wetted parts)                                       | Pressure ranges ≤ 250 bar: 1.4542 (AISI630)<br>Pressure ranges > 250 bar: 1.4301 (AISI304)                                                                                                                 |
|                          | Housing                                                                  | 1.4301 (AISI304)                                                                                                                                                                                           |
|                          | Sealing                                                                  | FKM 70 Sh                                                                                                                                                                                                  |
|                          | Male electrical plug                                                     | See ordering information                                                                                                                                                                                   |
|                          | Weight                                                                   | ~ 85 ... 110 g                                                                                                                                                                                             |
|                          | Mounting torque                                                          | 25 Nm                                                                                                                                                                                                      |

## Switching output

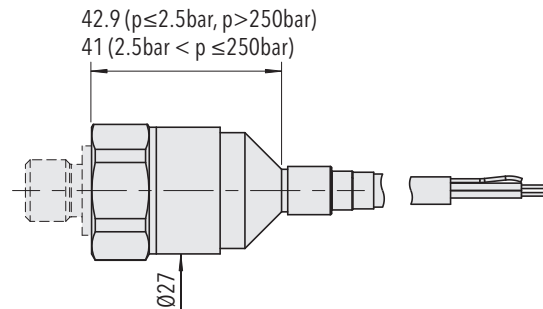
|                      |                                                                                                                                                                                                                                              |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Output signal        | 1 Transistor (open source)                                                                                                                                                                                                                   |
| Switchpoint setting  | Switchpoint factory set or programmable on site with Sensor Communicator SC                                                                                                                                                                  |
| Adjustment range     | 0 ... 100 % FS                                                                                                                                                                                                                               |
| Switching hysteresis | $\geq 1\%$ FS                                                                                                                                                                                                                                |
| Switching current    | $\leq 0.5\text{ A}$ @ $-40^\circ\text{C} \dots +85^\circ\text{C}$<br>$\leq 0.4\text{ A}$ @ $+85^\circ\text{C} \dots +125^\circ\text{C}$ (only with accessory 67: higher operating temperature $-40^\circ\text{C} \dots +125^\circ\text{C}$ ) |
| Switching resistance | $\leq 3\Omega$                                                                                                                                                                                                                               |
| Delay time           | Standard adjustment: 5 ms<br>Adjustable with Sensor Communicator (only electrical connection 04): 5 ms ... 10 s                                                                                                                              |

## Dimensions



8320.XX.XXXX.04.XX.XX

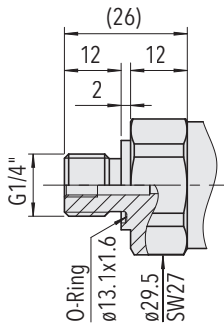
Switchpoint factory set or programmable on site with Sensor Communicator SC



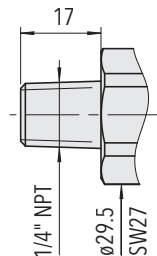
8320.XX.XXXX.78.XX.XX

Switchpoint factory set

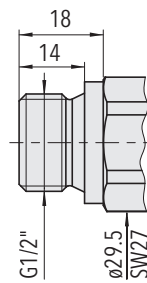
8320.XX.XXXX.88.XX.XX



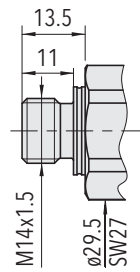
8320.XX.XX17.XX.XX.XX



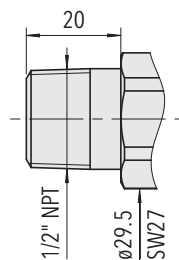
8320.XX.XX30.XX.XX.XX



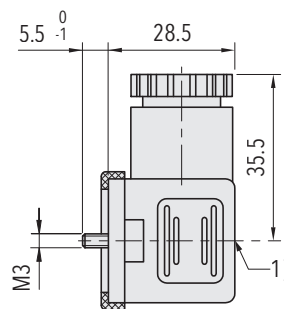
8320.XX.XX21.XX.XX.XX



8320.XX.XX22.XX.XX.XX



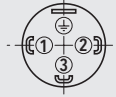
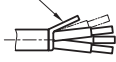
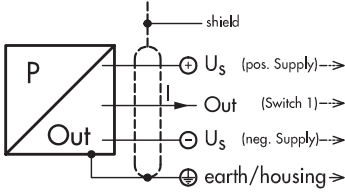
8320.XX.XX51.XX.XX.XX



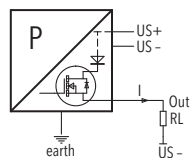
1) Tightening torque 50...60Ncm

8320.XX.XXXX.XX.XX.58

## Electrical Connection

| Protection / electrical connection                                                                                                                        |                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| IP65 (IP67)                                                                                                                                               | IP69K                                                                                                                                        |
| Industrial standard<br>EN175301-803A<br><b>04</b><br>                    | Cable <b>**</b> )<br><b>78/88</b><br>Shield<br>             |
| <div> <div>Output signal</div>  <p><b>8320..XX.XXXX.XX.T1</b></p> </div> | <div> <div>1</div> <div>2</div> <div>3</div> <div>⊕</div> <div>brown</div> <div>blue</div> <div>black</div> <div>yellow / green</div> </div> |

\*\*\*) Ventilation via cable end



Connection of loads to switch contacts