Mobile Hydraulic Pressure Transmitter
Model MH-1

Applications

- Off road equipment
- Mobile hydraulic systems
- Transmission controls

Special Features

- Pressure ranges from 1000 PSI to 8000 PSI
- 4-20 mA 2-wire output signal, others available
- Durable thin film sensor technology
- CDS system for protection from pressure spikes and cavitation
- IP 69K high pressure steam wash down protection available

Description

MH-1 pressure transmitters are precision engineered for off road and mobile hydraulic applications where performance and durability are critical. Extreme shock and vibration resistance, available high pressure steam wash down protection, and the WIKA CDS system (cavitation dampening system) provide one of the most rugged pressure transmitters available today. Pressure ranges from 1000PSI to 8000PSI meet all standard mobile hydraulic pressure applications.

The all welded thin film measuring cell eliminates the need for additional soft sealing materials that may deteriorate over time. The thin film sensor uses sputtered technology that provides excellent long-term stability in applications producing frequent pressure cycles. The thin film sensor is recessed into the hex to provide additional mechanical protection against system fluid loss in case the transmitter body is damaged.

The MH-1 is available with a range of environmental ratings from IP 65 to a cable version with IP 69K high pressure steam wash down protection ratings.

Each MH-1 undergoes extensive quality control testing and calibration to achieve an accuracy of ≤ 0.5% full scale. Each is individually temperature compensated to assure accuracy and long-term stability even when exposed to severe ambient temperature variations.
Specifications Model MH-1

<table>
<thead>
<tr>
<th>Specifications</th>
<th>1000PSI</th>
<th>1500PSI</th>
<th>2000PSI</th>
<th>3000PSI</th>
<th>5000PSI</th>
<th>8000PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure range</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum pressure*</td>
<td>2900PSI</td>
<td>2900PSI</td>
<td>4640PSI</td>
<td>7250PSI</td>
<td>11,600PSI</td>
<td>17,400PSI</td>
</tr>
<tr>
<td>Burst pressure**</td>
<td>11,600PSI</td>
<td>11,600PSI</td>
<td>14,500PSI</td>
<td>17,400PSI</td>
<td>24,650PSI</td>
<td>34,800PSI</td>
</tr>
</tbody>
</table>

*Pressure applied up to the maximum rating will cause no permanent change in specifications but may lead to zero and span shifts.

**Exceeding the burst pressure may result in destruction of the transmitter and possible loss of media.

Materials

- Wetted parts: Stainless steel
- Case: Stainless steel

Power supply $U_B$

- DC V
- $10 \leq U_B \leq 30$

Signal output

- 4 ... 20 mA, 2-wire
- (1 ... 5 V, 3-wire)
- (Other output signals available)

Response time (10 ... 90 %)

- ms ≤ 5

Accuracy *)

- % of span ≤ 1.0 (limit point calibration)

Hysteresis

- % of span ≤ 0.5 (BFSL)

Repeatability

- % of span ≤ 0.1

1-year stability

- % of span ≤ 0.2 (at reference conditions)

Permissible temperature of

- Medium: -40 ... +257 °F / -40 ... +125 °C
- Ambient: -22 ... +185 °F / -40 ... +85 °C
- Storage: -40 ... +185 °F / -40 ... +85 °C

Compensated temperature range

- +32 ... +185 °F / 0 ... +85 °C

Temperature coefficients in 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/EWG interference emission and immunity see EN 61326
- 97/23/EG Pressure equipment directive, Appendix 1

Shock resistance

- g 1000 according to IEC 60068-2-27 (mechanical shock)

Vibration resistance

- g 50 according to IEC 60068-2-6 (vibration under resonance)

Wiring protection

- Protected against reverse polarity, overvoltage and short circuiting

Ingress protection

- Per IEC 60529 / EN 60529, see page 3

Weight

- lb Approx. 0.4

1) Accuracy includes linearity, hysteresis and repeatability. Limit point calibration in vertical mounting position with pressure connection facing down.

( ) Items in curved brackets are options available at additional cost.

Output signal and permissible load

Output current (2-wire)

- $4 ... 20$ mA: $R_k \leq (U_B - 10$ V) / 0.02 A with $R_k$ in Ohm and $U_B$ in Volt

Output voltage (3-wire)

- $1 ... 5$ V: $R_k > 5$ kOhm
Dimensions in inches (mm)

**Electrical connections**

Circular connector,
4-pin IP 67 *)
Order code: M4

Mini L-connector,
DIN EN 175301-803
IP 65
Order code: I4

Flying leads
IP 69K
Order code: FN

---

**Pressure connections 1)**

1/4 NPT male
Order code: NB

G 1/4 A
DIN 3852-E
Order code: HD

M 14x1,5
DIN 3852-E
Order code: HN

---

*) Mating connector not included.
1) CDS-system: reduced diameter pressure port for damping pressure spikes and reduce cavitation.
() Items in curved brackets are options available at additional cost.

---

**Figure 1**
The solid contruction of the MH-1 provides shock resistance to 1000g and vibration resistance to 50g per IEC 770.

**Figure 2**
The thin film sensor is countersunk into the transmitter hex. This provides additional protection against loss of hydraulic fluid even if the transmitter body is severely damaged.
Wiring

<table>
<thead>
<tr>
<th>Wiring Method</th>
<th>2-wire System</th>
<th>3-wire System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circular connector M 12x1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mini L-connector shape C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flying leads</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Legend:**
- **power supply**
- **load (e.g. display)**
- **Sig+** output signal positive
- **UB+** power supply positive
- **0V** power supply negative
- **Sig-** output signal negative

Specifications and dimensions given in this data sheet 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.