

Pressure transmitter for mobile hydraulic applications With output signals CANopen® and J1939 Model MHC-1

WIKA data sheet PE 81.49

CANopen®

Applications

- Construction machinery
- Agricultural machinery
- Industrial trucks
- Cranes

Special features

- Tested for harsh environmental conditions
- High EMC protection
- Version with integrated Y-connector
- CANopen® and J1939 output signals



Model MHC-1

Fig. left: With M12 x 1 circular connector

Fig. right: With integrated Y-connector

Description

Reliable and high-performance

The long-standing experience of WIKA in the area of serial bus systems, and also with digital pressure transmitters has been incorporated into this instrument.

The model MHC-1 combines outstanding temperature characteristics, excellent accuracy specifications and an instrument concept that has been designed for the severe operating conditions of mobile applications.

A special qualification test programme simulated these high requirements.

CANopen® or J1939

This pressure transmitter has been specifically developed in order that the typical protocols for mobile hydraulics can be offered in a single instrument. The model MHC-1 is available with either CANopen® or J1939 protocol.

Application oriented

It is possible to order these instruments preconfigured so that they can be installed without further effort. In addition, a version with an integrated input and output connector (Y-connector) offers a very easy and secure installation. Both connector variants of the pressure transmitter have been qualified with an IP 6K9K ingress protection.

Measuring ranges

Relative pressure								
bar	Measuring range	0 ... 60	0 ... 100	0 ... 160	0 ... 250	0 ... 400	0 ... 600	0 ... 1,000
	Overpressure limit	120	200	320	500	800	1,200	1,500
	Burst pressure	240	400	640	1,000	1,600	2,400	3,000
psi	Measuring range	0 ... 1,000	0 ... 1,500	0 ... 2,000	0 ... 3,000	0 ... 5,000	0 ... 10,000	
	Overpressure limit	1,740	2,900	4,000	6,000	10,000	17,400	
	Burst pressure	3,480	5,800	9,280	14,500	23,200	34,800	

Other measuring ranges on request

Vacuum tightness

Yes

Output signals

Signal type	Signal
CANopen®	Device profile DS-404
J1939	SAE J1939

Voltage supply

Power supply

DC 10 ... 30 V

Total current consumption

< 40 mA

Reference conditions (per IEC 61298-1)

Temperature

15 ... 25 °C

Atmospheric pressure

860 ... 1,060 mbar

Humidity

45 ... 75 % relative

Power supply

DC 24 V

Mounting position

Calibrated in vertical mounting position with pressure connection facing downwards.

Accuracy specifications

Accuracy at reference conditions

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

Accuracy	
Standard	≤ ±1 % of span
Option	≤ ±0.5 % of span

Measuring rate

maximum 1,000 Hz

Non-linearity (per IEC 61298-2)

≤ ±0.2 % of span BFSL

Additional maximum temperature error

The model MHC-1 is temperature compensated in the range from -40 ... +85 °C.

0,2 %/10 K in the range from -40 ... +85 °C

- Temperature range 0 ... 60 °C: ≤ ±0.5 % of span
- Temperature range -20 ... +85 °C: ≤ ±1 % of span

Settling time

≤ 1.5 ms (baud rate ≥ 125 k)

Long-term stability

≤ ±0.2 % of span/year

Operating conditions

Ingress protection (per ISO 20653)

IP 6K9K

The stated ingress protection only applies when plugged in using a mating connector that has the appropriate ingress protection.

Vibration resistance (per IEC 60068-2-6)

20 g

Shock resistance (per IEC 60068-2-27)

500 g

Service life

> 10 million load cycles

Free fall test

Resistant to an impact onto concrete from 1 m

Temperatures

- Medium: -40 ... +125 °C
- Ambient: -40 ... +85 °C
- Storage: -40 ... +100 °C

EMC

RF field

- 80 ... 1.000 MHz: 100 V/m
- 1.000 ... 4.200 MHz: 60 V/m

Process connections

Standard	Thread size
DIN 3852-E	G ¼ A M14 x 1.5
ANSI/ASME B1.20.1	¼ NPT
SAE	7/16-20 UNF O-ring: BOSS

Sealings

Process connection per	Standard	Option
DIN 3852-E	FKM	NBR
SAE	O-ring: BOSS	-

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

Other sealings available on request

Electrical connections

The model MHC-1 is available in two connection variants.

Connection variant	Electrical connection
Single connection	Circular connector M12 x 1
Double connection with integrated Y-connector	Circular connector M12 x 1 and female connector M12 x 1

Short-circuit resistance

CAN-High/CAN-Low vs. U₊/U₋

Reverse polarity protection

U₊ vs. U₋


Overvoltage protection


DC 36 V

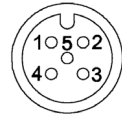
Insulation voltage

DC 500 V

Connection diagrams

Single connection with M12 x 1 circular connector											
	<table border="1"> <tr><td>U₊</td><td>2</td></tr> <tr><td>U₋</td><td>3</td></tr> <tr><td>CAN-High</td><td>4</td></tr> <tr><td>CAN-Low</td><td>5</td></tr> <tr><td>Shield</td><td>1</td></tr> </table>	U ₊	2	U ₋	3	CAN-High	4	CAN-Low	5	Shield	1
U ₊	2										
U ₋	3										
CAN-High	4										
CAN-Low	5										
Shield	1										

Double connection with integrated Y-connector											
Circular connector M12 x 1											
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Female connector M12 x 1											
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CAN-High	4										
CAN-Low	5										
Shield	1										

Materials

Non-wetted parts

Stainless steel

Wetted parts

- Stainless steel
- For sealing materials see "Process connections"

Approvals, directives and certificates

CE conformity

- EMC directive 2004/108/EC, EN 61326 emission (group 1, class B) and interference immunity (industrial application)
- Pressure equipment directive 97/23/EC

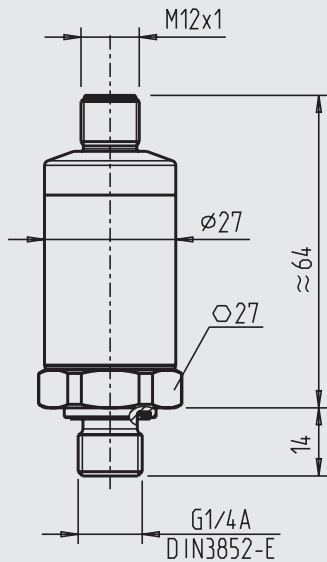
RoHS conformity

Yes

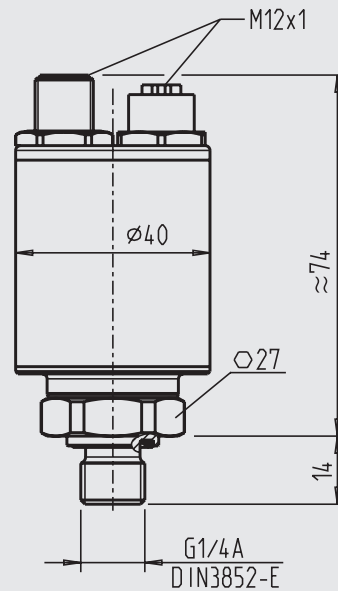
Dimensions in mm

Pressure transmitters

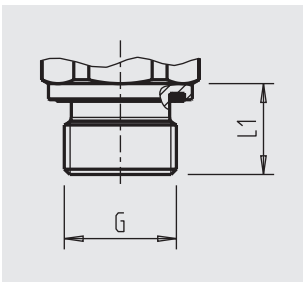
Single connection with M12 x 1 circular connector



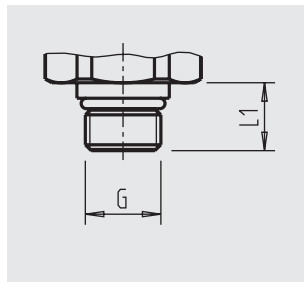
Double connection with integrated Y-connector
Circular connector M12 x 1 and female connector M12 x 1



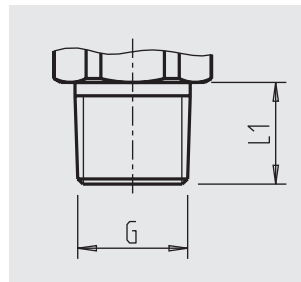
Process connections



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



G	L1
7/16-20-2A UNF	12



G	L1
¼ NPT	13

Other process connections on request

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

Configuration of the CANopen® interface

The model MHC-1 can be ordered preconfigured according to customer requirements.

Baud rate	
0	1.000 kbit/s
1	800 kbit/s
2	500 kbit/s
3	250 kbit/s (standard)
4	125 kbit/s
5	100 kbit/s
6	50 kbit/s
7	20 kbit/s

Node ID	
001 ... 127	001 (standard) ¹⁾

¹⁾ Select one numerical value

PDO mapping	
I	Object 0x9130 subindex 1 (32 bit integer format) (standard)
F	Object 0x6130 subindex 1 (IEEE754 float format)

Decimal points	
A	Automatic (standard)
0 ... 9	Number of decimal points ¹⁾

¹⁾ Select one numerical value

Transmission type	
001 ... 240	Synchronous transmission 001 (standard) ¹⁾
253	Remote transmission request
254	Asynchronous cyclic transmission

¹⁾ Select one numerical value

Event timer	
0	Without (standard)
00001 ... 65535	Event timer in milliseconds ¹⁾

¹⁾ Select one numerical value

Auto operational	
Z	Off (standard)
A	On

COB ID SYNC	
Z	0x80 (standard)
A	0x100

COB ID used by PDO	
A	0x180 (standard)
B	0x200
C	0x280
D	0x300
E	0x380
F	0x400
G	0x480
H	0x500

Heartbeat	
0	Without (standard)
00001 ... 65535	Heartbeat in milliseconds ¹⁾

¹⁾ Select one numerical value

The listed parameters are also adjustable with the WIKA software EasyCom or any standard CANopen® software tool. For further information on the configuration see software instruction manual and the EDS file (Electronic Data Sheet). These files are available at www.wika.com.

Accessories

Designation	Order number
PCAN-USB adapter, cable set and power supply for configuration of CANopen® / J1939 design (for Windows® 98, ME, 2000, XP, Vista, Windows® 7)	7483167

Windows is a registered trademark of Microsoft Corporation in the United States and other countries.

Ordering information

Model / Measuring range / Output signal / Accuracy / Process connection / Electrical connection /
Configuration of the CANopen® interface / Accessories

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