



# BAROLI

## Battery Powered Digital Pressure Gauge

- ▶ standard version: piezoresistive stainless steel sensor
- ▶ low cost version: ceramic sensor
- ▶ nominal pressure ranges from 0 ... 100 mbar up to 0 ... 600 bar

### Description

The battery powered digital pressure gauge **BAROLI** has been specially designed for applications in hydraulics and pneumatics. It could be installed easily and quickly in situ. The display module is continuously rotatable so that a clear readability is guaranteed even in unusual installation positions.

### Operation

The device can be operated menu-driven via three pushbuttons in the touchpad. Besides showing information about the nominal pressure range as well as minimal and maximal pressure of the process, several pressure units (bar, mbar, PSI, mWts, inHg, cmHg, mmHg, kPa, MPa) and the position of decimal point can be set. Upper and lower range of the measured range can be recalibrated by the customer. Defaults can be loaded again via menu.



### Applications

- ▶ hydraulics
- ▶ pneumatics
- ▶ mechanical engineering

- ▶ rugged, rotatable plastic housing
- ▶ 4.5 digit LC display for showing the measured value (digit height 11 mm)
- ▶ 6-digit additional display for the unit (digit height 7.5 mm)
- ▶ easy configuration via three push buttons
- ▶ accuracy:  
0.125 / 0.250 % FS BFSL  
(0.25 / 0.50 % FS IEC 60770)
- ▶ ingress protection IP 65
- ▶ mechanical connection
  - G1/2" EN 837
  - G1/4" EN 837
  - 1/2" NPT
  - 1/4" NPT

Characteristics



**BAROLI**  
Digital Pressure Gauge

| <b>Input pressure with stainless steel sensor</b>   |  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
|---|--|----------------------------|------|----------------|----------------------------|--------------|-----|------------------------|------------------------|-----------------|-----------------------|-----|-----|-----|------|------------------------------------|----------------------------|---|----|------|
| Nominal pressure gauge / abs. [bar]   | 0.10   | 0.16                       | 0.25 | 0.4            | 0.6                        | 1.0          | 1.6 | 2.5                    | 4.0                    | 6.0             | 10                    | 16  | 25  | 40  |      |                                    |                            |   |    |      |
| Permissible overpressure [bar]  | 0.5  | 0.5                        | 1    | 1              | 3                          | 3            | 6   | 6                      | 20                     | 20              | 20                    | 60  | 60  | 100 |      |                                    |                            |   |    |      |
| Nominal pressure gauge / abs. [bar]   | 60   |                            |      | 100            |                            |              | 160 |                        |                        | 250             |                       |     | 400 |     | 600  |                                    |                            |   |    |      |
| Permissible overpressure [bar]  | 140  |                            |      | 340            |                            |              | 340 |                        |                        | 600             |                       |     | 600 |     | 1000 |                                    |                            |   |    |      |
| <b>Input pressure with ceramic sensor</b>   |  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| Nominal pressure gauge / abs. [bar]   | 1.6  | 2.5                        | 4    | 6              | 10                         | 16           | 25  | 40                     | 60                     | 100             | 160                   | 250 | 400 | 600 |      |                                    |                            |   |    |      |
| Permissible overpressure [bar]  | 4  | 4                          | 10   | 10             | 20                         | 40           | 40  | 100                    | 100                    | 200             | 400                   | 400 | 400 | 600 |      |                                    |                            |   |    |      |
| <b>Performance</b>  |  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| Accuracy  | stainless steel sensor with $P_N > 0.4$ bar:<br>stainless steel sensor with $P_N \leq 0.4$ bar:<br>ceramic sensor:   |                            |      |                |                            |              |     | IEC 60770 <sup>2</sup> |                        |                 | BFSL                  |     |     |     |      |                                    |                            |   |    |      |
|   |  |                            |      |                |                            |              |     | $\leq \pm 0.250$ % FS  |                        |                 | $\leq \pm 0.125$ % FS |     |     |     |      |                                    |                            |   |    |      |
|   |  |                            |      |                |                            |              |     | $\leq \pm 0.500$ % FS  |                        |                 | $\leq \pm 0.250$ % FS |     |     |     |      |                                    |                            |   |    |      |
| Measuring rate  | 5/sec.   |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| <sup>1</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)  |  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| <b>Thermal errors / Permissible temperatures</b>  |  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| Thermal errors for stainless steel sensor (Offset and Span)   | nominal pressure $P_N$ [bar]   | $\leq 0.1$                 |      | $\leq 0.25$    |                            | $\leq 0.4$   |     | $\leq 1$               |                        | $> 1$           |                       |     |     |     |      |                                    |                            |   |    |      |
|   | tolerance band [% FS]  | $\leq \pm 2$               |      | $\leq \pm 1.5$ |                            | $\leq \pm 1$ |     | $\leq \pm 1$           |                        | $\leq \pm 0.75$ |                       |     |     |     |      |                                    |                            |   |    |      |
|   | TC, average [% FS / 10 K]  | $\pm 0.3$                  |      | $\pm 0.2$      |                            | $\pm 0.14$   |     | $\pm 0.1$              |                        | $\pm 0.07$      |                       |     |     |     |      |                                    |                            |   |    |      |
|   | in compensated range [°C]  | 0 ... 50                   |      | 0 ... 50       |                            | 0 ... 50     |     | 0 ... 50               |                        | 0 ... 70        |                       |     |     |     |      |                                    |                            |   |    |      |
| Thermal errors for ceramic sensor (Offset and Span)   | $\leq \pm 0.2$ % FS / 10 K in compensated range -25 ... 85 °C  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| Permissible temperatures  | medium: -20 ... 85 °C  |                            |      |                | environment: -20 ... 70 °C |              |     |                        | storage: -30 ... 80 °C |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| <b>Materials</b>  |  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| Display housing   | PA 6.6, polycarbonate  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| Seals (media wetted)  | stainless steel sensor: $P_N \leq 40$ bar: FKM, EPDM $P_N > 40$ bar: NBR others on request<br>ceramic sensor: $P_N < 100$ bar:FKM $P_N \geq 100$ bar:NBR others on request               |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| Pressure port / diaphragm   | stainless steel 1.4571 (316Ti) / stainless steel 1.4435 (316L) or ceramics $Al_2O_3$ 96 %  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| Media wetted parts  | pressure port, seals, diaphragm  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| <b>Miscellaneous</b>  |  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| Display   | LC display, visible range 40 x 30 mm; 4.5-digit 7-segment main display, digit height 11 mm, range of indication $\pm 19999$ ; 6-digit 14-segment additional display, digit height 7.5 mm |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| Electromagnetic compatibility   | emission and immunity according to EN 61326  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| Mechanical stability  | vibration: 5 g RMS (20 ... 2000 Hz) shock: 100 g / 11 msec.  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| Supply  | 3.6 V lithium batteries; 2 pieces (type 1/2 AA)  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| Data memory:  | EEPROM (non-volatile)  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| Ingress protection  | IP 65  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| Installation position   | any <sup>2</sup>   |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| Weight  | approx. 300 g  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| AD-converter solution   | 14 bit   |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| Operational life of battery   | standby mode: approx. 5 years  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| Mech. operational life  | $> 100 \times 10^6$ pressure cycles  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| <sup>2</sup> The digital pressure gauge is calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviations in the zero point for devices with stainless steel sensor and pressure range $P_N \leq 1$ bar. |  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| <b>Dimensions (in mm)</b>   |  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Size</th> <th>BAROLI with stainless steel sensor</th> <th>BAROLI with ceramic sensor</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>35</td> <td>41.5</td> </tr> </tbody> </table>                     |  |                            |      |                |                            |              |     |                        |                        |                 |                       |     |     |     | Size | BAROLI with stainless steel sensor | BAROLI with ceramic sensor | A | 35 | 41.5 |
| Size  | BAROLI with stainless steel sensor   | BAROLI with ceramic sensor |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |
| A   | 35   | 41.5                       |      |                |                            |              |     |                        |                        |                 |                       |     |     |     |      |                                    |                            |   |    |      |

This data sheet contains product specification, properties are not guaranteed. Subject to change without notice.

