

# PV7700



## Pressure switch with IO-Link

PV-400MSER14-UFRVG/US/ /



### Product characteristics

|                              |                                                              |
|------------------------------|--------------------------------------------------------------|
| Number of inputs and outputs | Number of digital outputs: 2                                 |
| Measuring range [MPa]        | 0...40                                                       |
| Process connection           | threaded connection R 1/4 external thread internal thread:M5 |

### Application

|                              |                             |
|------------------------------|-----------------------------|
| Measuring element            | metallic thin film cell     |
| Application                  | for industrial applications |
| Media                        | liquids and gases           |
| Medium temperature [°C]      | -40...90                    |
| Min. bursting pressure [MPa] | 170                         |
| Pressure rating [MPa]        | 100                         |
| Note on pressure rating      | static                      |
| 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 |
|------------------------------|------------------------------|

### Outputs

|                           |                                           |
|---------------------------|-------------------------------------------|
| Total number of outputs   | 2                                         |
| Output signal             | switching signal; IO-Link; (configurable) |
| Electrical design         | PNP/NPN                                   |
| Number of digital outputs | 2                                         |



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|                                                      |                                                    |  |  |
|------------------------------------------------------|----------------------------------------------------|--|--|
| 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 [MPa]   | 0...40         |                |            |
| Set point SP [MPa]      | 0.4...40       |                |            |
| Reset point rP [MPa]    | 0.2...39.8     |                |            |
| In steps of [MPa]       | 0.02           |                |            |
| Factory setting         | SP1 = 10 MPa   | rP1 = 9.2 MPa  | ou1 = Hno; |
|                         | SP2 = 30 MPa   | rP2 = 29.2 MPa | ou2 = Hno; |
|                         | dS1/dS2 = 0 ms | dr1/dr2 = 0 ms |            |
|                         | coF = 0 %      | P-n = PnP      | dAP= 60 ms |

| Accuracy / deviations                    |                                                                                                    |
|------------------------------------------|----------------------------------------------------------------------------------------------------|
| Switch point accuracy [X21]              | < ± 0,5 (nach DIN EN 61298-2)                                                                      |
| Repeatability [X21]                      | < ± 0,05; (with temperature fluctuations < 10 K)                                                   |
| Characteristics deviation [X21]          | < ± 0,5; (linearity incl. hysteresis and repeatability, limit value setting to DIN EN IEC 62828-1) |
| Linearity deviation [X21]                | < ± 0,1 (BFSL) / < ± 0,2 (LS)                                                                      |
| Hysteresis deviation [X21]               | < ± 0,2                                                                                            |
| Long-term stability [X21]                | < ± 0,1; (per 6 months)                                                                            |
| Temperature coefficient zero point [X22] | < 0,1 (-25...90 °C) / < 0,2 (-40...-25 °C)                                                         |
| Temperature coefficient span [X22]       | < 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 |

| Interfaces                   |                                                                              |
|------------------------------|------------------------------------------------------------------------------|
| Communication interface      | IO-Link                                                                      |
| Transmission type            | COM2 (38,4 kBaud)                                                            |
| IO-Link revision             | 1.1                                                                          |
| SDCI standard                | IEC 61131-9                                                                  |
| 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                                                                            |

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| Supported DeviceIDs | Type of operation | DeviceID |
|---------------------|-------------------|----------|
|                     | default           | 780      |

| 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                         | [ANN]                                                                                 | 667.77              |
| UL approval                  | UL Approval no.                                                                       | J016                |
| Pressure Equipment Directive | Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request |                     |

| Mechanical data               |                                                              |                                                                                       |
|-------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Weight                        | [g]                                                          | 63.5                                                                                  |
| 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]                                                         | 50; (recommended tightening torque; depends on lubrication, seal and pressure rating) |
| Process connection            | threaded connection R 1/4 external thread internal thread:M5 |                                                                                       |
| Restrictor element integrated | yes                                                          |                                                                                       |

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

### Electrical connection

Connector: 1 x M12; coding: A



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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                                                             |