

OEM pressure transmitter

For mobile working machines

Model MH-3

WIKA data sheet MH-3

Applications

- Load monitoring
- Load moment limitation
- Hydraulic drive control

Special features

- Excellent reliability of supply and quality
- For extreme operating conditions
- Compact and robust design
- Diagnostic function
- Signal clamping



Pressure transmitter model MH-3

Description

Durable and robust

Shock and vibration resistance, resistance to pressure spikes from the WIKA Cavitation Dampening system (CDS), and an ingress protection of up to IP 69K make the model MH-3 pressure transmitter especially qualified for the harsh operating conditions in mobile hydraulics. Even extreme temperature shocks do not affect its performance.

The case is made of a highly resistant fiberglass reinforced thermoplastic (PBT). This material is successfully used within the automotive industry.

A metallic shield inside the instrument provides excellent EMC characteristics in accordance with EN 61326, thus ensuring reliable operation, even under high exposures of up to 100 V/m.

The hermetically-welded thin-film measuring cell ensures long-term leak-tightness, without the need for additional sealing materials.

Especially in applications with high dynamic load cycles, the thin-film measuring cell features high long-term stability and load-cycling resistance.

State-of-the-art manufacturing

The model MH-3 pressure transmitter has been specifically developed for OEM applications in mobile hydraulics.

Diagnostic function

As a measuring instrument of the latest generation, the MH-3 features a diagnostic function. By means of the output signal, fault conditions can be detected and evaluated via software. Thus it is possible to differentiate between permanent and temporary faults.

Measuring ranges

Selectable versions							
Gauge pressure in psi							
Measuring range	0 ... 600	0 ... 900	0 ... 1,500	0 ... 2,400	0 ... 3,750	0 ... 6,000	0 ... 9,000
Overpressure limit	1,200	1,800	3,000	4,800	7,500	12,000	18,000
Burst pressure	6,000	8,250	12,000	15,000	18,000	25,000	36,000

Measuring ranges < 600 psi on request

Vacuum Safe - Standard for all ranges

Output signals

Selectable versions	
Signal type	Signal
Current (2-wire)	4 ... 20 mA
Voltage (3-wire)	DC 0 ... 10 V
	DC 1 ... 5 V
	DC 1 ... 6 V
Ratiometric	DC 0.5 ... 4.5 V

Other output signals available on request

Load

- 4 ... 20 mA: $\leq (\text{power supply} - 10 \text{ V}) / 0.02 \text{ A}$
- DC 0 ... 10 V: $> 5 \text{ k}\Omega$
- DC 1 ... 5 V: $> 2.5 \text{ k}\Omega$
- DC 0.5 ... 4.5 V: $> 4.5 \text{ k}\Omega$

Voltage supply

Power supply

The power supply depends on the selected output signal.

- 4 ... 20 mA: DC 10 ... 36 V
- DC 0 ... 10 V: DC 14 ... 36 V
- DC 1 ... 5 V: DC 8 ... 36 V
- DC 1 ... 6 V: DC 9 ... 36 V
- DC 0.5 ... 4.5 V: DC 4.5 ... 5.5 V

Current consumption

The current consumption depends on the selected output signal.

- 4 ... 20 mA: $< 30 \text{ mA}$
- DC 0 ... 10 V: $< 10 \text{ mA}$
- DC 1 ... 5 V: $< 10 \text{ mA}$
- DC 1 ... 6 V: $< 10 \text{ mA}$
- DC 0.5 ... 4.5 V: $< 10 \text{ mA}$

Reference conditions (per IEC 61298-1)

Temperature

59 ... 77 °F (15 ... 25 °C)

Atmospheric pressure

345 ... 426 inch of water column (860 ... 1,060 mbar)

Humidity

45 ... 75 % r. h.

Power supply

DC 24 V

Mounting position

Calibrated in vertical mounting position with pressure connection facing downwards.

Accuracy data

Accuracy at reference conditions

Maximum: $\leq \pm 1$ % of span

Including non-linearity, hysteresis, zero offset and end value deviation (corresponds to measured error per IEC 61298-2).

Non-linearity (per IEC 61298-2)

Maximum: $\leq \pm 0.4$ % of span BFSL

Typical: $\leq \pm 0.25$ % of span BFSL

Temperature error in rated temperature range

Rated temperature range: $-40 \dots +212$ °F ($-40 \dots +100$ °C)

Mean temperature coefficient of zero point:

$\leq \pm 0.15$ % of span/10K

Mean temperature coefficient of span:

$\leq \pm 0.08$ % of span/10K

Settling time

≤ 2 ms

Long-term stability

Typical: $\leq \pm 0.2$ % of span/year

Operating conditions

Ingress protection (per IEC 60529)

The ingress protection depends on the type of electrical connection.

- Circular connector M12 x 1 (4-pin): IP 67
- Metri-Pack series 150 (3-pin): IP 67
- AMP Superseal 1.5 (3-pin): IP 67
- AMP Micro Quadlock (3-pin): IP 67
- Deutsch DT04-3P (3-pin): IP 67
- Cable outlet: IP 69K

The stated ingress protection only applies when plugged in using mating connectors that have the appropriate ingress protection.

Vibration resistance

20 g (per IEC 60068-2-6, under resonance)

Shock resistance

500 g (per IEC 60068-2-27, mechanical)

Permissible temperature ranges

- Ambient: $-40 \dots +212$ °F ($-40 \dots +100$ °C)
- Medium: $-40 \dots +257$ °F ($-40 \dots +125$ °C)
- Storage: $-40 \dots +212$ °F ($-40 \dots +125$ °C)

Electrical connections

Short-circuit resistance

S₊ vs. U₋

Reverse polarity protection

U₊ vs. U₋

(no reverse polarity protection with ratiometric output signal)

Insulation voltage

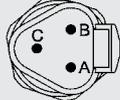
DC 500 V

Connection diagrams

Circular connector M12 x 1 (4-pin)			
		2-wire	3-wire
	U ₊	1	1
	U ₋	3	3
	S ₊	-	4

AMP Superseal 1.5 (3-pin)			
		2-wire	3-wire
	U ₊	3	3
	U ₋	1	1
	S ₊	-	2

Metri-Pack series 150 (3-pin)			
		2-wire	3-wire
	U ₊	B	B
	U ₋	A	A
	S ₊	-	C

Deutsch DT04-3P (3-pin)			
		2-wire	3-wire
	U ₊	A	A
	U ₋	B	B
	S ₊	-	C

Cable outlet			
		2-wire	3-wire
	U ₊	brown	brown
	U ₋	green	green
	S ₊	-	white

Wire cross-section 0.75 mm² (with end splices)

Cable diameter 6.6 mm

Cable length 0.5 m or 2 m

Legend

- U₊ Positive power supply terminal
- U₋ Reference potential
- S₊ Positive output terminal

Process connections

Process connection per	Thread size
EN 837	G ¼ B
DIN 3852-E	G ¼ A M14 x 1.5
ANSI/ASME B1.20.1	¼ NPT
ISO 6149-2	M14 x 1.5
SAE J514 Fig.34B	7/16-20 UNF-2A

Sealings

Thread size	Standard FKM/FPM	Option 1 NBR	Option 2 FVMQ
G ¼ A DIN 3852-E	-40 ... +257 °F	-22 ... +212 °F	-
M14 x 1.5 ISO 6149-2	-40 ... +257 °F	-22 ... +248 °F	-40 ... +257 °F
7/16-20 UNF-2A (O-ring BOSS)	-40 ... +257 °F	-40 ... +212 °F	-

If not specified when ordering, the sealing material listed under "Standard" will be included with the thread connection.

WIKA Cavitation Dampening System (CDS):

All process connections come standard with the CDS system.

The pressure channel is designed to counteract the effects of pressure spikes and cavitation in hydraulic systems. (see fig.1).

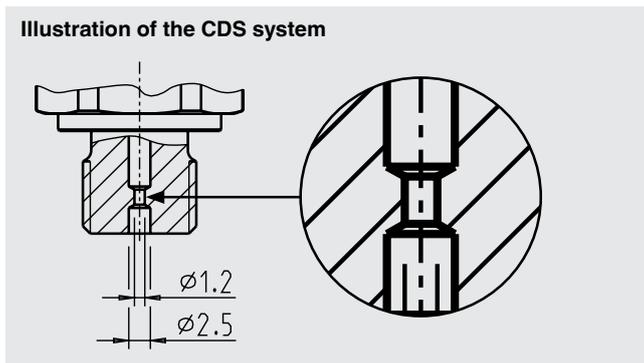


Fig. 1: Design of the pressure inlet channel

Materials

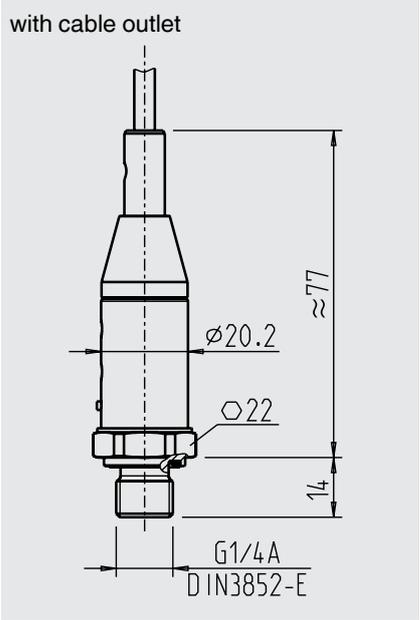
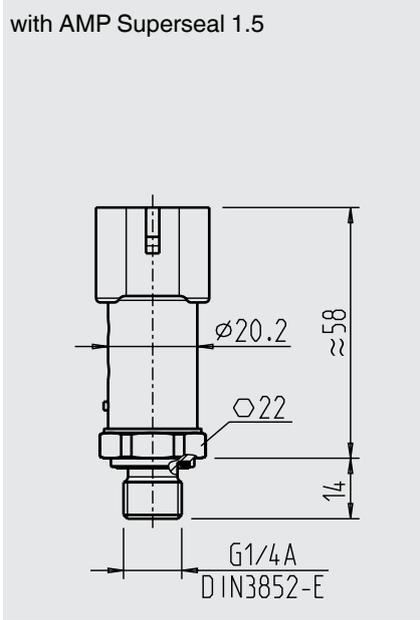
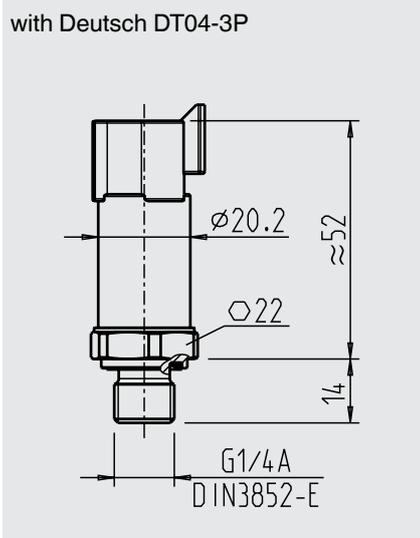
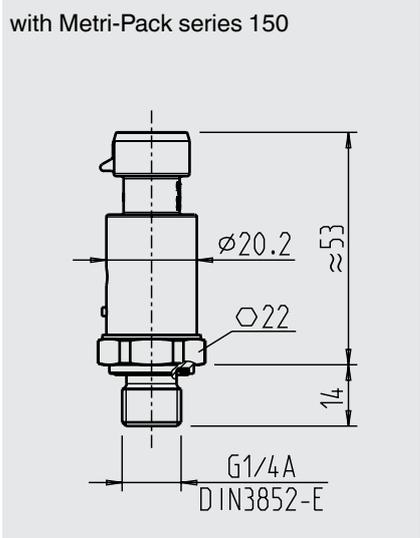
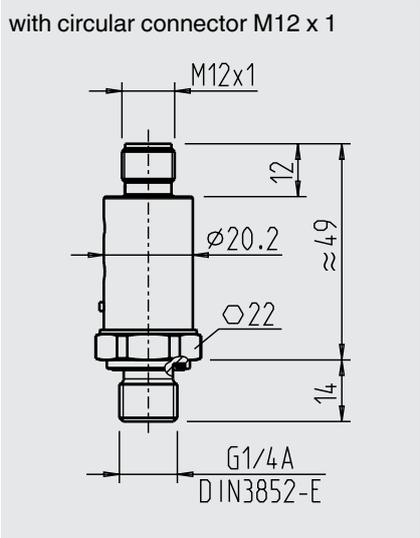
Wetted parts

Stainless steel

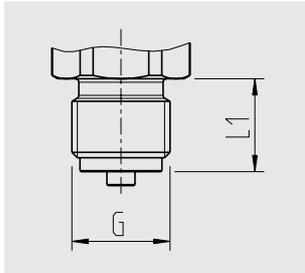
Non-wetted parts

Highly resistant fiberglass reinforced plastic (PBT)

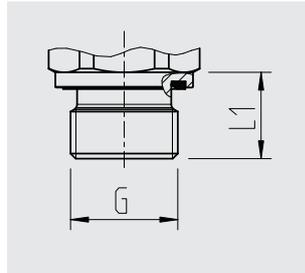
Dimensions in mm



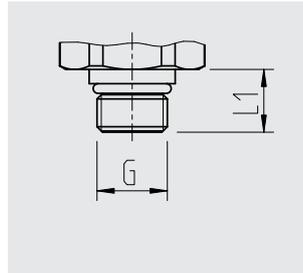
Process connections



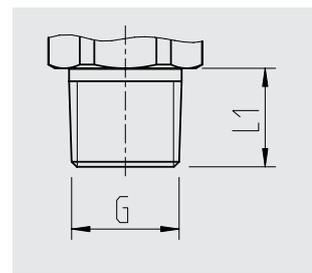
G	L1
G ¼ B EN 837	13



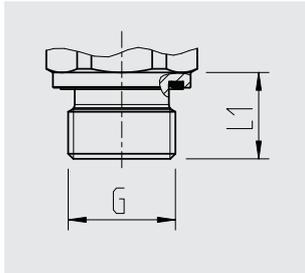
G	L1
G ¼ A DIN 3852-E	14
M14 x 1.5 DIN 3852-E	14



G	L1
7/16-20 UNF	12



G	L1
¼ NPT	13



G	L1
M14 x 1.5 ISO 6149-2	13.5

For information on tapped holes and welding sockets, see Technical information IN 00.14 at www.wika.com.

Approvals

Logo	Description	Country
	EC declaration of conformity <ul style="list-style-type: none"> EMC directive 2004/108/EC, EN 61326 emission (group 1, class B) and immunity (industrial application) Pressure equipment directive 97/23/EC 	European Community

Ordering information

Model / Measuring range / Output signal / Process connection / Sealing material / Electrical connection

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WIKAI Instrument, LP
1000 Wiegand Blvd.
Lawrenceville, GA 30043
Tel. (888) WIKAI-USA | (888) 945-2872
info@wika.com
www.wika.com