FISCHER MESS- UND REGELTECHNIK

Data sheet

ME05 | Pressure transducer

Applications

The pressure transducer ME05 is used to measure the process variable 'pressure' in industrial process measurement technology.

Important features

- highly corrosion-resistant
- sturdy wear-resistant measuring unit
- can also be used in aggressive media

Design and mode of operation

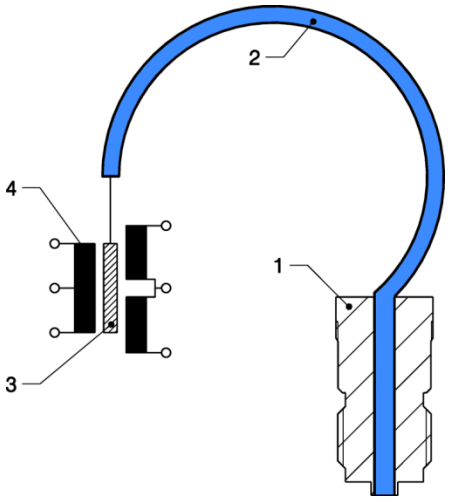
The pressure transducer ME05 has a modular design. It basically comprises the measuring system and the electronics which consist of the power supply unit, amplifier and control board.

The measuring system and electronics are installed in the same housing. The housing is divided with a separator. The electronics control panel can be accessed by unscrewing the lid of the housing.

Over-pressure in the Bourdon tube causes a proportional deflection that is also executed by the transfer core attached to the end of the Bourdon tube.

This pressure-proportional movement creates a change of voltage in the inductive pickup system. The downstream electronics convert the voltage change into a direct current signal.

Functional Schematic



1 Process connection
2 Bourdon tube
3 Transfer core
4 Inductive pickup

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Technical data

Measuring ranges	bar 0…1	bar 0…1.6	bar 0…2.5	bar 0…4	bar 0…6	bar 0…10	bar 0…16	bar 0…25	bar 0…40	bar 0…60	bar 0…100	bar 0…160	bar 0…250				

General points

Measuring principle	Bourdon tube measuring element with an inductive pickup system (see function chart)
Measuring media	Gases, vapours, fluids
Overload limit	1.5 x upper range value (momentary)
Measuring ranges	0 … 1.0 bar to 0 … 250 bar (customer-specific measuring ranges are possible *)
Measuring span	Can be set steplessly from 20% … 100% of the max. measuring range
Measuring start	Can be set steplessly from 0% to 100% of the measuring range when the characteristic curve falls (switchable) can be set steplessly from 100% to 0% of the measuring range

Ambient conditions

Ambient temperature:	-10 °C … +70 °C
Storage temperature	-25 °C … +80 °C
Humidity	≤95% annual mean value, moisture condensation permissible
Electromagnetic compatibility	DIN EN 61000-6-2 (interference resistance in the industrial field) DIN EN 61000-6-4 (emitted interference in the industrial field)

Electrical data

Technology	Analogue
Electrical connection type	4-conductor, electrically isolated
Auxiliary energy	24V DC +50 % / -25 % 5 W
Output signal	0/4 … 20 mA
Test socket	Checking the output signal
Admissible resistance	0 … 750 Ohm
Characteristic curve	Linear, rising or falling (switchable)
Rising time (damping module)	0.3; 0.6; 1.0; 1.5; 3; 5 and 10s (pluggable)

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Technical data (cont'd)

	Housing
Device structure	Compact design
Housing (amplifier housing)	Copper-free aluminium (AlMgSiPb)
Protection class as per EN 60 529/IEC 529	IP65
Assembly type	Wall and pipe mounting, material 1.4301 (AISI 304)
Nominal position, installation position	Vertical, amplifier in front position
colour	2K-epoxy coloured paint RAL 5021 silk-gloss
	Materials that come into contact with the measuring media
Measuring element	Bourdon tube chromium nickel steel 1.4404 (AISI 316L)
Process connection	Chromium nickel steel 1.4571 (AISI 316Ti)
	Ports
Device connection	Plug / plug connection Harting HAN 7D
Process connection	G1/2“ B outer thread vertical downwards, DIN EN 837
	Weight
Differential pressure transducer	≤ 2.2 kg
Assembly parts	≤ 0.6 kg (wall mount)

Technical data (cont'd)

Error tolerances according to DIN EN 60770

	Characteristic curve conformity[1]
	Linear characteristic curve
Measurement deviation (Non-linearity, hysteresis, non-repetitive)	≤ 0.75 %
Non-linearity/noncompliance	≤ 0.4 %
Hysteresis	≤ 0.4 %
Non-repetitive	≤ 0.3 %
	Temperature influence[1]
on the zero-point	≤ 0.2 % / 10 K
on the measuring span	≤ 0.2 % / 10 K
	Impact of range overstepping by 50% of the measuring range on the zero-point in both directions[1]
on the zero-point	≤ 0.2 %
on the measuring span	≤ 0.2 %
	Electrical influences
Power supply influence	≤ 0.01% / V
Output load influence	≤ 0.01 % / 100 Ohm
Output ripple	≤ 3 %
Grounding influence	≤ 0.1 %
Energy input	≤ 5 W
Insulation resistance	> 1 MΩ
Withstand voltage	≤ 500 V AC
	Jump response
Without attenuation module	Time constants (0…63 %): < 0.4 s Rising time (0…90 %): < 0.6 s
	Other influences1
Long-term stability (long-term drift)	≤ 0.2% every six months
Behaviour in case of system-related pressure oscillations (at a max. amplitude of ±10 % FS and a frequency of 10 … 80 Hz)	The constant component of the output signal is not impacted on impermissibly by the superimposed pressure oscillations.
	Position dependency for ±10 °1
All measuring ranges	< 0.15 %

[1] All deviations do not refer to the non-spread measuring range. These deviations increase proportionally to the set spread.

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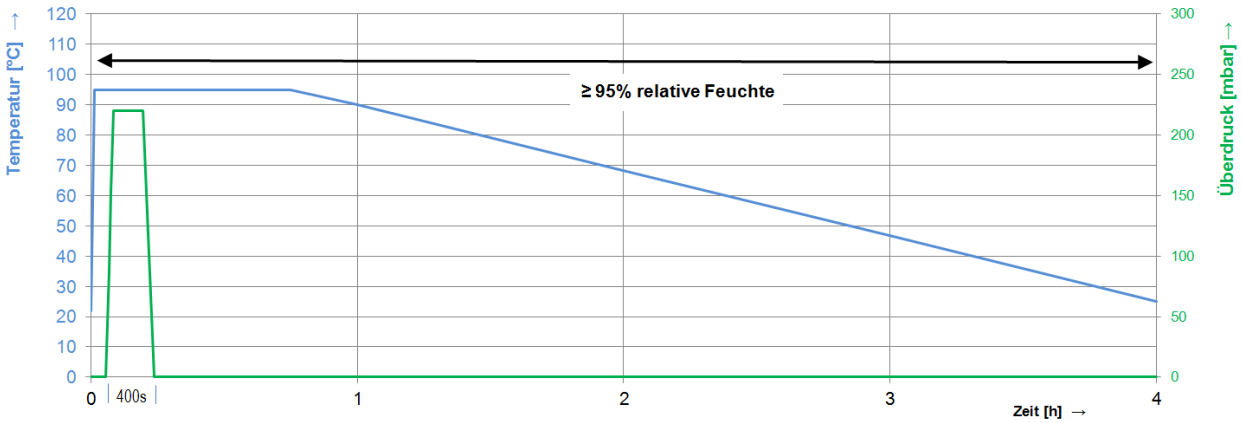
Technical data (cont'd)

for the scope, power station KTA 3505'

	Design 'K'
Product qualification	in compliance with KTA 3505
Area of application	Reactor protection system "KMV incident - ring room leak 1"
Safety-relevant classification	according to DIN IEC 61226 in category A
Manufacturer qualification	KTA 1401
Assembly type	Assembly in compliance with operating equipment installation plan
allowed deviation during mechanical load in compliance with KTA3505 Sec. 5.8	≤ 3% [2] Test was carried out in compliance with the operating equipment installation plan ME05 (09.005.00.35146.3)
	Measurement deviation for KMV incident loss of coolant[3]
Behaviour in case of pressure, temperature and moisture stress in the transient range	≤ 8 % [4]
Behaviour in case of pressure, temperature and moisture stress in the stationary range	≤ 5 % [5]
Measuring deviation after pressure, temperature and moisture load	≤ 2 %
Behaviour in case of radiation load	≤ 5 % [6]

Unique allowed incident load



[2] Deviation after the load: see information under measuring deviation page 4

[3] All deviations do not refer to the non-spread measuring range. These deviations increase proportionally to the set spread.

[4] Maximum deviation in the transient range during fast temperature change like at the start of the incident load or under great ambient pressure changes through to pressure equalisation in the housing

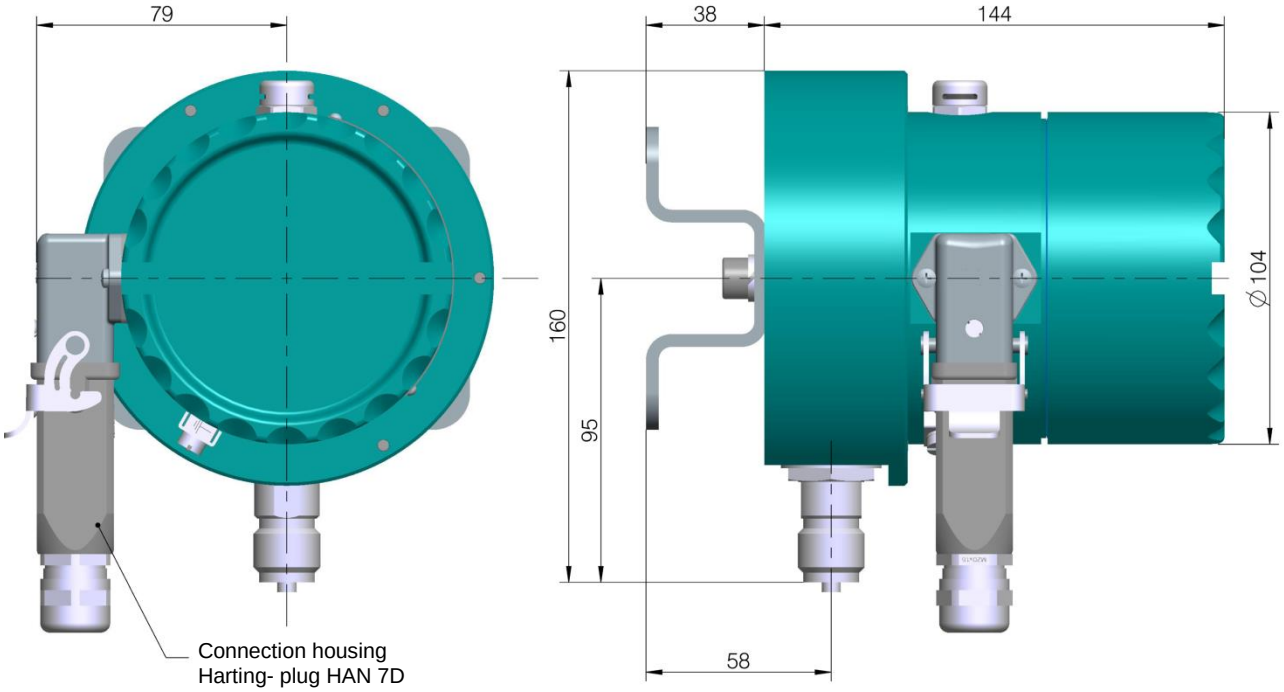
[5] Maximum deviation in the stationary range after the measuring system has stabilised during the incident load.

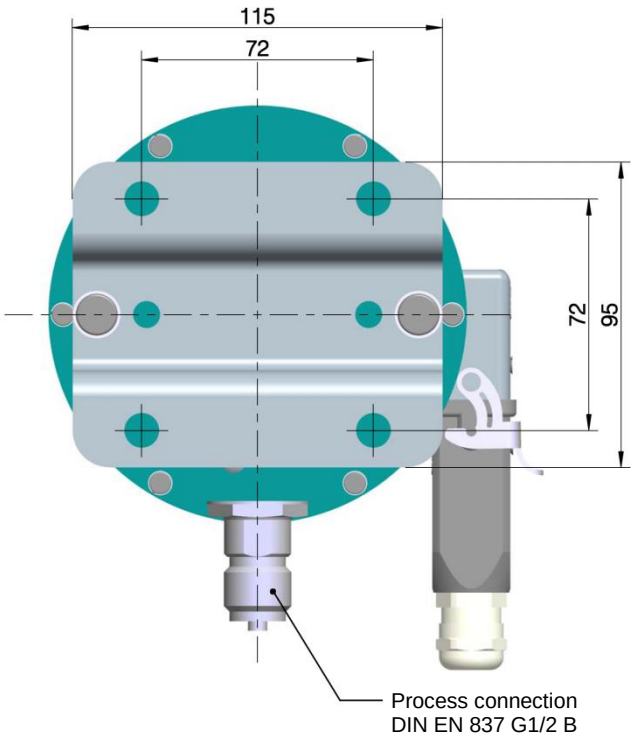
[6] Behaviour in case of a dosing output 5Gy/h < Ḋ ≤ 25 Gy/h up to a total dose of 1000 kGy.

Dimensional drawings

(all dimensions in mm unless otherwise specified)

Process connection design below





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Order Codes

Pressure transducer

Type ME05 | | | | 0 | 8 | 7 | | 9 | | 0 | | | U####

Measurement range

0 ..... 1 bar	>	0 2
0 ..... 1.6 bar	>	0 3
0 ..... 2.5 bar	>	0 4
0 ..... 4 bar	>	0 5
0 ..... 6 bar	>	0 6
0 ..... 10 bar	>	0 7
0 ..... 16 bar	>	0 8
0 ..... 25 bar	>	0 9
0 ..... 40 bar	>	1 0
0 ..... 60 bar	>	1 1
0 ..... 100 bar	>	1 2
0 ..... 160 bar	>	1 3
0 ..... 250 bar	>	1 4

Area of application

Industry	>	0
Power station KTA 3505	>	K

Pressure connection

Connection shanks with external thread G ½ B, 1.4571	>	8 7

Electrical output signal

0–20 mA linear, 4-conductor	>	A
4–20 mA linear, 4-conductor	>	P

Operating voltage

24 V DC (18 - 36 V DC)	>	9

Assembly

Direct assembly	>	0
Wall mounting	>	W

Electronic attenuation

without	>	0
0.3 s	>	1
0.6 s	>	2
1.0 s	>	3
1.5 s	>	4
3.0 s	>	5
5.0 s	>	6
10.0s	>	7

AKZ (Please clearly state the system code in plain text on the order!)

without system code	>	0
with system code on the type plate	>	1

Special customer-specific measuring range:

When a customer-specific measuring range is ordered, the next largest standard measuring range is selected.
The customer-specific measuring range must be stated in plain text on the order.
The order code is supplemented with an attached code ex works to securely identify the device.

Example: ME05020087A9W000 U####

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