Pressure Transmitter with thin film technology
for mobile hydraulic applications
Model MH-1

Applications

- Mobile Hydraulics
- Mechanical Engineering
- General Industrial applications

Special Features

- Pressure ranges from 0 ... 60 bar to 0 ... 600 bar
- Signal output 4 ... 20 mA, 1 ... 5 V
- Resistant to shock and vibration
- Ingress protection from IP 65 to IP 69 K
  (steam jet protection)
- Resistant to pressure peaks

Fig. Pressure transmitter MH-1

Description

Rugged design
The extremely high resistance to shock, vibration and pressure peaks (CDS-system), combined with degrees of protection better than IP 68, offered by model MH-1 make the instrument particularly suitable for the rough operating conditions of mobile hydraulic applications.

Pressure ranges from 0 ... 60 bar up to 0 ... 600 bar are available to meet all standard mobile hydraulic applications.

Proven thin film sensors
The hermetically welded thin film measuring cell eliminates the need for additional sealing materials and ensures long term leak tightness.

The thin film measuring cell is made of high quality stainless steel using sputtering technology to offer long term stability especially in applications subjected to frequent load changes.

The sensor is recessed into the pressure connection to offer additional protection against oil loss should the sensor become damaged by misuse on site (for example, when the sensors is destroyed by turning crane loads).

The instrument design adapted to mobile applications permits shock loads up to 500 g and vibrations up to 20 g.

Very good EMC characteristics complying with EN 61 326 as well as DIN 40 839 ensure reliable function even under difficult EMC conditions. Additional protection against load dump up to 200 V is integrated.

High ingress protection
Even extreme thermal shocks have no influence on the operational safety. This instrument offers a wide range of ingress protection classes particularly for mobile applications. In addition to a locking plug M 12x1 with ingress protection IP 67, the pressure transmitters can be shipped with a plug DIN EN 175301-803 shape C, with IP 65. Cable versions are also available with ingress protection classes up to IP 69K (steam jet protection) or premounted plugs to customer specifications.
Specifications

<table>
<thead>
<tr>
<th>Model MH-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure ranges</td>
</tr>
<tr>
<td>Over pressure safety</td>
</tr>
<tr>
<td>Burst pressure</td>
</tr>
<tr>
<td>(Other on request)</td>
</tr>
</tbody>
</table>

Materials

- Wetted parts: Stainless steel
- Case: Stainless steel
- Power supply U_b: DC V | 10 ≤ U_b ≤ 30 |
- Signal output: 4 ... 20 mA, 2-wire [1 ... 5 V, 3-wire] (Other signal outputs on request)
- Response time (10 ... 90 %): ms | ≤ 5 |
- Dielectric strength: DC V | 500 |

Accuracy

| % of span | ≤ 0.5 | (BFSL) |
| % of span | ≤ 1.0 |

*) Including non-linearity, hysteresis, non-repeatability, zero point and full scale error (corresponds to error of measurement per IEC 61298-2).

Non-linearity

| % of span | ≤ 0.4 | (BFSL) according to IEC 61298-2 |

1-year stability

| % of span | ≤ 0.2 | (at reference conditions) |

Permissible temperature of

- Medium **)
- Ambience **)
- Storage **)

** Also complies with EN 50178, Tab. 7, Operation (C) 4K4H, Storage (D) 1K4, Transport (E) 2K3

Compensated Temperature range

| 0 ≤ +85 °C | +32 ≤ +185 °F |

Temperature coefficients within compensated temp range

- Mean TC of zero | % of span | ≤ 0.3 / 10 K |
- Mean TC of range | % of span | ≤ 0.2 / 10 K |

CE conformity

| 89/336/EEC interference emission and immunity see EN 61326 |
| 97/23/EG Pressure equipment directive |

Shock resistance | g | 500 according to IEC 60068-2-27 (mechanical shock) |

Vibration resistance | g | 20 according to IEC 60068-2-6 (vibration under resonance) |

Wiring protection

Protected against short circuiting Sig+ against U_b / 0 V and reverse polarity on the instrument side

Mass | kg | Approx. 0.2 |

[ ] Items in curved brackets are optional extras for additional price.

Output signal and allowed load

Output current (2-wire)

4 ... 20 mA: \( R_L \leq (U_b - 10 \text{ V}) / 0.02 \text{ A} \) with \( R_L \) in Ohm and \( U_b \) in Volt

Output voltage (3-wire)

1 ... 5 V: \( R_L > 5 \text{ kOhm} \)
**Dimensions in mm**

### Electrical connections

**Circular connector**
- M 12x1, 4-pin
- IP 67
- Order code: M4

**Mini L-connector**
- DIN EN 175301-803, shape C,
- for conductor cross section up to max. 0.75 mm²,
- conductor outer diameter 4.5 ... 6 mm
- IP 65
- Order code: L4

**Ingress Protection IP per IEC 60 529**
- Flying leads with 1.5 m of cable for conductor cross section up to max. 0.75 mm²,
- AWG 20 with end splices, conductor outer diameter 5.9 mm (2-wire)
- 8.4 mm (3-wire)
- IP 69K
- Order code: FN

![Diagram of Electrical connections]

### Pressure connections ***)

**G 1/4 A**
- DIN 3852-E
- Order code: HD
- (max. over pressure safety 600 bar)

**1/4 NPT**
- Nominal size for US standard tapered pipe thread NPT
- Order code: NB

**M 14x1,5**
- DIN 3852-E
- Order code: HN
- (max. over pressure safety 600 bar)

![Diagram of Pressure connections]

**Pressure channel Ø 3.5 mm**

Others on request

(Cable assembly with customized plugs on request)

### For installation and safety instructions see the operating instructions for this product.

For tapped holes and welding sockets please see Technical Information IN 00.14 for download at [www.wika.de](http://www.wika.de)

---

*) Connectors are not included in delivery.

**) CDS-system: reduced pressure channel diameter for damping of pressure peaks and against cavitation.

(†) Items in curved brackets are optional extras for additional price.
Wireing details

<table>
<thead>
<tr>
<th>2-wire</th>
<th>3-wire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circular connector M 12x1</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>Mini L-connector</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>Flying leads</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
</tbody>
</table>

**Legend:**
- **power supply**
- **load (e.g. display)**

Further informations

You can obtain further information (data sheets, instructions, etc.) via Internet address www.wika.de.

Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing. Modifications may take place and materials specified may be replaced by others without prior notice.

WIKA Data Sheet PE 81.21 · 01/2006

WIKA Alexander Wiegand GmbH & Co. KG
Alexander-Wiegand-Straße 30
63911 Klingenberg/Germany
Phone (+49) 93 72/132-0
Telefax (+49) 93 72/132-406
E-Mail support-tronic@wika.de
www.wika.de