

# PI2602

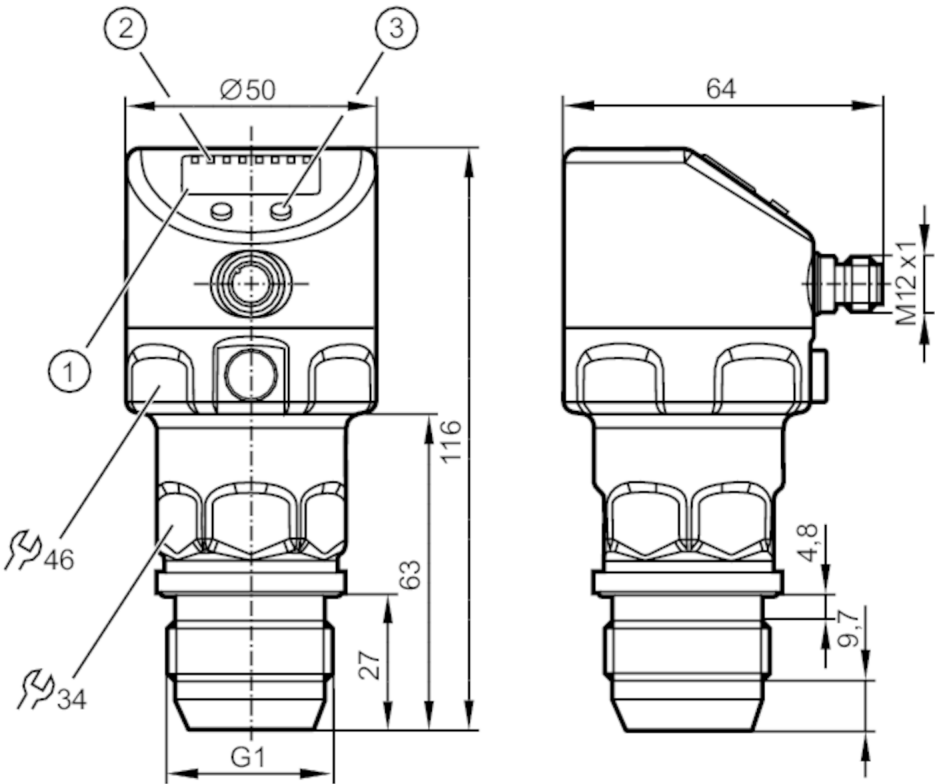


## Flush pressure sensor with display

PI-100-REA01-MFRKG/US/ I/P

Alternative articles: PI1602

When selecting an alternative article and accessories please note that technical data may differ!



- 1 alphanumeric display 4-digit
- 2 status LEDs
- 3 Programming button
- 4 G 1 sealing cone external thread



### Product characteristics

|                              |                                                              |                |               |
|------------------------------|--------------------------------------------------------------|----------------|---------------|
| Number of inputs and outputs | Number of digital outputs: 2; Number of analog outputs: 1    |                |               |
| Measuring range              | -1...100 bar                                                 | -15...1450 psi | -0.1...10 MPa |
| Process connection           | threaded connection G 1 external thread sealing cone - 27 mm |                |               |

### Application

|                            |                                                                       |          |        |
|----------------------------|-----------------------------------------------------------------------|----------|--------|
| Special feature            | gold-plated contacts                                                  |          |        |
| Application                | flush mountable for the food and beverage industry                    |          |        |
| Media                      | viscous media and liquids with suspended particles; liquids and gases |          |        |
| Conditionally suitable for | use in gases at pressures > 25 bar only on request                    |          |        |
| Medium temperature [°C]    | -25...125; (145 max. 1h)                                              |          |        |
| Min. burst pressure        | 650 bar                                                               | 9425 psi | 65 MPa |
| Pressure rating            | 200 bar                                                               | 2900 psi | 20 MPa |
| Vacuum resistance          | -1000 mbar                                                            | -0.1 MPa |        |
| Type of pressure           | relative pressure; vacuum                                             |          |        |
| No dead space              | yes                                                                   |          |        |



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| Electrical data                                 |                |                                                           |                 |
|-------------------------------------------------|----------------|-----------------------------------------------------------|-----------------|
| Min. insulation resistance                      | [MΩ]           | 100; (500 V DC)                                           |                 |
| Protection class                                |                | III                                                       |                 |
| Reverse polarity protection                     |                | yes                                                       |                 |
| Integrated watchdog                             |                | yes                                                       |                 |
| 2-wire                                          |                |                                                           |                 |
| Operating voltage                               | [V]            | 20...32 DC                                                |                 |
| Current consumption                             | [mA]           | 3.6...21                                                  |                 |
| Power-on delay time                             | [s]            | 1                                                         |                 |
| 3-wire                                          |                |                                                           |                 |
| Operating voltage                               | [V]            | 18...32 DC                                                |                 |
| Current consumption                             | [mA]           | < 45                                                      |                 |
| Power-on delay time                             | [s]            | 0.5                                                       |                 |
| Inputs / outputs                                |                |                                                           |                 |
| Number of inputs and outputs                    |                | Number of digital outputs: 2; Number of analog outputs: 1 |                 |
| Outputs                                         |                |                                                           |                 |
| Total number of outputs                         |                | 2                                                         |                 |
| Output signal                                   |                | switching signal; analog signal; IO-Link; (configurable)  |                 |
| Electrical design                               |                | PNP/NPN                                                   |                 |
| Number of digital outputs                       |                | 2                                                         |                 |
| Output function                                 |                | normally open / closed; (configurable)                    |                 |
| Number of analog outputs                        |                | 1                                                         |                 |
| Analog current output                           | [mA]           | 4...20, invertible; (scalable)                            |                 |
| Short-circuit protection                        |                | yes                                                       |                 |
| Type of short-circuit protection                |                | yes (non-latching)                                        |                 |
| Overload protection                             |                | yes                                                       |                 |
| 2-wire                                          |                |                                                           |                 |
| Max. load                                       | [Ω]            | 300                                                       |                 |
| 3-wire                                          |                |                                                           |                 |
| Max. voltage drop switching output DC           | [V]            | 2                                                         |                 |
| Permanent current rating of switching output DC | [mA]           | 250                                                       |                 |
| Switching frequency DC                          | [Hz]           | 125                                                       |                 |
| Max. load                                       | [Ω]            | (Ub - 10 V) / 20 mA                                       |                 |
| Measuring/setting range                         |                |                                                           |                 |
| Measuring range                                 | -1...100 bar   | -15...1450 psi                                            | -0.1...10 MPa   |
| Set point SP                                    | -0.8...100 bar | -12...1450 psi                                            | -0.08...10 MPa  |
| Reset point rP                                  | -1...99.8 bar  | -15...1448 psi                                            | -0.1...9.98 MPa |
| Analog start point                              | -1...75 bar    | -15...1088 psi                                            | -0.1...7.5 MPa  |
| Analog end point                                | 24...100 bar   | 348...1450 psi                                            | 2.4...10 MPa    |
| In steps of                                     | 0.1 bar        | 1 psi                                                     | 0.01 MPa        |



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|                 |                |                 |
|-----------------|----------------|-----------------|
| Factory setting | SP1 = 25.0 bar | rP1 = 23 bar    |
|                 | SP2 = 75.0 bar | rP2 = 73 bar    |
|                 | ASP = 0.0 bar  | AEP = 100.0 bar |
|                 | dAP = 0.06 s   | dAA = 0.03 s    |

### Accuracy / deviations

|                                                              |                                                                                                                    |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Switch point accuracy<br>[% of the span]                     | < ± 0,5; (Turn down 1:1)                                                                                           |
| Repeatability<br>[% of the span]                             | < ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1)                                                     |
| Characteristics deviation<br>[% of the span]                 | < ± 0,5; (Turn down 1:1, linearity, incl. hysteresis and repeatability, limit value setting to DIN EN IEC 62828-1) |
| Linearity deviation<br>[% of the span]                       | < ± 0,15; (Turn down 1:1)                                                                                          |
| Hysteresis deviation<br>[% of the span]                      | < ± 0,15; (Turn down 1:1)                                                                                          |
| Long-term stability<br>[% of the span]                       | < ± 0,1; (Turn down 1:1; per year)                                                                                 |
| Temperature coefficient zero point<br>[% of the span / 10 K] | < ± 0,2; (0...70 °C)                                                                                               |
| Temperature coefficient span<br>[% of the span / 10 K]       | < ± 0,2; (0...70 °C)                                                                                               |

### Reaction times

|                                                   |              |
|---------------------------------------------------|--------------|
| Damping process value dAP [s]                     | 0...30       |
| Damping for the analog output dAA [s]             | 0.01...99.99 |
| 2-wire                                            |              |
| Step response time analog output [ms]             | 45           |
| 3-wire                                            |              |
| Min. response time of switching output (dAP) [ms] | 3            |
| Step response time analog output [ms]             | 7            |

### Interfaces

|                            |                   |          |
|----------------------------|-------------------|----------|
| Communication interface    | IO-Link           |          |
| IO-Link revision           | 1.0               |          |
| SIO mode                   | yes               |          |
| Required master port class | A                 |          |
| Process data analog        | 1                 |          |
| Process data binary        | 2                 |          |
| Supported DeviceIDs        | Type of operation | DeviceID |
|                            | default           | 731      |

### Operating conditions

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

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| Tests / approvals                                                                   |                                                                                                                           |                                                                                                                    |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| EMC                                                                                 | EN 61000-4-2 ESD                                                                                                          | 4 kV CD / 8 kV AD                                                                                                  |
|                                                                                     | EN 61000-4-3 HF radiated                                                                                                  | 10 V/m                                                                                                             |
|                                                                                     | EN 61000-4-4 Burst                                                                                                        | 2 kV                                                                                                               |
|                                                                                     | EN 61000-4-5 Surge                                                                                                        | 0,5/1 kV                                                                                                           |
|                                                                                     | EN 61000-4-6 HF conducted                                                                                                 | 10 V                                                                                                               |
| Shock resistance                                                                    | DIN IEC 68-2-27                                                                                                           | 50 g (11 ms)                                                                                                       |
| Vibration resistance                                                                | DIN IEC 68-2-6                                                                                                            | 20 g (10...2000 Hz)                                                                                                |
| MTTF                                                                                | [years]                                                                                                                   | 154                                                                                                                |
| 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 number                                                                                                        | J017                                                                                                               |
|                                                                                     | File number UL                                                                                                            | E174189                                                                                                            |
| Mechanical data                                                                     |                                                                                                                           |                                                                                                                    |
| Weight                                                                              | [g]                                                                                                                       | 374                                                                                                                |
| Housing                                                                             |                                                                                                                           | tubular                                                                                                            |
| Dimensions                                                                          | [mm]                                                                                                                      | Ø 50 / L = 116                                                                                                     |
| Material                                                                            |                                                                                                                           | stainless steel (1.4404 / 316L); FKM; PTFE; PBT; PEI; PFA                                                          |
| Materials (wetted parts)                                                            |                                                                                                                           | ceramics (99.9 % Al2O3); stainless steel (1.4435 / 316L)<br>surface characteristics: Ra < 0,4 µm / Rz = 4 µm; PTFE |
| Min. pressure cycles                                                                |                                                                                                                           | 100 million                                                                                                        |
| Process connection                                                                  |                                                                                                                           | threaded connection G 1 external thread sealing cone - 27 mm                                                       |
| Displays / operating elements                                                       |                                                                                                                           |                                                                                                                    |
| Display                                                                             | Display unit                                                                                                              | LED, green                                                                                                         |
|                                                                                     | Switching status                                                                                                          | LED, yellow                                                                                                        |
|                                                                                     | Function display                                                                                                          | alphanumeric display, 4-digit                                                                                      |
|                                                                                     | Measured values                                                                                                           | alphanumeric display, 4-digit                                                                                      |
| Display unit                                                                        |                                                                                                                           | bar; MPa; psi; % of the span                                                                                       |
| Remarks                                                                             |                                                                                                                           |                                                                                                                    |
| Pack quantity                                                                       |                                                                                                                           | 1 pcs.                                                                                                             |
| Electrical connection                                                               |                                                                                                                           |                                                                                                                    |
| Connector: 1 x M12; coding: A; Contacts: 4, gold-plated                             |                                                                                                                           |                                                                                                                    |
|  |                                                                                                                           |                                                                                                                    |



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### Connection



- 1 connection for 2-wire operation
- 2 connection for 3-wire operation :
- OUT1 Switching output
- OUT2 Switching output
- analog output
- 3 connection for IO-Link parameter setting (P = communication via IO-Link)