OEM pressure transmitter
For mobile working machines
Model MH-3

Applications

- Load monitoring
- Load moment limitation
- Hydraulic drive control

Special features

- For extreme operating conditions
- Compact and robust design
- Diagnostic function (option)
- Signal clamping (option)
- Customer-specific modifications possible

Pressure transmitter model MH-3

Description

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

The case is made of a highly resistant glass-fibre reinforced plastic (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
Our manufacturing concept is optimally designed für the production of OEM needs. Also customer-specific modifications of the instuments are possible.

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 bar							
Measuring range	**0 ... 40**	**0 ... 60**	**0 ... 100**	**0 ... 160**	**0 ... 250**	**0 ... 400**	**0 ... 600**
Overpressure limit	80	120	200	320	500	800	1,200
Burst pressure	400	550	800	1,000	1,200	1,700	2,400

Measuring ranges < 40 bar on request

Vacuum tightness
Yes

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: ≤ (power supply - 10 V) / 0.02 A
- DC 0 ... 10 V: > 5 kΩ
- DC 1 ... 5 V: > 2.5 kΩ
- DC 1 ... 6 V: > 5 kΩ
- DC 0.5 ... 4.5 V: > 10 kΩ

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 mA
- DC 0 ... 10 V: < 10 mA
- DC 1 ... 5 V: < 10 mA
- DC 1 ... 6 V: < 10 mA
- DC 0.5 ... 4.5 V: < 10 mA

Reference conditions (per IEC 61298-1)

Temperature
15 ... 25 °C

Atmospheric pressure
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: ≤ ±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: ≤ ±0.4 % of span BFSL
Typical: ≤ ±0.25 % of span BFSL

Temperature error at -40 ... +100 °C
Mean temperature coefficient of zero point:
≤ ±0.15 % of span/10K

Mean temperature coefficient of span:
≤ ±0.08 % of span/10K

Settling time
≤ 2 ms

Long-term stability
Typical: ≤ ±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
- 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 ... +100 °C
- Medium: -40 ... +125 °C
- Storage: -40 ... +100 °C

Electrical connections

Short-circuit resistance
S_+ vs. U-

Reverse polarity protection
U_+ vs. U-
(no reverse polarity protection with ratiometric output signal)

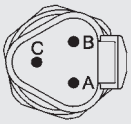
Insulation voltage
DC 500 V

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, 2 m or 5 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 and temperature ranges

Thread size	Standard FKM/FPM	Option 1 NBR	Option 2 FVMQ
G ¼ A DIN 3852-E	-40 ... +125 °C	-30 ... +100 °C	-
M14 x 1.5 ISO 6149-2	-20 ... +125 °C	-30 ... +120 °C	-40 ... + 125 °C
7/16-20 UNF-2A (O-ring BOSS)	-20 ... +125 °C	-40 ... +100 °C	-

The sealings listed under "Standard" are included in the delivery.

CDS system
All process connections are available with the CDS system. The diameter of the pressure channel is reduced in order to counteract pressure spikes and cavitation (see fig.1).

Illustration of the CDS system

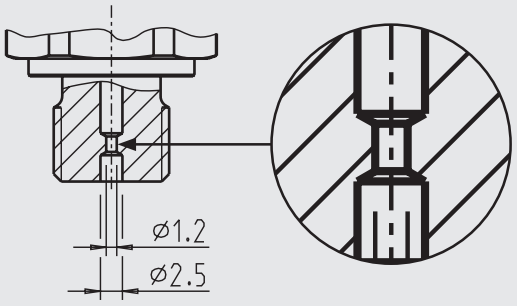


Fig. 1: Reduced diameter of the pressure channel

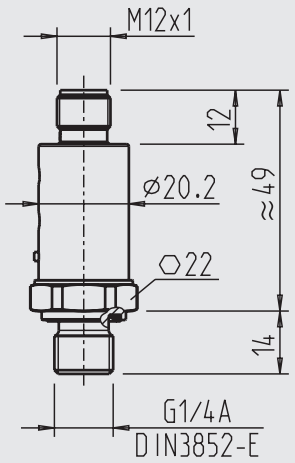
Materials

Wetted parts
Stainless steel

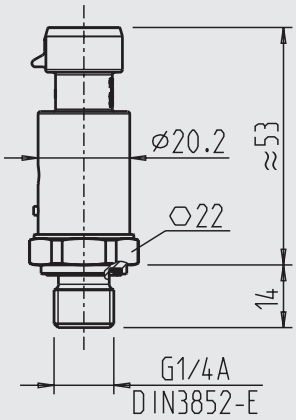
Non-wetted parts
Highly resistant glass-fibre reinforced plastic (PBT)

Dimensions in mm

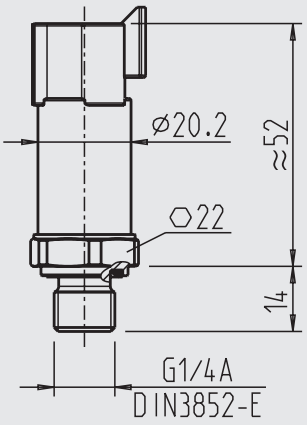
with circular connector M12 x 1



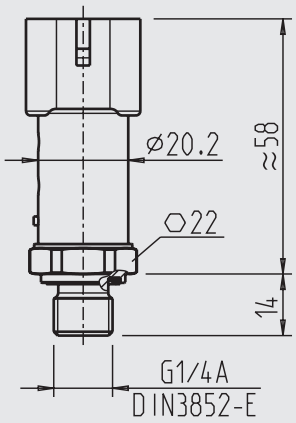
with Metri-Pack series 150



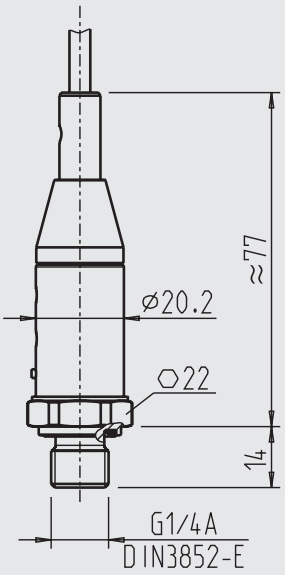
with Deutsch DT04-3P



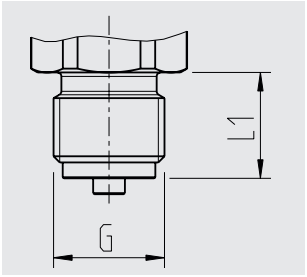
with AMP Superseal 1.5



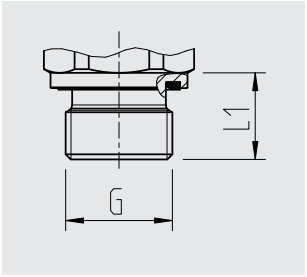
with cable outlet



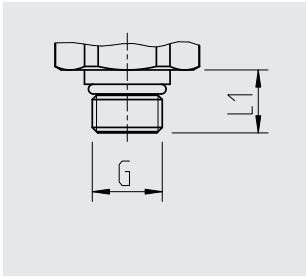
Process connections



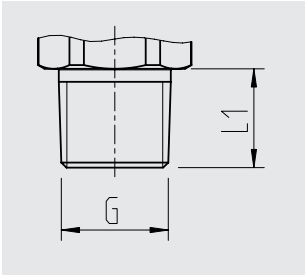
G	L1
G ¼ B EN 837	13



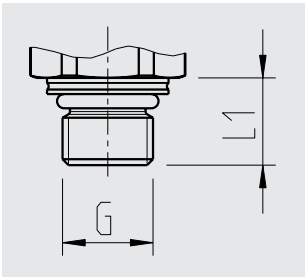
G	L1
G ¼ A DIN 3852-E	14
M14 x 1.5 DIN 3852-E	14



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
CE	**EC declaration of conformity** ■ EMC directive 2004/108/EC, EN 61326 emission (group 1, class B) and immunity (industrial application) ■ Pressure equipment directive 97/23/EC	European Community

Approvals and certificates, see website

Ordering information

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

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