Differential pressure gauge, copper alloy or stainless steel
Scale ranges from 0.6 ... 1,000 bar
Models 711.12, 713.12, 731.12 and 733.02

Applications
- Heating, ventilation and air-conditioning
- For gaseous and liquid media that are not highly viscous or crystallising
- Models 731.12 and 733.02 also for aggressive media
- Models 713.12 and 733.02 with liquid-filled case are suitable for high dynamic pressure loads and vibrations

Special features
- Scale ranges from 0 ... 0.6 bar to 0 ... 1,000 bar
- Two process connections and two independent pointers
- Differential pressure display with moving dial
- Cost-effective and reliable

Description
The differential pressure gauge is based on two independently operating Bourdon tube measuring systems. The instrument is therefore able to show the pressure from two measuring points and the resulting differential pressure on one display.

Differential pressure display
The standard version is designed with two pointers and a gauge pressure scale. The pointer for the minus connection is connected to an additional moving dial. On the scale of the moving dial, the differential pressure (± 50% of the main scale’s full scale value) can be read directly. Alternatively, in the version without additional moving dial, the differential pressure is not indicated.

In the version with a subtracting movement, the differential pressure is indicated with only one pointer (the individual pressures of plus and minus connection are not displayed). The variance of scale versions ensures an optimal readability of all operating parameters.

The models 731.12 and 733.02, with wetted parts from stainless steel, have been specifically designed for the requirements in the process industry.

For harsh operating conditions (e.g. vibration), the instruments are also available with an optional liquid filling.
Standard version

Version
Two independent measuring systems, process connections in line

Nominal size in mm
100, 160

Accuracy class
1.6

Scale ranges
0 ... 0.6 to 0 ... 1,000 bar

Scale range must be selected in relation to the maximum total pressure applied!
In heating systems with circulating pumps, the total pressure applied is usually defined as equal to the hydrostatic pressure plus the pump pressure.
In order to ensure a good readability, the differential pressure should not drop below 1/6 of the full scale value.

When ordering specify both pressures:
a) maximum total pressure applied, b) differential pressure

Pressure limitation
Steady: Full scale value
Fluctuating: 0.9 x full scale value
Short time: 1.3 x full scale value

Permissible temperature
Ambient: -20 °C to +60 °C
Medium: Model 711.12: +60 °C maximum (soft soldered) +100 °C maximum (brazed)
Model 731.12: +200 °C maximum

Temperature effect
When the temperature of the measuring system deviates from the reference temperature (+20 °C): max. ±0.4 %/10 K of full scale value

Ingress protection per EN/IEC 60529
IP33

Pressure elements
Model 711.12:
< 100 bar: Copper alloy, C-type, soft soldered
≥ 100 bar: Stainless steel, helical type, brazed
Model 731.12:
Stainless steel, all pressure ranges, welded

Movement
Copper alloy, wear parts argentan

Dial
Aluminium, white, black lettering

Pointer
⊕ side: 1 standard pointer at front, aluminium, black
⊖ side: 1 scale pointer at back, aluminium, red, with 50 % of the scale range, respectively, as ⊕ and ⊖ differential pressure display

Case
Stainless steel, black painted

Window
Instrument glass

Ring
Slip-on bezel, steel, black

Options
- Other process connection
- Case and ring from stainless steel
- Design with duplex display (“duplex pressure gauge”)
- NS 100: Liquid filling (model 713.12)
- NS 100: Measuring system, case, ring from stainless steel and liquid filling (model 733.02), medium temperature resistant up to max. 100 °C
- Subtracting movement (one pointer for differential pressure display), location of reversed pressure connection: ⊕ connection at front, ⊖ connection at back, copper alloy or stainless steel
- Panel or surface mounting flange
- Electrical switch contacts (data sheet AC 08.01), subtracting movement

Process connection
Model 711.12: Copper alloy
Model 731.12: Stainless steel
Lower mount, 2 x G ½ B (male), SW 22
Plus connection at back, minus connection at front (identified with ⊕ and ⊖)
**Dimensions in mm**

![Diagram showing dimensions](image)

<table>
<thead>
<tr>
<th>NS</th>
<th>Dimensions in mm</th>
<th>Weight in kg</th>
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<tbody>
<tr>
<td>100</td>
<td>a 15.5  b 82  D 100  G ½ B  h ±1  X 32  SW 22</td>
<td>1.00</td>
</tr>
<tr>
<td>160</td>
<td>a 15.5  b 86.5  D 160  G ½ B  h ±1  X 32  SW 22</td>
<td>1.60</td>
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</table>

Process connection per EN 837-1 / 7.3

**Approvals**

<table>
<thead>
<tr>
<th>Logo</th>
<th>Description</th>
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<tbody>
<tr>
<td>EU</td>
<td>EU declaration of conformity  Pressure equipment directive</td>
<td>European Union</td>
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<tr>
<td>EAC</td>
<td>EAC (option)  Pressure equipment directive</td>
<td>Eurasian Economic Community</td>
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<td>-</td>
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<td>-</td>
<td>CRN  Safety (e.g. electr. safety, overpressure, ...)</td>
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</table>

**Certificates (option)**

- 2.2 test report
- 3.1 inspection certificate

Approvals and certificates, see website
Ordering information
Model / Nominal size / Scale range / Version of differential pressure display / Process connection / Max. total pressure applied / Size of differential pressure / Options