

Mobile Hydraulic Pressure Transmitter Model MH-1

WIKA Datasheet 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.



Left: MH-1 with optional IP69k cable assembly
Center: MH-1 with M12 x 1 connector
Right: MH-1 with Mini DIN L-connector

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 $\leq 0.5\%$ 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

Pressure range	1000PSI	1500PSI	2000PSI	3000PSI	5000PSI	8000PSI
Maximum pressure*	2900PSI	2900PSI	4640PSI	7250PSI	11,600PSI	17,400PSI
Burst pressure**	11,600PSI	11,600PSI	14,500PSI	17,400PSI	24,650PSI	34,800PSI

{other pressure ranges available}

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

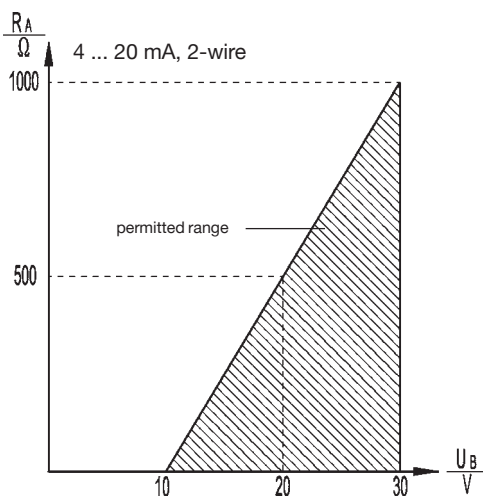
**Exceeding the burst pressure may result in destruction of the transmitter and possible loss of media

Materials			
■ Wetted parts		Stainless steel	
■ Case		Stainless steel	
Power supply U_B	DC V	$10 < U_B \leq 30$	
Signal output		4 ... 20 mA, 2-wire	
		{1 ... 5 V, 3-wire}	
		{Other output signals available}	
Response time (10 ... 90 %)	ms	≤ 5	
Accuracy ¹⁾	% 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 ... +185 °C}	-30 ... +85 °C {-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	$\leq 0.3 / 10 \text{ K}$	
■ Mean TC of range	% of span	$\leq 0.2 / 10 \text{ K}$	
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: $R_A \leq (U_B - 10 \text{ V}) / 0.02 \text{ A}$ with R_A in Ohm and U_B in Volt

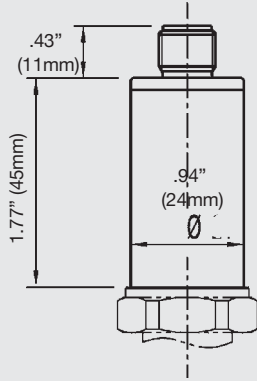
Output voltage (3-wire)

1 ... 5 V: $R_A > 5 \text{ kOhm}$

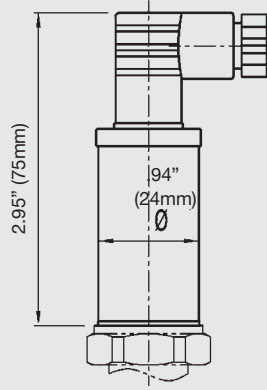
Dimensions in inches (mm)

Electrical connections

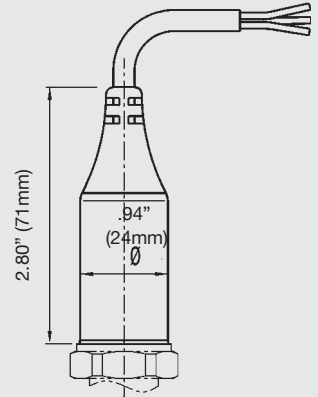
Circular connector,
4-pin IP 67 *)
Order code: M4



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



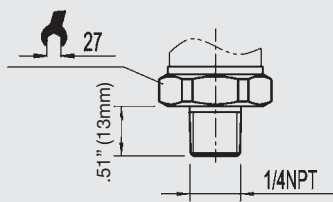
Flying leads
IP 69K
Order code: FN



{Cable assembly with custom connectors available }

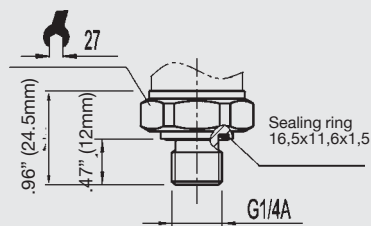
Pressure connections ¹⁾

1/4 NPT male
Order code: NB

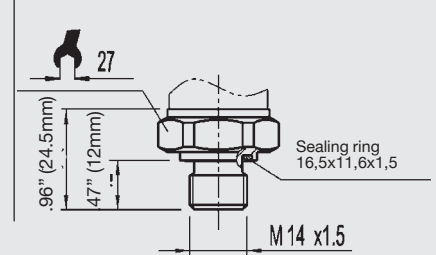


pressure port \varnothing 0.14" (3.5 mm)

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

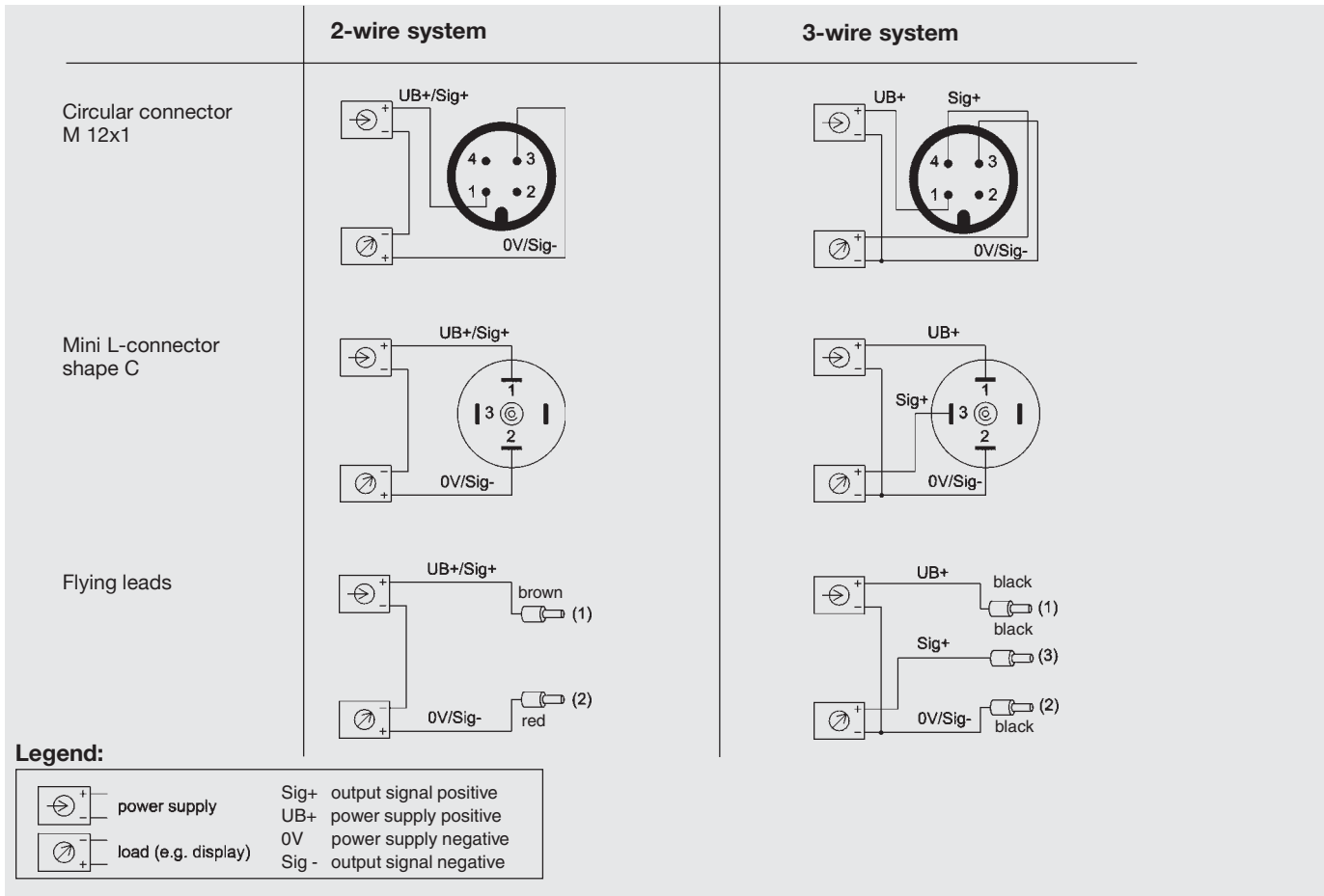
The solid construction of the MH-1 provides shock resistance to 1000g and vibration resistance to 50g per IEC 770.



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



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.



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