



DPC-ZERO\* with supply 24 VDC

DPC-ZERO\* with supply 110-120/230-240 VAC and 24 VDC

## DESCRIPTION

Universal electronic **Δp – SENSOR-TRANSMITTER** with **programmable Δp range**, which the user can programme himself within the measuring span of a group by using the Parameter **rAn**. The device has **2 relay outputs**, 1x threshold value max and 1x threshold value min. **4 linear analogue outputs 0-20 mA, 4-20 mA, 0-10 V and 2-10 V** are programmable. Available for universal supply voltage 110-120 VAC, 230-240 VAC and 24 VDC with ABS-Housing 160x80x55 mm or only with 24 VDC with ABS-Housing 120x80x55 mm or as an alternative with ALU-Housing 125x80x57 mm.

**The integrated automatic zero-point-calibration guarantees a very high zero point stability of 0 % FS/year for the whole life of the device.**

**Examples:** Ventilation and air-conditioning units, medical technology, clean room technology, filter control, fill level control and regulation, flow detection system, etc.

The differential pressure (+ P1↑ and P2↓ -), the overpressure (+ P1↑) or the underpressure (P2↓ -) are measured via the pressure connections and displayed on the 3-digit digital display. The **Δp set points** can be displayed, too. So a precise adjustment of the set points is possible.

The both **Δp set points** with parameter **ALL (ALARM min)** and Parameter **ALH (ALARM max)** can be adjusted by push-buttons. The ALARM appears, if the Δp pressure is below the set point **ALARM min** or if the Δp pressure exceeds the set point **ALARM max**. After each Power ON, the set points can be suppressed with the parameters **ALS** and **AHS** for an adjustable time to avoid a wrong ALARM signal. This makes sense, if e.g. the operating pressure must raise up for a certain time after Power ON.

For air ventilation applications with the almost always present turbulences, the programmable **Δp-damping** with parameter **dPd** of the set points, the display and the analogue output represents a further advantage. 4 linear short circuit-safe analogue outputs **0-20 mA, 4-20 mA, 0-10 V and 2-10 V** are programmable and are available as output signals, proportionally with the pressure, for further process controlling.

## FEATURES

- Universal power voltage input: 230-240 VAC and 110-120 VAC and 24 VDC in one unit or only 24 VDC
- Robust, tried and tested pressure sensor
- Pressure sensor overload-safe and temperature compensated with automatic zero-point calibration, zero point stability of 0% FS
- Pressureconnectors protected with replaceable filters FT-P-X-CE and emergency filter in addition for applications with air containing dust
- Programmable Δp-ranges by the user are possible, with 14 unit-groups:
 

|             |  |    |               |
|-------------|--|----|---------------|
| - Group 1:  | 0 - 0,4 mbar                           | to | 0 - 2 mbar    |
| - Group 2:  | 0 - 1 mbar                             | to | 0 - 5 mbar    |
| - Group 3:  | 0 - 2 mbar                             | to | 0 - 10 mbar   |
| - Group 4:  | 0 - 10 mbar                            | to | 0 - 50 mbar   |
| - Group 5:  | 0 - 20 mbar                            | to | 0 - 100 mbar  |
| - Group 6:  | 0 - 100 mbar                           | to | 0 - 500 mbar  |
| - Group 7:  | 0 - 200 mbar                           | to | 0 - 1000 mbar |
| - Group 8:  | 0 - 1 bar                              | to | 0 - 5 bar     |
| - Group 9:  | 0 - 2 bar                              | to | 0 - 10 bar    |
| - Group 10: | 0 - 10 Pa                              | to | 0 - 50 Pa     |
| - Group 11: | 0 - 20 Pa                              | to | 0 - 100 Pa    |
| - Group 12: | -50...0...+50 Pa                       |    |               |
| - Group 13: | 0 - 40 Pa                              | to | 0 - 200 Pa    |
| - Group 14: | 0 - 5 mbar                             | to | 0 - 25 mbar   |
| - Group 15: | -50...0...+50 Pa to -100...0...+100 Pa |    |               |
- Analogue output, shot circuit proof, 0-20 mA, 4-20 mA, 0-10 V und 2-10 V programmable
- Programmable Δp-Damping: approx. 0 s to 240 s
- Relay output 1, threshold contact, Alarm max., programmable
- Relay output 2, threshold contact, Alarm min., programmable
- All relays with changeover contacts, **gold plated**, potential-free, safety circuit - false safe, for test: manual switching mode possible
- Range of ambient temperature -5°C to +50°C
- Housing protection class IP 65
- Universal device for the lowest need for storage space, with meaningful functions required in practice
- Machinery directive 2006/42/EC, low voltage directive 2014/35/EU and EMC directive 2014/30/EU are fulfilled
- High reliability via "burn in"

The translation of this document is from the original German document and is for informative purposes only. Errors / omissions not excluded. Solely the original German document is binding.

**TECHNISCHE DATEN / TECHNICAL DATA**

**Gruppe - max. Messbereich: / Group - max. range:**

|                                   |                        |                              |           |                                       |                           |
|-----------------------------------|------------------------|------------------------------|-----------|---------------------------------------|---------------------------|
| <b>Messbereiche</b> $\Delta p$ :  | 0-0.4 - 0-2            | Messspanne / measuring range | mbar..... | <b>1 - 2.....</b>                     | <b>ORDER-INDEX: mbar-</b> |
| Gruppe 1-14                       | 0-1 - 0-5              | Messspanne / measuring range | mbar..... | <b>2 - 5.....</b>                     | <b>ORDER-INDEX: mbar-</b> |
| <b>Pressure ranges</b> $\Delta p$ | 0-2 - 0-10             | Messspanne / measuring range | mbar..... | <b>3 - 10.....</b>                    | <b>ORDER-INDEX: mbar-</b> |
| Group 1-14                        | 0-10 - 0-50            | Messspanne / measuring range | mbar..... | <b>4 - 50.....</b>                    | <b>ORDER-INDEX: mbar-</b> |
|                                   | 0-20 - 0-100           | Messspanne / measuring range | mbar..... | <b>5 - 100.....</b>                   | <b>ORDER-INDEX: mbar-</b> |
|                                   | 0-100 - 0-500          | Messspanne / measuring range | mbar..... | <b>6 - 500.....</b>                   | <b>ORDER-INDEX: mbar-</b> |
|                                   | 0-200 - 0-1000         | Messspanne / measuring range | mbar..... | <b>7 - 1000.....</b>                  | <b>ORDER-INDEX: mbar-</b> |
|                                   | 0-1b - 0-5b            | Messspanne / measuring range | bar.....  | <b>8 - 5b.....</b>                    | <b>ORDER-INDEX: bar -</b> |
|                                   | 0-2b - 0-10b           | Messspanne / measuring range | bar.....  | <b>9 - 10b.....</b>                   | <b>ORDER-INDEX: bar -</b> |
|                                   | 0-10Pa - 0-50Pa        | Messspanne / measuring range | Pa.....   | <b>10 - 50Pa.....</b>                 | <b>ORDER-INDEX: Pa -</b>  |
|                                   | 0-20Pa - 0-100Pa       | Messspanne / measuring range | Pa.....   | <b>11 - 100Pa.....</b>                | <b>ORDER-INDEX: Pa -</b>  |
|                                   | -50...0...+50 Pa       | Messspanne / measuring range | Pa.....   | <b>12 <math>\pm</math> 50Pa.....</b>  | <b>ORDER-INDEX: Pa -</b>  |
|                                   | 0-40Pa - 0-200Pa       | Messspanne / measuring range | Pa.....   | <b>13 - 200Pa.....</b>                | <b>ORDER-INDEX: Pa -</b>  |
|                                   | 0-5 - 0-25             | Messspanne / measuring range | mbar..... | <b>14 - 25.....</b>                   | <b>ORDER-INDEX: mbar-</b> |
|                                   | $\pm 50... \pm 100$ Pa | Messspanne / measuring range | Pa.....   | <b>15 <math>\pm</math> 100Pa.....</b> | <b>ORDER-INDEX: Pa -</b>  |

**Wählen Sie eine Gruppe aus für die Messbereiche, die im Gerät verfügbar sein sollen.  
Please choose out of one group for the ranges, which should be integrated in the unit.**

**Anzeige, Display** : Digital, 3-stellig, 7-Segment - LED rot, 14 mm hoch :.....**ORDER-INDEX: -D-**  
Digital, 3-digit, 7-segment - LED (red), 14 mm high.

**$\Delta p$ -Dämpfung, Damping** : Programmierbar / programmable: ca. 0 s bis / to 240 s

**Überlastbarkeit** : **Statischer Gleichdruck einseitig / Static balanced pressure on one side:**  
Overload capacity : Messbereich / range, bis / up to: 0 - 10 mbar: pmax = 250 mbar  
Messbereich / range, bis / up to: 10 - 100 mbar: pmax = 750 mbar  
Messbereich / range, bis / up to: 100 - 500 mbar: pmax = 2 bar  
Messbereich / range, bis / up to: 200 - 1000 mbar: pmax = 4 bar  
Messbereich / range, bis / up to: 1b - 10b bar: pmax = 20 bar  
**Statischer Gleichdruck beidseitig / Static balanced pressure on two sides:**  
Messbereich / range, bis / up to: 0.0 - 10 mbar: pmax = 0,6 bar  
Messbereich / range, bis / up to: 10 - 500 mbar: pmax = 5 bar  
Messbereich / range, bis / up to: 200 - 1000 mbar: pmax = 10 bar  
Messbereich / range, bis / up to: 2b - 10b bar: pmax = 20 bar

**Gesamtfehler** : Linearität + Hysterese + Reproduzierbarkeit :  $\pm$  1% F.S. ab / from  $\geq$  1 mbar Messbereich / range  
Total error : Linearity + hysteresis + reproducibility :  $\pm$  2% F.S. bis / to  $\leq$  0,5 mbar Messbereich / range

**Nullpunktstabilität** : **0 % ! F.S. / Jahr vom Messbereich / range (F.S. = vom Messbereich / Full Scale)**  
Zeropoint stability

**Langzeitstabilität** : 0,1 % F.S. / Jahr ab / from  $\geq$  1 mbar Messbereich / range (F.S. = vom Messbereich / Full Scale)  
Long term stability : 0,25 % F.S. / year bis / to  $\leq$  0,5 mbar Messbereich / range

**Temperaturfehler** : +10°C bis/to + 50°C: 0,025 % F.S. / K, ab / from  $\geq$  1 mbar Messbereich / range  
Temperature error : +10°C bis/to + 50°C : 0,065 % F.S. / K, ab / from  $\leq$  0,5 mbar Messbereich / range

**Betriebstemperatur** : -5°C bis + 50°C.  
Operating temperature : 23°F to +122°F.

**Druckmedium** : Nicht aggressive und nicht brennbare Gase, Luft, die Polyamid, POM, PVC, Silizium, Silicon, Epoxydharz, Edelstahl und Gold nicht angreifen. Das Druckmedium muss ölfrei sein.

Pressure media : Not aggressive and not flammable gases, air, not corroding polyamide, POM, PVC, silicon, silicone, epoxy resin, stainless steel and gold. The pressure media must be oil-free.

**Signalansgänge** : **1: Digital:** Relais / relay, 1x potentialfreier Wechsler: min. 5 mA, max. 1 A, 24 VDC.  
Signal outputs : Leuchtdiode für ALARM max / LED ALARM max  
**2: Digital:** Relais / relay, 1x potentialfreier Wechsler: min. 5 mA, max. 1 A, 24 VDC.  
Leuchtdiode für ALARM min / LED ALARM min  
All relay contacts 1x change-over switch : min. 5 mA, max. 1 A, 24 VDC.

**Signalansgänge** : **Analogausgang, linear, programmierbar / Analogue output, linear, programmable:**  
Signal outputs : 0-20 mA, 4-20 mA, Bürde /load = max. 500  $\Omega$ ; 0-10 V, 2-10 V, Ri = 500  $\Omega$

**Stromversorgung** : **Universell: 230 - 240 V $\approx$ , 50 - 60 Hz umschaltbar auf / changeable to: 110 - 120 V $\approx$ , 50 - 60 Hz und / and 24 VDC**  
Power supply : in einem Gerät verfügbar / in one unit available:.....**ORDER-INDEX: -24DC-240AC -**  
Nur/only **24 VDC**:.....**ORDER-INDEX: -24DC-0 -**

**Spannungstoleranz:** : 24 VDC -5% +10% (22,8...26,4 VDC). **Es ist eine stabilisierte Spannungsversorgung einsetzen. A stabilized power unit must be used.**  
Supply tolerance : 230 VAC  $\pm$ 10%, 110 VAC  $\pm$ 10%

**Nennleistung** : Nominal power: 5 VA; 2.5 W  
**Elektr. Anschluss** : Schraubklemmen, max. Drahtquerschnitt 2,5 mm<sup>2</sup>  
Electric connection : Screw terminal, max cross section of wire AWG 14

**Druckanschluss** : 2x POM-Kunststoff-Schlauchverschraubungen mit Überwurfmutter / 2x POM-plastic-tube connectors with connector nut:  
Pressure connection : Schlauchgrößen / size of tube: Da/OD = 6 mm, Di/ID = 4 mm:.....**ORDER-INDEX: -64POM-**  
**Druckanschluss** : 2x POM-Kunststoff-Schlauchverschraubungen mit Überwurfmutter / 2x POM-plastic-tube connectors with connector nut:  
Pressure connection : Schlauchgrößen / size of tube: Da/OD = 8 mm, Di/ID = 6 mm:.....**ORDER-INDEX: -86POM-**  
**Druckanschluss** : 2x POM-Kunststoff-Schlauchtülle ohne Überwurfmutter / 2x POM-plastic-tube connectors without connector nut:  
Pressure connection : Schlauchgrößen / size of tube: Di/ID = 6 mm, .....**ORDER-INDEX: -T6POM-**  
**Druckanschluss** : 2x POM-Kunststoff-Schlauchtülle ohne Überwurfmutter / 2x POM-plastic-tube connectors without connector nut:  
Pressure connection : Schlauchgrößen / size of tube: Di/ID = 8 mm, .....**ORDER-INDEX: -T8POM-**  
**Druckanschluss** : 2x Messing Klemmringverschraubung mit Überwurfmutter / 2x brass tube connectors with connector nut for:  
Pressure connection : Schlauchgrößen / size of tube: Da/OD = 6 mm, Di/ID = 4 mm:.....**ORDER-INDEX: -64MS**

**Gehäuse 1** : Abmessungen / dimensions : 80 x 160 x 55 mm, Drei Kabeleinführungen, blind, M16x1,5 / Three cable inputs M16x1,5  
Housing 1 : Material / material : ABS. Farbe / colour: grau / grey. Gewicht / weight : 350 g  
Schutzart / protection class : IP 65.....**ORDER-INDEX: -AB1-**

**Gehäuse 2** : Abmessungen / dimensions : 80 x 120 x 55 mm, Zwei Kabeleinführungen, blind, M16x1,5 / Three cable inputs M16x1,5  
Housing 2 : Material / material : ABS. Farbe / colour: grau / grey. Gewicht / weight : 300 g  
Schutzart / protection class : IP 65.....**ORDER-INDEX: -AB2-**

**Gehäuse 3** : Abmessungen / dimensions : 80 x 125 x 57 mm, Zwei Kabeleinführungen, blind, M16x1,5 / Three cable inputs M16x1,5  
Housing 3 : Material / material : **Aluminium**. Farbe / colour: grau / grey. Gewicht / weight : 500 g  
Schutzart / protection class : IP 65.....**ORDER-INDEX: -AL2-**

**Vorschriften / Rules** : EN 60 204-1, EN 61010, EN 61326-1, EN 61326-2-3, DGVV Vorschrift/Regulation 3.

|                                 |   |
|---------------------------------|---|
| <b>Bestell-Nr.</b> :            | DPC Gruppe-Messb. - Anzeige - Volt-AC - Anschluss - Gehäuse - ZERO - CE |
|                                 | <b>mbar / bar - - - - -</b>   |
| <b>ORDER-INDEX</b> :            | DPC Group - range - Display - Volt-DC - Connection - Case - ZERO - CE   |
| <b>Beispiel 1 / example 1</b> : | <b>DPC- 4 - 50 - D - 24DC-240AC - 64POM - AB1 - ZERO - CE</b>           |
| <b>Beispiel 2 / example 2</b> : | <b>DPC- 5 - 100 - D - 24DC - 0 - T8POM - AB2 - ZERO - CE</b>            |
| <b>Beispiel 3 / example 3</b> : | <b>DPC- 2 - 5 - D - 24DC - 0 - 64MS - AL2 - ZERO - CE</b>               |