



## Flush pressure sensor with display

PI-1,6-REA01-MFRKG/US/ IP



1 alphanumeric display 4-digit

2 status LEDs

3 Programming button

4 G1 sealing cone external thread

Attention: The unit must only be installed in a process connection for G1 sealing cone.  
The G1A sealing cone of the unit is only suited for adapters with metal end stop.

5 groove with sealing ring



ACS



CRN



EC 1935/2004

EHEDG

Tested

FCM

FDA

IO-Link

Reg31

UK

CA

## Product characteristics

Number of inputs and outputs

Number of digital outputs: 2; Number of analog outputs: 1

Measuring range

-100...1600 mbar

-1.46...23.2 psi

-40...642.5 inH<sub>2</sub>O

-10...160 kPa

Process connection

threaded connection G 1 external thread sealing cone Attention: The unit must only be installed in a process connection for G1 sealing cone.; The G1A sealing cone of the unit is only suited for adapters with metal end stop.

## Application

System

gold-plated contacts

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

40000 mbar

580 psi

4000 kPa

Pressure rating

15000 mbar

215 psi

1500 kPa

Vacuum resistance

-1000 mbar

-0.1 MPa

Type of pressure

relative pressure; vacuum

No dead space

yes

MAWP (for applications according to CRN)

[bar]

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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...30 DC                                                |                   |                     |                 |
| Current consumption                             | [mA] | 3.5...21.5                                                |                   |                     |                 |
| Power-on delay time                             | [s]  | < 1                                                       |                   |                     |                 |
| 3-wire                                          |      |                                                           |                   |                     |                 |
| Operating voltage                               | [V]  | 18...30 DC                                                |                   |                     |                 |
| Current consumption                             | [mA] | 5...45; (430 bei max. Laststrom)                          |                   |                     |                 |
| 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                  |                   |                     |                 |
| 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] | 100                                                       |                   |                     |                 |
| Switching frequency DC                          | [Hz] | 125                                                       |                   |                     |                 |
| Max. load                                       | [Ω]  | (Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)                  |                   |                     |                 |
| Measuring/setting range                         |      |                                                           |                   |                     |                 |
| Measuring range                                 |      | -100...1600 mbar                                          | -1.46...23.2 psi  | -40...642.5 inH2O   | -10...160 kPa   |
| Set point SP                                    |      | -98...1600 mbar                                           | -1.42...23.21 psi | -39.2...642.3 inH2O | -9.8...160 kPa  |
| Reset point rP                                  |      | -100...1598 mbar                                          | -1.45...23.17 psi | -40.1...641.4 inH2O | -10...159.8 kPa |
| Analog start point                              |      | -100...1272 mbar                                          | -1.45...18.45 psi | -40.1...510.6 inH2O | -10...127.2 kPa |
| Analog end point                                |      | 228...1600 mbar                                           | 3.31...23.21 psi  | 91.6...642.3 inH2O  | 22.8...160 kPa  |
| Min. difference between SP and rP               |      | 3 mbar                                                    | 0.04 psi          | 1 inH2O             | 0.3 kPa         |
| In steps of                                     |      | 1 mbar                                                    | 0.01 psi          | 0.1 inH2O           | 0.1 kPa         |



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|                                              |      |                                                                                                         |                                                       |
|----------------------------------------------|------|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| Factory setting                              |      | SP1 =400 mbar                                                                                           | rP1 = 368 mbar                                        |
|                                              |      | SP2 = 1200 mbar                                                                                         | rP2 = 1168 mbar                                       |
|                                              |      | ASP = 0.00 mbar                                                                                         | AEP = 1600 mbar                                       |
|                                              |      | dAP = 2.00 s                                                                                            | dAA =2.00 s                                           |
| Temperature monitoring                       |      |                                                                                                         |                                                       |
| Measuring range                              |      | -25...150 °C                                                                                            | -13...302 °F                                          |
| Accuracy / deviations                        |      |                                                                                                         |                                                       |
| Switch point accuracy<br>[% of the span]     |      | < ± 0,2; (DIN EN IEC 62828-1; Turn down 1:1)                                                            |                                                       |
| Repeatability [% of the span]                |      | < ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1)                                          |                                                       |
| Characteristics deviation<br>[% of the span] |      | < ± 0,2; (DIN IEC EN 62828-1 incl. zero point and span error, non-linearity, hysteresis; Turn down 1:1) |                                                       |
| 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)                                                                      |                                                       |
| Total deviation over temperature range       |      | Temperature range                                                                                       | total deviation                                       |
|                                              |      | -25...15 °C                                                                                             | Characteristics deviation ± 0,05 % of the span / 10 K |
|                                              |      | 15...80 °C                                                                                              | Characteristics deviation                             |
|                                              |      | 80...150 °C                                                                                             | Characteristics deviation ± 0,1 % of the span / 10 K  |
| Notes on the accuracy / deviation            |      | for further details see section Diagrams and graphs                                                     |                                                       |
| Temperature monitoring                       |      |                                                                                                         |                                                       |
| Accuracy                                     | [K]  | ± 2,5+ (0,08 x ( Umgebungstemperatur - Mediumtemperatur ))                                              |                                                       |
| Repeatability                                | [K]  | ± 0,2                                                                                                   |                                                       |
| Resolution                                   | [K]  | 0.2                                                                                                     |                                                       |
| Reaction times                               |      |                                                                                                         |                                                       |
| Damping process value dAP                    | [s]  | 0...99.99                                                                                               |                                                       |
| Damping for the analog output dAA            | [s]  | 0...99.99                                                                                               |                                                       |
| 2-wire                                       |      |                                                                                                         |                                                       |
| Step response time analog output             | [ms] | 30                                                                                                      |                                                       |
| 3-wire                                       |      |                                                                                                         |                                                       |
| Min. response time of switching output (dAP) | [ms] | 3                                                                                                       |                                                       |
| Step response time analog output             | [ms] | 7                                                                                                       |                                                       |
| Temperature monitoring                       |      |                                                                                                         |                                                       |
| Dynamic response T05 / T09                   |      | [s]                                                                                                     | < 35 / < 135; (DIN EN 60751 water ; > 0,9 m/s)        |
| Interfaces                                   |      |                                                                                                         |                                                       |
| Communication interface                      |      | IO-Link                                                                                                 |                                                       |
| Transmission type                            |      | COM2 (38,4 kBaud)                                                                                       |                                                       |



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|                                    |                                                                                                                          |                                                |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| IO-Link revision                   | 1.1                                                                                                                      |                                                |
| SDCI standard                      | IEC 61131-9                                                                                                              |                                                |
| Profiles                           | Function class                                                                                                           | Description                                    |
|                                    | 0x4000                                                                                                                   | Identification and Diagnosis                   |
|                                    | 0x800A                                                                                                                   | Measurement Data Channel (standard resolution) |
| SIO mode                           | yes                                                                                                                      |                                                |
| Required master port class         | A                                                                                                                        |                                                |
| Min. process cycle time [ms]       | 5.6                                                                                                                      |                                                |
| IO-Link resolution pressure [mbar] | 0.05                                                                                                                     |                                                |
| IO-Link resolution temperature [K] | 0.2                                                                                                                      |                                                |
| IO-Link process data (cyclical)    | Function                                                                                                                 | bit length                                     |
|                                    | pressure                                                                                                                 | 32                                             |
|                                    | temperature                                                                                                              | 32                                             |
|                                    | 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 |                                                |
| Supported DeviceIDs                | Type of operation                                                                                                        | DeviceID                                       |
|                                    | default                                                                                                                  | 1149                                           |

### Operating conditions

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

### Tests / approvals

|                      |                                                                                                                           |                     |
|----------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------|
| EMC                  | DIN EN 61326-1                                                                                                            |                     |
| 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]         | 214                                                                                                                       |                     |
| 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                                                                                                        | J049                |
|                      | File number UL                                                                                                            | E174189             |

### Mechanical data

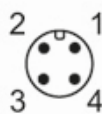
|                          |                                                                                                                                                                                                                                 |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Weight [g]               | 385.5                                                                                                                                                                                                                           |
| Housing                  | tubular                                                                                                                                                                                                                         |
| Dimensions [mm]          | Ø 50 / L = 106                                                                                                                                                                                                                  |
| Material                 | stainless steel (1.4404 / 316L); FKM; PTFE; PBT; PEI; PFA                                                                                                                                                                       |
| Materials (wetted parts) | ceramics (99.9 % Al <sub>2</sub> O <sub>3</sub> ); stainless steel (1.4435 / 316L); 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 Attention: The unit must only be installed in a process connection for G1 sealing cone.; The G1A sealing cone of the unit is only suited for adapters with metal end stop. |

PI1817



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| 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                                                                      | mbar; psi; kPa; inH2O |                               |
| Remarks                                                                           |                       |                               |
| Pack quantity                                                                     | 1 pcs.                |                               |
| Electrical connection                                                             |                       |                               |
| Connector: 1 x M12; coding: A; Contacts: gold-plated                              |                       |                               |
|  |                       |                               |



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### Connection



- 1 connection for 2-wire operation
- 2 connection for 3-wire operation
- OUT1 Switching output / IO-Link
- OUT2 Switching output / analog output
- 3 connection for IO-Link parameter setting (P = communication via IO-Link)
- Colors to DIN EN 60947-5-2
- Core colors
- BK = black
- BN = brown
- BU = blue
- WH = white



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### Diagrams and graphs

ambient temperature influence on the accuracy



X temperature  
Y total deviation