

## Electronic pressure switches, Performance series

hex 24, adjustable by user



- Very competitively priced electronic pressure switches
- High overpressure protection (up to 2 x)
- Small, compact electronic switches with ceramic sensor
- Easy adjustment of switching point from the outside using set screw
- Hysteresis adjustable within broad range (2 % – 98 %, set at factory)
- High level of adaptability to your requirements (custom solutions)
- Available as 'plasma cleaned for oxygen applications'<sup>1)</sup>

# Electronic pressure switches, Performance series

## Technical details

|   |   |                                     |            |            |            |             |             |
|---|---|-------------------------------------|------------|------------|------------|-------------|-------------|
|   | <b>0510 NO</b><br><b>0511 NC</b>  |                                     |            |            |            |             |             |
| Transistor output:                              | PNP output (High-Side N-channel)  |                                     |            |            |            |             |             |
| Supply voltage:                                 | 9.6 – 32 VDC with reverse voltage protection  |                                     |            |            |            |             |             |
| Output current:                                 | 0.5 A with ( $\leq 0.2$ A at $\geq 50$ °C) short-circuit and overvoltage protection   |                                     |            |            |            |             |             |
| Idle power consumption:                         | < 30 mA   |                                     |            |            |            |             |             |
| Adjustment range $p_{nom}$ :                    | 0 – 2 bar   | 0 – 4 bar                           | 0 – 10 bar | 0 – 16 bar | 0 – 40 bar | 0 – 100 bar | 0 – 250 bar |
| Max. overpressure <sup>1)</sup> :               | 4 bar   | 10 bar                              | 20 bar     | 40 bar     | 100 bar    | 150 bar     | 375 bar     |
| Burst pressure <sup>1)</sup> :                  | 8 bar   | 20 bar                              | 35 bar     | 60 bar     | 140 bar    | 300 bar     | 500 bar     |
| Mechanical life expectancy:                     | 5,000,000 switching cycles at rise rates to 1,000 bar/s at $p_{nom}$  |                                     |            |            |            |             |             |
| Pressure rise rate:                             | 1,000 bar/s   |                                     |            |            |            |             |             |
| Accuracy:                                       | $\pm 0.5$ % of adjustment range $p_{nom}$ (full scale (FS)) at room temperature   |                                     |            |            |            |             |             |
| Switching point adjustment range:               | 3 ... 100 % of adjustment range $p_{nom}$ (FS), set at factory  |                                     |            |            |            |             |             |
| Hysteresis <sup>2)</sup> :                      | 2 ... 98 % FS, programmable at factory (max. tolerance $\pm 1.0$ % of adjustment range $p_{nom}$ )                                      |                                     |            |            |            |             |             |
| Default-Hysteresis without order specification: | 2 bar   | 4 bar                               | 10 bar     | 16 bar     | 40 bar     | 100 bar     | 250 bar     |
|   | 0.1 bar   | 0.2 bar                             | 0.5 bar    | 0.8 bar    | 2 bar      | 5 bar       | 10 bar      |
| Resolution:                                     | 0.2 % of adjustment range $p_{nom}$ (FS)  |                                     |            |            |            |             |             |
| Long term stability:                            | $\pm 0.1$ % of adjustment range $p_{nom}$ (FS) per year   |                                     |            |            |            |             |             |
| Repeatability <sup>2)</sup> :                   | $\pm 0.1$ % of adjustment range $p_{nom}$ (FS)  |                                     |            |            |            |             |             |
| Switching time:                                 | < 4 ms  |                                     |            |            |            |             |             |
| Switch-on / -off delay:                         | Adjustable between 0 and 2 s (please specify when ordering, otherwise default 0 s is set)   |                                     |            |            |            |             |             |
| Temperature error <sup>2)</sup> :               | $\pm 0.04$ % of adjustment range $p_{nom}$ (FS) / °C  |                                     |            |            |            |             |             |
| Compensated temperature range:                  | 0 °C ... +70 °C (+32 °F ... +158 °F), total error $\leq 2$ %  |                                     |            |            |            |             |             |
| Temperature range ambient:                      | -30 °C ... +100 °C (-22 °F ... +212 °F)   |                                     |            |            |            |             |             |
| Temperature range media:                        | with TPE seal: -30 °C ... +110 °C (-22 °F ... +230 °F)  |                                     |            |            |            |             |             |
|   | with NBR seal: -30 °C ... +100 °C (-22 °F ... +212 °F)  |                                     |            |            |            |             |             |
|   | with EPDM seal: -30 °C ... +125 °C (-22 °F ... +257 °F)   |                                     |            |            |            |             |             |
|   | with FKM seal: -20 °C ... +125 °C (-4 °F ... +257 °F)   |                                     |            |            |            |             |             |
| Wetted parts material                           | Housing:  | Stainless steel (1.4305 / AISI 303) |            |            |            |             |             |
|   | Messuring cell:   | Ceramic                             |            |            |            |             |             |
|   | Seal material:  | TPE, NBR, EPDM or FKM <sup>3)</sup> |            |            |            |             |             |
| Insulation resistance:                          | > 100 M $\Omega$ (35 VDC)   |                                     |            |            |            |             |             |
| Vibration resistance:                           | 20 g; at 4 ... 2000 Hz sine wave, DIN EN 60068-2-6  |                                     |            |            |            |             |             |
| Shock resistance:                               | 500 m/s <sup>2</sup> , 11 ms half sine wave; DIN EN 60068-2-27  |                                     |            |            |            |             |             |
| Protection class:                               | IP65: DIN EN 175301-803-A<br>IP67: M12x1, AMP-Superseal®, cable connector<br>IP67 and IP6K9K: Bayonet ISO 15170-A1-4.1, Deutsch DT04-3P |                                     |            |            |            |             |             |
| Electromagnetic compatibility:                  | EMV 2014/30/EU, EN 61000-6-2:2005, EN 61000-6-3:2007  |                                     |            |            |            |             |             |
| Cable output thread size:                       | For DIN EN 175301: PG9 (outside diameter of cable 6 to 9 mm)  |                                     |            |            |            |             |             |
| Weight:   | approx. 80 g (DIN EN 175301 approx. 110 g)  |                                     |            |            |            |             |             |

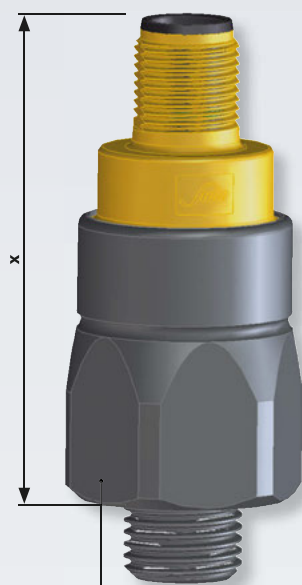
<sup>1)</sup> Static pressure, dynamic pressure 30 to 50 % lower. Values refer to the hydraulic or pneumatic part of the electronic pressure switch.

<sup>2)</sup> Within the compensated temperature range.

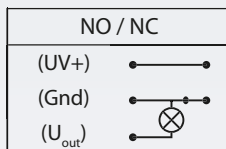
<sup>3)</sup> FKM sealings are only suitable for pressure ranges up to 0-16 bar.

# E.2

hex 24  
Performance  
adjustable by user



hex 24



# 0510 / 0511

Electrical connectors and threads

**DIN EN 175301-803-A**

| Pin | Assignment       |
|-----|------------------|
| 1   | U <sub>V+</sub>  |
| 2   | Gnd              |
| 3   | U <sub>out</sub> |
| PE  |                  |

IP65

x ~ 60 mm without socket device  
x ~ 77 mm with socket device

**Connection code: 013**

**M12-DINEN61076-2-101 A**

| Pin | Assignment       |
|-----|------------------|
| 1   | U <sub>V+</sub>  |
| 2   | nc               |
| 3   | Gnd              |
| 4   | U <sub>out</sub> |

IP67

x ~ 54 mm

**Connection code: 002**

**ISO 15170-A1-4.1**

| Pin | Assignment       |
|-----|------------------|
| 1   | U <sub>V+</sub>  |
| 2   | Gnd              |
| 3   | U <sub>out</sub> |
| 4   | nc               |

IP67, IP6K9K

x ~ 56 mm

**Connection code: 004**

**AMP Superseal 1.5®**

| Pin | Assignment       |
|-----|------------------|
| 1   | U <sub>out</sub> |
| 2   | Gnd              |
| 3   | U <sub>V+</sub>  |

IP67

x ~ 61 mm

**Connection code: 007**

**Deutsch DT04 - 3P**

| Pin | Assignment       |
|-----|------------------|
| A   | U <sub>V+</sub>  |
| B   | Gnd              |
| C   | U <sub>out</sub> |

IP67, IP6K9K

x ~ 61 mm

**Connection code: 010**

Sealing ring

G 1/4 DIN  
EN ISO 1179-2  
(DIN 3852-11)  
form E

**Thread code: 41**

NPT 1/4

**Thread code: 09**

# 0510 / 0511

## Article matrix for electronic pressure switches

E.2

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|  | Type | Adjustment range | Pressure connection | Seal material | Electrical connection |
|--|------|------------------|---------------------|---------------|-----------------------|
|--|------|------------------|---------------------|---------------|-----------------------|

Type ↓ Adjustment range ↓ Pressure connection ↓ Seal material ↓ Electrical connection ↓

|   |             |
|---|-------------|
| Normally open (NO), PNP, switching points programmed at factory <sup>1)</sup>   | <b>0510</b> |
| Normally closed (NC), PNP, switching points programmed at factory <sup>1)</sup> | <b>0511</b> |

| Max. overpressure <sup>2)</sup> | Burst pressure | Adjustment range                |            |
|---------------------------------|----------------|---------------------------------|------------|
| 4 bar                           | 8 bar          | 0 - 2 bar (approx. 29 PSI)      | <b>200</b> |
| 10 bar                          | 20 bar         | 0 - 4 bar (approx. 58 PSI)      | <b>400</b> |
| 20 bar                          | 35 bar         | 0 - 10 bar (approx. 145 PSI)    | <b>101</b> |
| 40 bar                          | 60 bar         | 0 - 16 bar (approx. 230 PSI)    | <b>161</b> |
| 100 bar                         | 140 bar        | 0 - 40 bar (approx. 580 PSI)    | <b>401</b> |
| 150 bar                         | 300 bar        | 0 - 100 bar (approx. 1,450 PSI) | <b>102</b> |
| 375 bar                         | 500 bar        | 0 - 250 bar (approx. 3,625 PSI) | <b>252</b> |

### Pressure connection

|   |           |
|---|-----------|
| G 1/4 – DIN EN ISO 1179-2 (DIN 3852-11), form E | <b>41</b> |
| NPT 1/4   | <b>09</b> |

### Seal material – Application areas

|                         |  |          |
|-------------------------|--|----------|
| <b>NBR</b>              | Hydraulic/machine oil, air, nitrogen, etc.                     | <b>1</b> |
| <b>EPDM</b>             | Break fluid, ozone, acetylene, hydrogen, oxygen, etc.          | <b>2</b> |
| <b>FKM<sup>3)</sup></b> | Hydraulic fluids (HFA, HFB, HFD), petrol/gasoline, etc.        | <b>3</b> |
| <b>TPE</b>              | Hydraulic / machine oil, air, nitrogen, water, acetylene, etc. | <b>7</b> |

### Electrical connection

|   |            |
|---|------------|
| DIN EN 175301-803-A (DIN 43650-A); socket device included | <b>013</b> |
| M12x1 - DIN EN 61076-2-101-A                              | <b>002</b> |
| Bayonet ISO 15170-A1-4.1 (DIN 72585-A1-4.1)               | <b>004</b> |
| AMP Superseal 1.5   | <b>007</b> |
| Deutsch DT04-3P   | <b>010</b> |

|                       |             |            |           |          |            |
|-----------------------|-------------|------------|-----------|----------|------------|
| <b>Article number</b> | <b>051X</b> | <b>XXX</b> | <b>XX</b> | <b>X</b> | <b>XXX</b> |
|-----------------------|-------------|------------|-----------|----------|------------|

<sup>1)</sup> Switching points and hysteresis can also be adjusted at factory.

<sup>2)</sup> Static pressure, dynamic pressure 30 to 50 % lower. Values refer to the hydraulic or pneumatic part of the electronic pressure switch.

<sup>3)</sup> FKM sealings are only suitable for pressure ranges up to 0-16 bar.

