



Pressure switch with IO-Link

PV-010-REG14-UFRVG/US /



| Product characteristics         |                                                                                   |                 |              |
|---------------------------------|-----------------------------------------------------------------------------------|-----------------|--------------|
| Number of inputs and outputs    | Number of digital outputs: 2                                                      |                 |              |
| Measuring range                 | -1...10 bar                                                                       | -14.5...145 psi | -0.1...1 MPa |
| Process connection              | threaded connection G 1/4 external thread (DIN EN ISO 1179-2); 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          | 300 bar                                                                           | 4350 psi        | 30 MPa       |
| Pressure rating                 | 25 bar                                                                            | 360 psi         | 2.5 MPa      |
| 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                                                                           |                 |              |



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|                                                      |                                                    |
|------------------------------------------------------|----------------------------------------------------|
| 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]                          | < 130                                              |
| Short-circuit protection                             | yes                                                |
| Type of short-circuit protection                     | pulsed                                             |
| Overload protection                                  | yes                                                |

| Measuring/setting range |                    |                   |                      |
|-------------------------|--------------------|-------------------|----------------------|
| Measuring range         | -1...10 bar        | -14.5...145 psi   | -0.1...1 MPa         |
| Set point SP            | -0.9...10 bar      | -13.1...145 psi   | -0.09...1 MPa        |
| Reset point rP          | -0.949...9.951 bar | -13.8...144.3 psi | -0.0949...0.9951 MPa |
| In steps of             | 0.001 bar          | 0.1 psi           | 0.0001 MPa           |
| Factory setting         | SP1 = 2.5 bar      | rP1 = 2.3 bar     | ou1 = Hno;           |
|                         | SP2 = 7.5 bar      | rP2 = 7.3 bar     | ou2 = Hno;           |
|                         | dS1/dS2 = 0 ms     | dr1/dr2 = 0 ms    |                      |
|                         | coF = 0 %          | P-n = PnP         | dAP= 60 ms           |

| Temperature monitoring |             |                |
|------------------------|-------------|----------------|
| Measuring range        | -40...90 °C | -40...194 °F   |
| Set point SP           | -38...90 °C | -36.4...194 °F |
| Reset point rP         | -40...88 °C | -40...19.4 °F  |
| In steps of            | 0.1 °C      | 0.1 °F         |

| 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; (linearity incl. hysteresis and repeatability, limit value setting to DIN EN IEC 62828-1) |
| 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)                                                         |

| Temperature monitoring            |                                                            |
|-----------------------------------|------------------------------------------------------------|
| Accuracy [K]                      | ± 2 K + (0.1 x (ambient temperature - medium temperature)) |
| Notes on the accuracy / deviation | temperature range -10 to 80 °C                             |

| Response times     |     |
|--------------------|-----|
| Response time [ms] | < 3 |



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|                                 |                                                                                                                                                    |                                                 |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| Temperature monitoring          |                                                                                                                                                    |                                                 |
| Dynamic response T05 / T09      | [s]                                                                                                                                                | < 80 / < 210 ( under ifm reference conditions ) |
| 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                        | Identification and Diagnosis (0x4000), Measurement Data Channel (0x800A)                                                                           |                                                 |
| SIO mode                        | yes                                                                                                                                                |                                                 |
| Required master port type       | A                                                                                                                                                  |                                                 |
| Process data analogue           | 5                                                                                                                                                  |                                                 |
| Process data binary             | 2                                                                                                                                                  |                                                 |
| Min. process cycle time         | [ms]                                                                                                                                               | 4.5                                             |
| IO-Link resolution pressure     | [bar]                                                                                                                                              | 0.005                                           |
| IO-Link resolution pressure     | [MPa]                                                                                                                                              | 0.0005                                          |
| IO-Link resolution temperature  | [K]                                                                                                                                                | 0.2                                             |
| IO-Link process data (cyclical) | function                                                                                                                                           | bit length                                      |
|                                 | pressure                                                                                                                                           | 16                                              |
|                                 | temperature                                                                                                                                        | 16                                              |
|                                 | device status                                                                                                                                      | 4                                               |
|                                 | binary switching information                                                                                                                       | 2                                               |
| IO-Link functions (acyclical)   | application specific tag; internal temperature; operating hours counter; switching cycles counter; Pressure peak counter; Temperature peak counter |                                                 |
| Supported DeviceIDs             | Type of operation                                                                                                                                  | DeviceID                                        |
|                                 | default                                                                                                                                            | 1210                                            |
| 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]                                                                                                                                            | 668                                             |
| UL approval                     | UL Approval no.                                                                                                                                    | J037                                            |
|                                 | File number UL                                                                                                                                     | E174189                                         |
| Pressure Equipment Directive    | Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request                                                              |                                                 |
| Mechanical data                 |                                                                                                                                                    |                                                 |
| Weight                          | [g]                                                                                                                                                | 53.5                                            |
| Materials                       | stainless steel (630/1.4542/17-4 PH); stainless steel (316L/1.4404); PEI                                                                           |                                                 |
| Materials (wetted parts)        | stainless steel (303/1.4305); stainless steel (630/1.4542/17-4 PH)                                                                                 |                                                 |

PV8004



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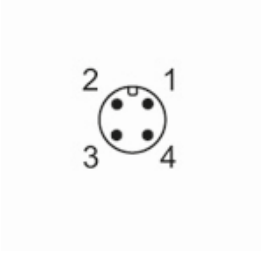
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|                               |                                                                                            |
|-------------------------------|--------------------------------------------------------------------------------------------|
| 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 thread:M5          |
| Process connection sealing    | FKM (DIN EN ISO 1179-2)                                                                    |
| Restrictor element integrated | yes                                                                                        |

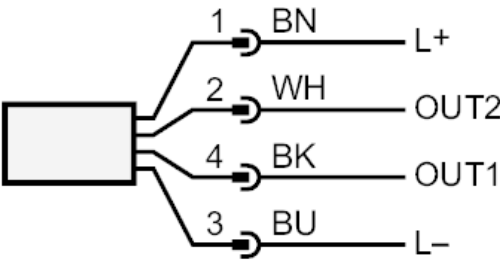
| Remarks       |                                                           |
|---------------|-----------------------------------------------------------|
| Remarks       | BFSL = Best Fit Straight Line<br>LS = limit value setting |
| Pack quantity | 1 pcs.                                          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

Electrical connection

Connector: 1 x M12; coding: A



Connection



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