



Pressure switch with IO-Link

PV-060-REG14-UFRVG/US /



1      Sealing



Product characteristics

|                              |                                                                                   |             |           |
|------------------------------|-----------------------------------------------------------------------------------|-------------|-----------|
| Number of inputs and outputs | Number of digital outputs: 2                                                      |             |           |
| Measuring range              | 0...60 bar                                                                        | 0...870 psi | 0...6 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   | 900 bar                     | 13050 psi | 90 MPa |
| Pressure rating          | 150 bar                     | 2175 psi  | 15 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         | 0...60 bar       | 0...870 psi    | 0...6 MPa         |
| Set point SP            | 0.6...60 bar     | 9...870 psi    | 0...6 MPa         |
| Reset point rP          | 0.31...59.71 bar | 4...866 psi    | 0.031...5.971 MPa |
| In steps of             | 0.01 bar         | 1 psi          | 0.001 MPa         |
| Factory setting         | SP1 = 15 bar     | rP1 = 13.8 bar | ou1 = Hno;        |
|                         | SP2 = 45 bar     | rP2 = 43.8 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...190.4 °F |
| In steps of            | 0.1 °C      | 0.1 °F         |

| 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)                                                         |

| 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 |

| 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 |



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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                                                                                                                                        |                     |
| 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]  | 0.02                                                                                                                                               |                     |
| IO-Link resolution pressure [MPa]  | 0.002                                                                                                                                              |                     |
| 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                                                                                                                                            | 1215                |
| 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]                         | 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]                         | 56.1                                                                                                                                               |                     |
| 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 thread:M5                                                                  |                     |
| Process connection sealing         | FKM (DIN EN ISO 1179-2)                                                                                                                            |                     |
| Restrictor element integrated      | yes                                                                                                                                                |                     |

PV8023



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Remarks

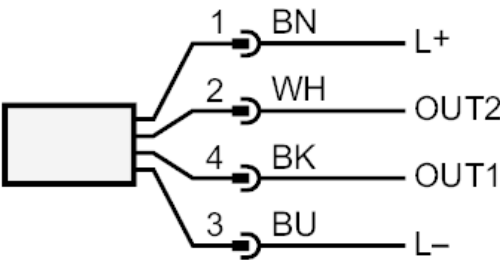
|               |                               |
|---------------|-------------------------------|
| Remarks       | BFSL = Best Fit Straight Line |
|               | LS = limit value setting      |
| Pack quantity | 1 pcs.                        |

Electrical connection

Connector: 1 x M12; coding: A



Connection



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