

# PV7001



## Pressure switch with IO-Link

PV-250-SEG14-UFRVG/US/ I



1 Sealing



### Application

|                              |                             |
|------------------------------|-----------------------------|
| Measuring element            | metallic thin film cell     |
| Application                  | for industrial applications |
| Media                        | liquids and gases           |
| Medium temperature [°C]      | -40...90                    |
| Pressure rating [bar]        | 625                         |
| Note on pressure rating      | static                      |
| Min. bursting pressure [bar] | 1200                        |
| Vacuum resistance [mbar]     | -1000                       |
| Type of pressure             | relative pressure           |

### Electrical data

|                                 |                 |
|---------------------------------|-----------------|
| Operating voltage [V]           | 18...30 DC      |
| Current consumption [mA]        | < 15            |
| Min. insulation resistance [MΩ] | 100; (500 V DC) |
| Protection class                | III             |
| Reverse polarity protection     | yes             |
| Power-on delay time [s]         | < 0.3           |

### Inputs / outputs

|                              |                              |
|------------------------------|------------------------------|
| Number of inputs and outputs | Number of digital outputs: 2 |
|------------------------------|------------------------------|



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| Outputs                                         |                        |                                                                                                                       |                 |
|-------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------|-----------------|
| Total number of outputs                         |                        | 2                                                                                                                     |                 |
| Output signal                                   |                        | switching signal; IO-Link; (configurable)                                                                             |                 |
| Electrical design                               |                        | PNP/NPN                                                                                                               |                 |
| Number of digital outputs                       |                        | 2                                                                                                                     |                 |
| Output function                                 |                        | normally open / normally closed; (parameterisable)                                                                    |                 |
| Max. voltage drop switching output DC           | [V]                    | 2                                                                                                                     |                 |
| Permanent current rating of switching output DC | [mA]                   | 100                                                                                                                   |                 |
| Switching frequency DC                          | [Hz]                   | < 170                                                                                                                 |                 |
| Short-circuit protection                        |                        | yes                                                                                                                   |                 |
| Type of short-circuit protection                |                        | pulsed                                                                                                                |                 |
| Overload protection                             |                        | yes                                                                                                                   |                 |
| Measuring/setting range                         |                        |                                                                                                                       |                 |
| Measuring range                                 | [bar]                  | 0...250                                                                                                               |                 |
| Set point SP                                    | [bar]                  | 2.5...250                                                                                                             |                 |
| Reset point rP                                  | [bar]                  | 1.3...248.8                                                                                                           |                 |
| In steps of                                     | [bar]                  | 0.1                                                                                                                   |                 |
| Factory setting                                 |                        | SP1 = 62.5 bar                                                                                                        | rP1 = 57.5 bar  |
|                                                 |                        | SP2 = 187.5 bar                                                                                                       | rP2 = 182.5 bar |
|                                                 |                        | dS1/dS2 = 0 ms                                                                                                        | dr1/dr2 = 0 ms  |
|                                                 |                        | coF = 0 %                                                                                                             | P-n = PnP       |
|                                                 |                        | ou1 = Hno;                                                                                                            | ou2 = Hno;      |
|                                                 |                        |                                                                                                                       | dAP= 60 ms      |
| Accuracy / deviations                           |                        |                                                                                                                       |                 |
| Switch point accuracy                           | [% of the span]        | < ± 0,5 (nach DIN EN 61298-2)                                                                                         |                 |
| Repeatability                                   | [% of the span]        | < ± 0,05; (with temperature fluctuations < 10 K)                                                                      |                 |
| Characteristics deviation                       | [% of the span]        | < ± 0,5 (nach DIN EN 61298-2); (incl. drift when overtightened, zero point and span error, non-linearity, hysteresis) |                 |
| Linearity deviation                             | [% of the span]        | < ± 0,1 (BFSL) / < ± 0,2 (LS)                                                                                         |                 |
| Hysteresis deviation                            | [% of the span]        | < ± 0,2                                                                                                               |                 |
| Long-term stability                             | [% of the span]        | < ± 0,1; (per 6 months)                                                                                               |                 |
| Temperature coefficient zero point              | [% of the span / 10 K] | < 0,1 (-25...90 °C) / < 0,2 (-40...-25 °C)                                                                            |                 |
| Temperature coefficient span                    | [% of the span / 10 K] | < 0,1 (-25...90 °C) / < 0,2 (-40...-25 °C)                                                                            |                 |
| Response times                                  |                        |                                                                                                                       |                 |
| Response time                                   | [ms]                   | < 3                                                                                                                   |                 |
| Software / programming                          |                        |                                                                                                                       |                 |
| Parameter setting options                       |                        | hysteresis / window; normally open / normally closed; switching logic; switch-on/switch-off delay; Damping            |                 |

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| Interfaces                |                                                                              |   |
|---------------------------|------------------------------------------------------------------------------|---|
| Communication interface   | IO-Link                                                                      |   |
| Transmission type         | COM2 (38,4 kBaud)                                                            |   |
| IO-Link revision          | 1.1                                                                          |   |
| SDCI standard             | IEC 61131-9                                                                  |   |
| IO-Link device ID         | 709 d / 00 02 C5 h                                                           |   |
| Profiles                  | Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis |   |
| SIO mode                  | yes                                                                          |   |
| Required master port type | A                                                                            |   |
| Process data analogue     | 2                                                                            |   |
| Process data binary       | 2                                                                            |   |
| Min. process cycle time   | [ms]                                                                         | 5 |

| Operating conditions |               |           |
|----------------------|---------------|-----------|
| Ambient temperature  | [°C]          | -40...90  |
| Storage temperature  | [°C]          | -40...100 |
| Protection           | IP 67; IP 69K |           |

| Tests / approvals            |                                                                                       |                     |
|------------------------------|---------------------------------------------------------------------------------------|---------------------|
| EMC                          | DIN EN 61326-1                                                                        |                     |
| Shock resistance             | DIN EN 60068-2-27                                                                     | 500 g (1 ms)        |
| Vibration resistance         | DIN EN 60068-2-6                                                                      | 20 g (10...2000 Hz) |
| MTTF                         | [years]                                                                               | 667.77              |
| Pressure Equipment Directive | Sound Engineering Practice; can be used for group 2 fluids; group 1 fluids on request |                     |

| Mechanical data               |                                                                                  |                                                                                            |
|-------------------------------|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Weight                        | [g]                                                                              | 60.4                                                                                       |
| Materials                     | 1.4542 (17-4 PH / 630); stainless steel (1.4404 / 316L); PEI                     |                                                                                            |
| Materials (wetted parts)      | stainless steel (1.4305 / 303); 1.4542 (17-4 PH / 630)                           |                                                                                            |
| Min. pressure cycles          | 60 million; (at 1.2 times nominal pressure)                                      |                                                                                            |
| Tightening torque             | [Nm]                                                                             | 25...35; (recommended tightening torque; depends on lubrication, seal and pressure rating) |
| Process connection            | threaded connection G 1/4 external thread (DIN EN ISO 1179-2); internal threadM5 |                                                                                            |
| Process connection sealing    | FKM (to DIN 3869)                                                                |                                                                                            |
| Restrictor element integrated | yes                                                                              |                                                                                            |

| Remarks       |                                                           |  |
|---------------|-----------------------------------------------------------|--|
| Remarks       | BFSL = Best Fit Straight Line<br>LS = limit value setting |  |
| Pack quantity | 1 pcs.                                                    |  |

### Electrical connection

Connector: 1 x M12



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### Connection



|      |                                                                   |
|------|-------------------------------------------------------------------|
| OUT1 | switching output<br>IO-Link                                       |
| OUT2 | switching output<br>colours to DIN EN 60947-5-2<br>Core colours : |
| BK = | black                                                             |
| BN = | brown                                                             |
| BU = | blue                                                              |
| WH = | white                                                             |