

# Diaphragm Pressure Gauges

Polyamide Screw Ring Case

Standard (PK) or Liquid Filled (PKOe)

## with Limit-Switch Contact Assemblies

Nom. Case Size 100 (4")

Models  
**PK**  
**PKOe**

This data sheet contains ordering information, minimum pressure ranges, information about the electrical connections and dimensional drawings of diaphragm pressure gauges models PK and PKOe with limit-switch contact assemblies.

**Data sheet 3300** contains all important features of model PK and PKG without electrical accessories. These technical details are valid also for gauges assembled with limit-switch contacts, as far as you don't find a deviating description below. The ordering code for the liquid-filled version with limit-switch contact assemblies is Oe instead of G. The filling liquid is a special oil.

For detailed information about use and operation of mechanical, inductive, electronic, and pneumatic limit-switch contact assemblies please note our **general information leaflet 9000**. For further information, especially about the available make/break operations, see the data sheets for the individual models of limit-switch contact assemblies:

|  |                        |
|--|------------------------|
| <b>Mechanical</b><br>(standard- and magnetic contacts) | Data sheet <b>9100</b> |
| <b>Inductive</b>                                       | Data sheet <b>9200</b> |
| <b>Electronic</b>                                      | Data sheet <b>9201</b> |
| <b>Pneumatic</b>                                       | Data sheet <b>9300</b> |

### Minimum Pressure Ranges

Every pressure gauge needs a sufficient amount of torque to operate the limit-switch contacts with minimized error. For this reason the following minimum pressure ranges are to consider<sup>1)</sup>:

| Limit-Switch Type <sup>2)</sup> | Minimum Pressure Range: |                    |
|---------------------------------|-------------------------|--------------------|
|                                 | Measuring Flange Ø      | Measuring Flange Ø |
|                                 | 100 mm (4")             | 160 mm (6")        |
|                                 | bar (psi)               | mbar ("WC)         |
| 1 x Standard                    | 0.6 (10)                | 60 (25)            |
| 2 x Standard                    | 0.6 (10)                | 100 (40)           |
| 3 x Standard                    | 0.6 (10)                | 160 (60)           |
| 1 x Magnetic                    | 0.6 (10)                | 100 (40)           |
| 2 x Magnetic                    | 0.6 (10)                | 160 (60)           |
| 3 x Magnetic                    | 2.5 (30)                | 250 (100)          |
| 1 x Inductive                   | 0.6 (10)                | 60 (25)            |
| 2 x Inductive                   | 0.6 (10)                | 60 (25)            |
| 3 x Inductive                   | 0.6 (10)                | 60 (25)            |
| 1 x Electronic                  | 0.6 (10)                | 60 (25)            |
| 2 x Electronic                  | 0.6 (10)                | 60 (25)            |
| 3 x Electronic                  | 0.6 (10)                | 60 (25)            |
| 1 x Pneumatic                   | 0.6 (10)                | 60 (25)            |

For pressure gauges with 3 contacts it is not always possible to set all set pointers one above the other. Therefore you should always state for which contacts resp. set pointers the opportunity to set one above the other is required, or simply point out when ordering where your set points are.

### Window

Polycarbonate

<sup>1)</sup> lower pressure ranges upon request

<sup>2)</sup> Limit-switch contact assemblies are installed behind the dial (HZ version). Installation in front of the dial (TZ version) is possible upon request.



### Electrical Connection

Pressure gauges **model PK** (unfilled version) with 1, 2, or 3 **standard or magnetic** limit-switch contacts are supplied with about 1 m (3 ft) connection cable passing through the back side of the case. Universal plug connectors are available at option (extra charges).

The universal plug connector is standard for pressure gauges **model PKOe** with mechanical limit-switch contacts.

Pressure gauges (PK, PKOe) with **inductive or electronic** limit-switch contact assembly are supplied with a terminal box.

The universal plug connector resp. the terminal box is mounted on the right side of the case ("right side" from viewer's perspective when looking on the dial).

Pressure gauges with **pneumatic** limit-switches are supplied with a PP or PE converter mounted on the back of the case.

The gauge cannot be supplied with a 1" blow-out when a universal plug connector resp. a terminal box or a PP/PE converter is mounted on the back of a case.

The precise locations of the electrical connections are shown in the dimensional drawings on the reverse side of this data sheet. Others than standard locations are available upon request at additional charges only.

The universal plug connector has 6 terminals and a ground terminal. The terminal box has 6 terminals only.

### Ordering Information

The ordering information of the individual gauge model (compare data sheet 3300) is extended by the

CODE LETTER for the contact type :

**S, M, I, E or P**

and the CODE NUMBER for the make/break operation:

e.g. **1, 11, 12, 2, 22, 21**

(Please compare data sheets 9000 ff for the limit-switch contact assembly!)

**Examples:** PK 100-2, 0-6 bar, M 12

PKOe 100-3, -400 mbar, 1/2" NPT, I 11



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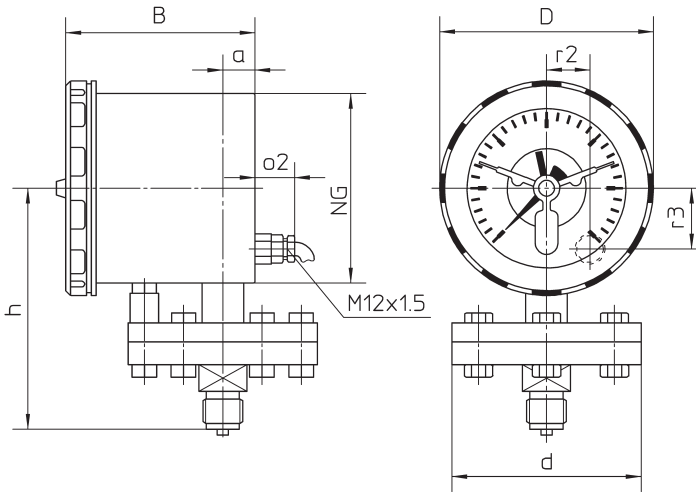
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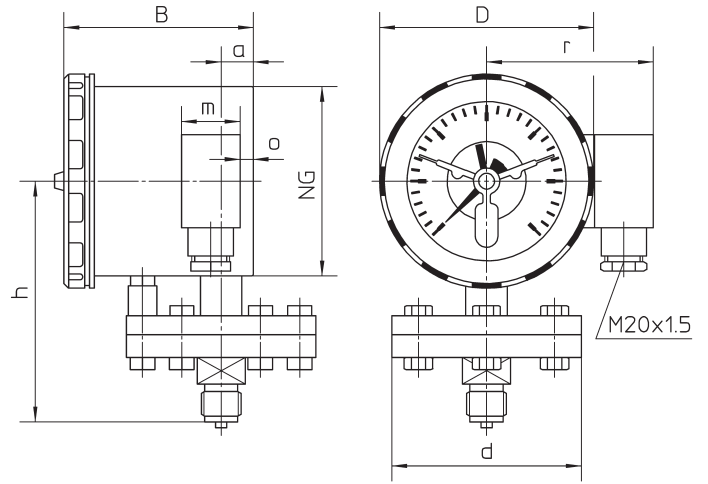
# Case Configurations, Electrical Connections, Dimensional Data and Weights

The dimensions are the same as from the basic model, except the front-to-back sizes, see table below. For the other dimensions, please compare data sheet 3300.

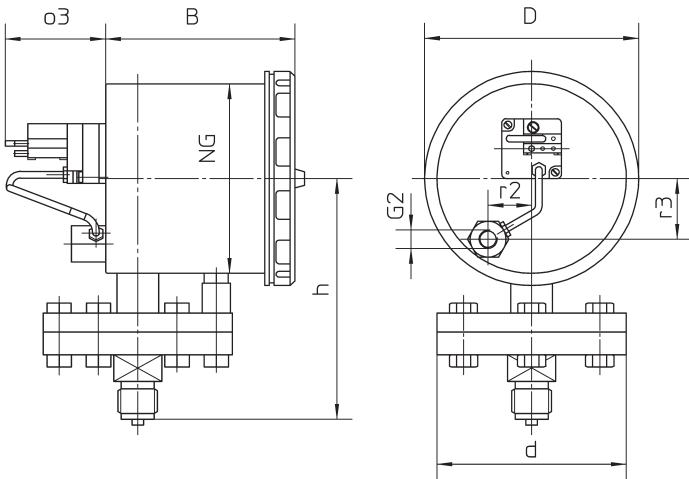
## Connection cable passing through the back of the case



## Universal plug connector or terminal box on the right side of the case



## PP/PE converter (for pneumatic limit-switch) on the backside of the case (1"-Blow-out in the back is not possible)



## Dimensions ( mm / inches ) and Weight ( kg / lb )

| Nom. Case Size | Measuring flange Ø d | a   | B    | D    | G2       | h ± 1 | m    | o   | o2  | o3  | r    | r2  | r3   | r5  | Weight (approx.) <sup>1)</sup> |       |
|----------------|----------------------|-----|------|------|----------|-------|------|-----|-----|-----|------|-----|------|-----|--------------------------------|-------|
|                |                      |     |      |      |          |       |      |     |     |     |      |     |      |     | PK                             | PKOe  |
| 100<br>4"      | 100<br>4"            | 17  | 100  | 113  | G 1/8    | 127   | 31   | .27 | 21  | 53  | 88   | 23  | 32   | 17  | 1.850                          | 2.300 |
|                | 160<br>6"            | .67 | 3.94 | 4.45 | 1/8" BPS | 5     | 1.22 | —   | .83 | 2.1 | 3.46 | .90 | 1.26 | .67 | 4.10                           | 5.10  |
|                |                      |     |      |      |          |       |      |     |     |     |      |     |      |     | 2.950                          | 3.450 |
|                |                      |     |      |      |          |       |      |     |     |     |      |     |      |     | 6.50                           | 7.60  |

<sup>1)</sup> The weights of instruments with different pressure ranges are varying a lot, therefore the here stated data can be a vague outlining only.

The information in this leaflet is given in good faith, but we reserve the right to make changes without notice.

# Limit Switch Contact Assemblies



Models **MS**

## Mechanical Contacts

### Standard Contacts • Magnetic (Fast Make - Fast Break) Contacts

This data sheet contains important details of the available make/break operations and electrical connections of standard- and magnetic contact assemblies.

Detailed information about the method of operation and application of mechanical, inductive and pneumatic limit switch contact assemblies are given in our **general information leaflet 9000**.

For pressure gauges with built-in limit switch contact assemblies special data sheets with dimensional drawings and details of the ordering codes can be found under the different catalogue headings, ending on number ..90, ..91 or ..19.1

## Make/Break Operations

The available make/break operations of single and double contacts are shown in the table below.

**Code letter S** = standard contact, **M** = magnetic contact

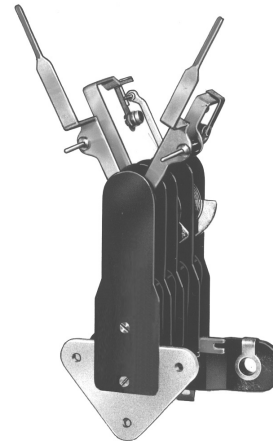
### Code number 1, making contact:

closes when the set point is passed in the clockwise direction (i.e. opens in counterclockwise direction)

### Code number 2, breaking contact:

opens when the set point is passed in the clockwise direction (i.e. closes in counterclockwise direction)

**Code number 3:** changeover contact



### Manifold Contact Assemblies

With 3 and 4 contacts see special options, reverse side

### Contact Pins

Silver-nickel 10 μ gold-plated (AG80Ni20Au10μ)

### Adjustment

Depending on pressure gauge model and version

- Cast into the acrylic glass window, or
- Nickel plated brass, built into the window, removable key

### Electrical Connections

Depending on pressure gauge model and version

- 1 m (3 ft) connecting cable, passing through the case's back
  - European universal plug connector mounted to the case;
- The precise location of the lead through hole or the plug connector can be found in the data sheets for the individual pressure gauge models.

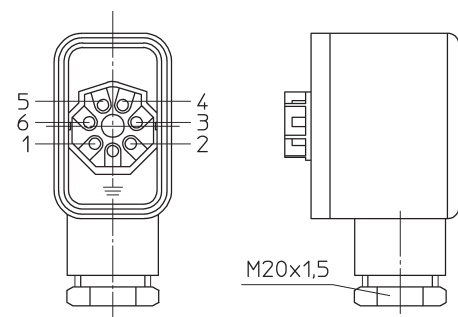
### Connecting Cable

We use screwed cable glands M12x1.5 with strain relief for fixing the cable. The free ends of the cable are marked as shown in the circuit diagram; with green/yellow ground wire.

### European Universal Plug Connector

The terminals in the connecting box are also numbered as shown in the circuit diagrams. A ground terminal is provided. The universal plug connector is delivered with a screwed cable gland M20x1.5 with strain relief.

| Circuit Diagram                                     | Make/Break Operation with Pointer Moving Clockwise                 | Type     |          |
|---|--|----------|----------|
|   |  | Standard | Magnetic |
| <b>Contact assembly with one contact:</b>           |  |          |          |
|   | Breaking   | S 2      | M 2      |
|   | Making   | S 1      | M 1      |
| <b>Contact assembly with change - over contact:</b> |  |          |          |
|   | Connection 1 and 4: making<br>Connection 2 and 4: breaking         | S 3      | M 3      |
| <b>Contact assembly with double contacts:</b>       |  |          |          |
|   | 1 <sup>st</sup> and 2 <sup>nd</sup> contacts both breaking         | S 22     | M 22     |
|   | 1 <sup>st</sup> contact breaking<br>2 <sup>nd</sup> contact making | S 21     | M 21     |
|   | 1 <sup>st</sup> and 2 <sup>nd</sup> contacts both making           | S 11     | M 11     |
|   | 1 <sup>st</sup> contact making<br>2 <sup>nd</sup> contact breaking | S 12     | M 12     |



### CE-marking

According to EMC Directive, restricted to max. 5 switchings/minute

**Special options** see overleaf.



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