

PM1607



Electronic pressure sensor

PM-001BREA01-E-ZVG/US



- 1 groove with sealing ring (DIN EN ISO 1179-2)  
2 G1 sealing cone external thread



Product characteristics

|                              |                                                             |                 |                  |              |
|------------------------------|-------------------------------------------------------------|-----------------|------------------|--------------|
| Number of inputs and outputs | Number of digital outputs: 1; Number of analogue outputs: 1 |                 |                  |              |
| Measuring range              | -0.05...1 bar                                               | -50...1000 mbar | -0.73...14.5 psi | -5...100 kPa |
| Process connection           | threaded connection G 1 external thread sealing cone        |                 |                  |              |

Application

|                                                |                                                                       |         |          |
|------------------------------------------------|-----------------------------------------------------------------------|---------|----------|
| Special feature                                | Gold-plated contacts                                                  |         |          |
| Measuring element                              | ceramic-capacitive pressure measuring cell                            |         |          |
| Temperature monitoring                         | no                                                                    |         |          |
| Application                                    | flush mountable for the food and beverage industry                    |         |          |
| Media                                          | viscous media and liquids with suspended particles; liquids and gases |         |          |
| Medium temperature [°C]                        | -25...150                                                             |         |          |
| Min. bursting pressure                         | 30000 mbar                                                            | 435 psi | 3000 kPa |
| Pressure rating                                | 10000 mbar                                                            | 145 psi | 1000 kPa |
| Vacuum resistance [mbar]                       | -1000                                                                 |         |          |
| Type of pressure                               | relative pressure                                                     |         |          |
| No dead space                                  | yes                                                                   |         |          |
| MAWP (for applications according to CRN) [bar] | 10                                                                    |         |          |

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| Electrical data              |                 |                                                                                                    |                  |                                  |
|------------------------------|-----------------|----------------------------------------------------------------------------------------------------|------------------|----------------------------------|
| Operating voltage            | [V]             | 18...30 DC                                                                                         |                  |                                  |
| Min. insulation resistance   | [MΩ]            | 100; (500 V DC)                                                                                    |                  |                                  |
| Protection class             |                 | III                                                                                                |                  |                                  |
| Reverse polarity protection  |                 | yes                                                                                                |                  |                                  |
| Measuring principle          |                 | hydrostatic                                                                                        |                  |                                  |
| Integrated watchdog          |                 | yes                                                                                                |                  |                                  |
| 2-wire                       |                 |                                                                                                    |                  |                                  |
| Current consumption          | [mA]            | 3.5...21.5                                                                                         |                  |                                  |
| Power-on delay time          | [s]             | 1                                                                                                  |                  |                                  |
| 3-wire                       |                 |                                                                                                    |                  |                                  |
| Current consumption          | [mA]            | < 45                                                                                               |                  |                                  |
| Power-on delay time          | [s]             | 0.5                                                                                                |                  |                                  |
| Inputs / outputs             |                 |                                                                                                    |                  |                                  |
| Number of inputs and outputs |                 | Number of digital outputs: 1; Number of analogue outputs: 1                                        |                  |                                  |
| Outputs                      |                 |                                                                                                    |                  |                                  |
| Total number of outputs      |                 | 2                                                                                                  |                  |                                  |
| Output signal                |                 | analogue signal; IO-Link; (configurable)                                                           |                  |                                  |
| Number of digital outputs    |                 | 1; (IO-Link)                                                                                       |                  |                                  |
| Number of analogue outputs   |                 | 1                                                                                                  |                  |                                  |
| Analogue current output      | [mA]            | 4...20; (scalable)                                                                                 |                  |                                  |
| Max. load                    | [Ω]             | 700; (Ub = 24 V; (Ub - 9 V) / 21.5 mA)                                                             |                  |                                  |
| Short-circuit proof          |                 | yes                                                                                                |                  |                                  |
| Overload protection          |                 | yes                                                                                                |                  |                                  |
| Measuring/setting range      |                 |                                                                                                    |                  |                                  |
| Measuring range              |                 | -0.05...1 bar                                                                                      | -50...1000 mbar  | -0.73...14.5 psi    -5...100 kPa |
| Analogue start point         |                 | -50...800 mbar                                                                                     | -0.73...11.6 psi | -5...80 kPa                      |
| Analogue end point           |                 | 150...1000 mbar                                                                                    | 2.18...14.5 psi  | 15...100 kPa                     |
| In steps of                  |                 | 0.5 mbar                                                                                           | 0.01 psi         | 0.05 kPa                         |
| Factory setting              |                 | ASP = 0.0 bar                                                                                      | AEP = 1000 mbar  |                                  |
| Accuracy / deviations        |                 |                                                                                                    |                  |                                  |
| Repeatability                | [% of the span] | < ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1)                                     |                  |                                  |
| Characteristics deviation    | [% of the span] | < ± 0,2; (linearity incl. hysteresis and repeatability, limit value setting to DIN EN IEC 62828-1) |                  |                                  |
| Linearity deviation          | [% of the span] | < ± 0,15; (Turn down 1:1)                                                                          |                  |                                  |
| Hysteresis deviation         | [% of the span] | < ± 0,15; (Turn down 1:1)                                                                          |                  |                                  |
| Long-term stability          | [% of the span] | < ± 0,1; (Turn down 1:1; per year)                                                                 |                  |                                  |

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|                                        |                                                     |                                                           |
|----------------------------------------|-----------------------------------------------------|-----------------------------------------------------------|
| Total deviation over temperature range | <b>Temperature range</b>                            | <b>total deviation</b>                                    |
|                                        | -25...15 °C                                         | Characteristics deviation $\pm 0,05$ % of the span / 10 K |
|                                        | 15...80 °C                                          | Characteristics deviation                                 |
|                                        | 80...150 °C                                         | Characteristics deviation $\pm 0,1$ % of the span / 10 K  |
| Notes on the accuracy / deviation      | for further details see section Diagrams and graphs |                                                           |

| Response times                      |      |       |
|-------------------------------------|------|-------|
| Damping for the analogue output dAA | [s]  | 0...4 |
| 2-wire                              |      |       |
| Step response time analogue output  | [ms] | 30    |
| 3-wire                              |      |       |
| Step response time analogue output  | [ms] | 7     |

| Interfaces                      |                                                                          |                   |
|---------------------------------|--------------------------------------------------------------------------|-------------------|
| Communication interface         | IO-Link                                                                  |                   |
| Transmission type               | COM2 (38,4 kBaud)                                                        |                   |
| IO-Link revision                | 1.1                                                                      |                   |
| SDCI standard                   | IEC 61131-9                                                              |                   |
| Profiles                        | Digital Measuring Sensor (0x000A), Identification and Diagnosis (0x4000) |                   |
| SIO mode                        | no                                                                       |                   |
| Required master port type       | A                                                                        |                   |
| Process data analogue           | 3                                                                        |                   |
| Min. process cycle time         | [ms]                                                                     | 3.2               |
| IO-Link resolution pressure     | [mbar]                                                                   | 0.2               |
| IO-Link process data (cyclical) | <b>function</b>                                                          | <b>bit length</b> |
|                                 | pressure                                                                 | 16                |
|                                 | device status                                                            | 4                 |
| IO-Link functions (acyclical)   | application specific tag; internal temperature                           |                   |
| Supported DeviceIDs             | <b>Type of operation</b>                                                 | <b>DeviceID</b>   |
|                                 | default                                                                  | 668               |

| Operating conditions |                      |           |
|----------------------|----------------------|-----------|
| Ambient temperature  | [°C]                 | -25...80  |
| Storage temperature  | [°C]                 | -40...100 |
| Protection           | IP 67; IP 68; IP 69K |           |

| Tests / approvals    |                                                                                                                           |                     |
|----------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------|
| EMC                  | DIN EN 61000-6-2                                                                                                          |                     |
|                      | DIN EN 61000-6-3                                                                                                          |                     |
| Shock resistance     | DIN EN 60068-2-27                                                                                                         | 50 g (11 ms)        |
| Vibration resistance | DIN EN 60068-2-6                                                                                                          | 20 g (10...2000 Hz) |
| MTTF                 | [years]                                                                                                                   | 323                 |
| Note on approval     | factory certificate available as download at <a href="http://www.factory-certificate.ifm">www.factory-certificate.ifm</a> |                     |
| UL approval          | UL Approval no.                                                                                                           | J022                |

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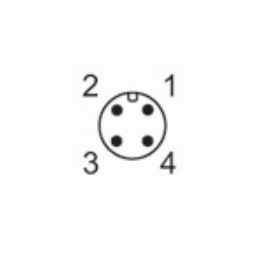
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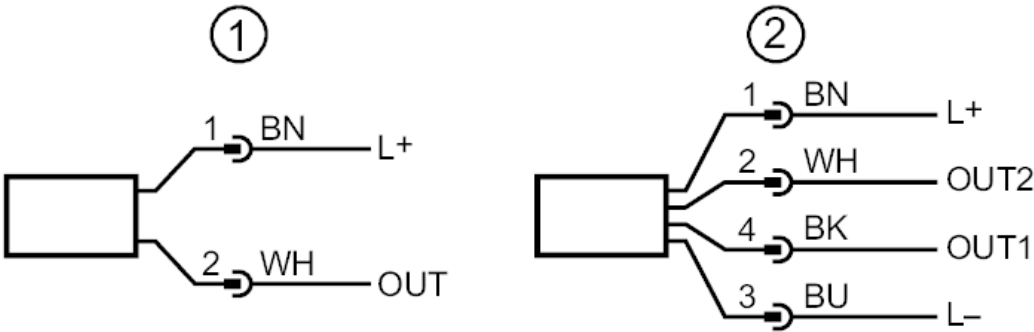
| Mechanical data          |      |                                                                                                           |
|--------------------------|------|-----------------------------------------------------------------------------------------------------------|
| Weight                   | [g]  | 339.45                                                                                                    |
| Materials                |      | stainless steel (316L/1.4404); PBT                                                                        |
| Materials (wetted parts) |      | ceramics (99.9 % Al2O3); stainless steel (316L/1.4435);<br>surface characteristics: Ra < 0,4 / Rz 4; PTFE |
| Min. pressure cycles     |      | 100 million                                                                                               |
| Tightening torque        | [Nm] | 20                                                                                                        |
| Process connection       |      | threaded connection G 1 external thread sealing cone                                                      |
| Remarks                  |      |                                                                                                           |
| Pack quantity            |      | 1 pcs.                                                                                                    |

Electrical connection

Connector: 1 x M12; coding: A; Contacts: gold-plated



Connection



- 1
- connection for 2-wire operation ( analogue )
- 2
- connection for 3-wire operation ( analogue / IO-Link )  
OUT1 : IO-Link  
OUT2 : analogue output



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### Diagrams and graphs

ambient temperature influence on the accuracy



X temperature  
Y total deviation