FISCHER MESS- UND REGELTECHNIK

Operating instructions

ME01 | Digital manometer

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1 Safety guidelines

1.1 General Information

This operating manual contains instructions fundamental to the installation, operation and maintenance of the device that must be observed unconditionally. It must be read by the assembler, operator and the specialized personnel in charge of the instrument before it is installed and put into operation. This operating manual must always be accessible at the place of installation.

The subsequent sections on general safety instructions 1.2 - 1.7 as well as the following special instructions ranging from intended use to disposal 2-10 contain important safety instructions the non-observance of which can cause danger to persons, animal and physical objects.

1.2 Personnel Qualification

Staff assigned to assembly, operating, maintenance and inspection tasks shall be adequately qualified for this work and must be sufficiently instructed and trained to meet the requirements of assembly, operating, maintenance and inspection work.

1.3 Risks due to Non-Observance of Safety Instructions

Non-observance of these safety instructions, the intended use of the device or the limit values given in the technical specifications can be hazardous or cause harm to persons, the environment or the plant itself. Fischer Mess- und Regeltechnik GmbH will not be liable for damage claims if this should happen.

1.4 Safety Instructions for the Operating Company and the Operator

The safety instructions governing correct operation of the instrument must be observed. The operating company must make them available to the installation, maintenance, inspection and operating personnel. Dangers arising from electrical components, energy discharged by the medium, escaping medium and incorrect installation of the instrument must be eliminated. For more information, please see the applicable national and international regulations, such as DIN, EN, accident prevention regulations (UVV) and - for industry-specific individual applications - also in the industry guidelines issued by the DVWG, Ex, GL, etc. as well as VDE and local EVUs.

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1.5 Unauthorised Modification

Modifications of or other technical alterations to the instrument by the customer are not permitted. This also applies to replacement parts. Any modifications/alterations required will be carried out by Fischer Mess- und Regeltechnik GmbH only.

1.6 Impermissible modes of operation

The operational safety of this instrument can only be guaranteed if it is used as intended. The instrument model must be suitable for the medium used in the system. The limit values given in the technical data may not be exceeded.

1.7 Safe working practices for maintenance and installation work

The safety instructions given in this operating manual, any nationally applicable regulations on accident prevention and any of the operating company's internal work, operating and safety guidelines must be observed.

The operating company is responsible for ensuring that all required maintenance, inspection and installation work is carried out by qualified specialized personnel.

1.8 Explanation of symbols

WARNING!
… indicates a potentially dangerous situation, non-observance of which could endanger persons, animals, the environment or objects.

INFORMATION!
… highlights important information efficient and smooth operation.

TIP!
… indicates recommendations that are not specifically necessary in certain situations but which could be useful.

2 Application purpose

The ME01 is an electronic manometer with a ceramic measuring cell for measuring over-pressure and under-pressure with a local display and remote signal transmission.

3 Product and function description

3.1 Design and mode of operation

A ceramic measuring cell acts as the pressure transducer. The high resistance of the ceramic materials that are used allow use even for aggressive media.

There is a resistance measuring bridge attached to the side of the measuring diaphragm that faces away from the medium. When pressure is exerted, the membrane distorts in the elastic range. t the same time, the resistance values of the bridge change proportionally to the measuring pressure. These values are implemented and displayed by the installed electronics.

There are electrical uniform signals 0/4…20 mA and 0…10 V in a 3-wire system available for remote transmission.

4 Installation and assembly

As standard, the device with the connecting port for connection to pipes and other connection parts, such as the welding sleeve, union nut with soldering and welding nipples, is equipped with soldering and welding nipples (see data sheet MZ...). It can be mounted to a wall using the wall bracket (see data sheet MZ...). Manometer screw connections for 10, 8, 6 mm dia. pipes can be supplied for connection to pipes.

The enclosure protection type IP 65 is only guaranteed, if a suitable power supply cable is used.

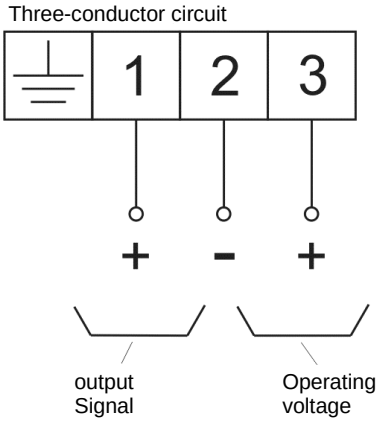
4.1 Process connection

- By authorized and qualified specialized personnel only.
- Only for the designated mechanical process connection - for the model, see the order code on the device type plate.
- The pipes need to be depressurized when the device is being connected.
- Appropriate steps must be taken to protect the device from pressure surges.
- Check the suitability of the device for the media to be measured.
- Observe the maximum pressure.
- Check that the pressure connections do not leak before commissioning.

4.2 Electrical connections

- By authorized and qualified specialized personnel only.
- The electrical connection of the device shall be performed according to relevant VDE and local electricity board regulations.
- Disconnect the system from the mains before connecting the device.
- Add a fuse adapted to the energy requirements.

4.2.1 Wiring diagram



5 Commissioning

- All electrical supply, operating and measuring lines, and the pressure connections must have been correctly installed before commissioning. All supply lines are arranged so that there are no mechanical forces acting on the device.
- The pressure sensing lines must be installed on an incline so that no condensation pools can form.
- The pressure sensing lines need to be kept as short as possible and installed without sharp bends to avoid interfering delay times.

6 Maintenance

The instrument is maintenance-free.

We recommend checking the instrument at regular intervals to ensure reliable operation and a long service life.

- Inspection of the display / output signal.
- Check the leak-tightness of the pressure connection lines.
- Check the electrical connection (cable clamp connections).

The precise test cycles and operating and ambient conditions need to be adjusted. If various instrument components interact, the operating instructions of all the other instruments also need to be observed.

7 Transportation

The measuring device must be protected against impacts. It may only be transported in packaging specifically intended for transport.

8 Service

All defective or faulty devices should be sent directly to our repair department. We would ask you to please coordinate all return shipments with our sales department so that we can ensure careful processing of all faulty devices for our customers.

Process media residues in and on dismantled devices can be a hazard to people, animals and the environment. Take adequate preventive measures. If required, the devices must be cleaned thoroughly.

9 Accessories

Manometer accessories acc. to data sheet MZ...

10 Waste disposal

For the sake of the environment .... Please help to protect our environment and dispose of or recycle used instruments as stipulated by the applicable regulations.

11 Technical Data

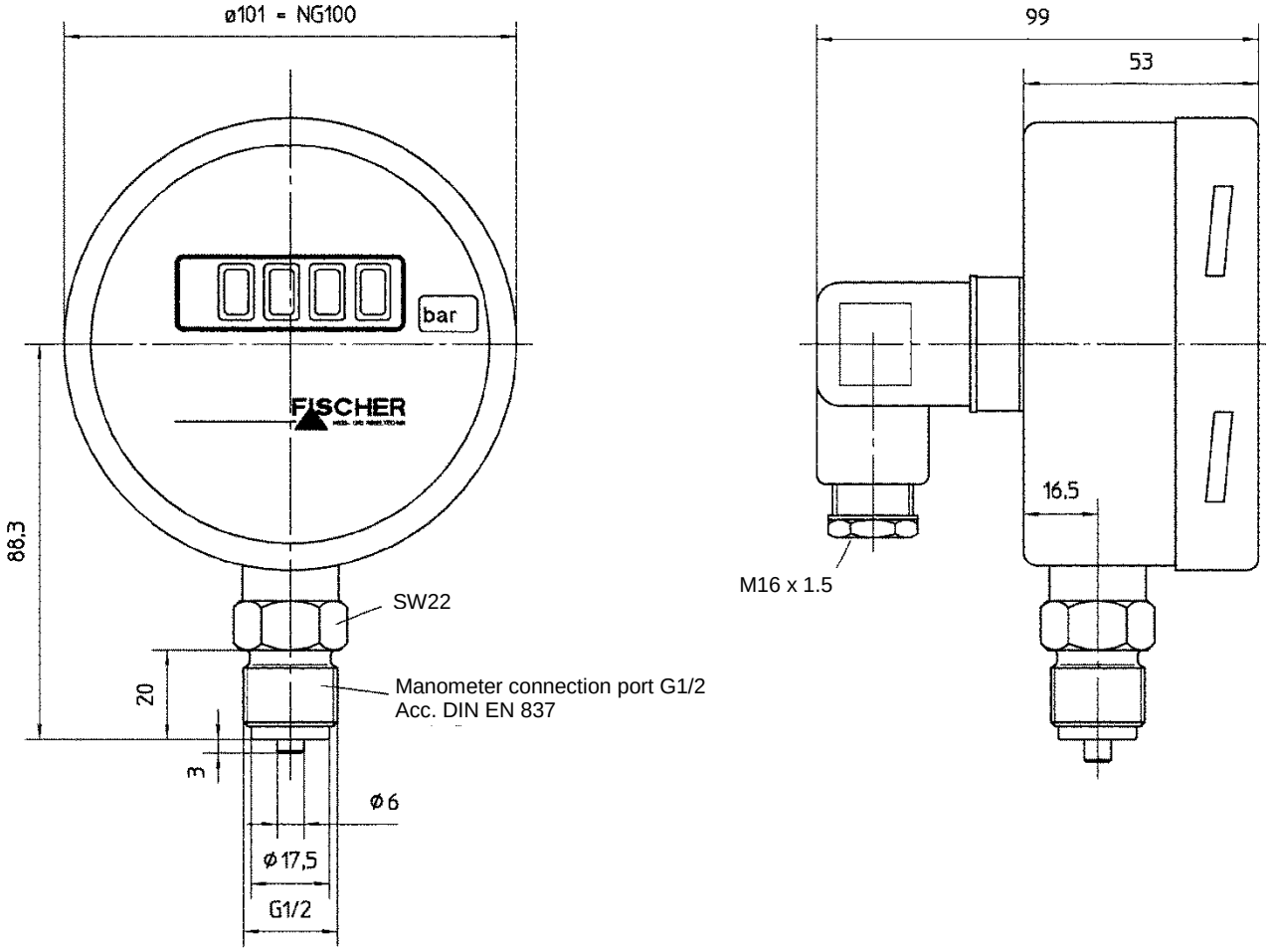
Measuring range in bar	0-1.6	0-2.5	0-4	0-6	0-10	0-16	0-25	0-40	0-60
Overpressure-proof in bar	3.2	5	8	12	20	32	50	80	120

Measuring range in bar	- 1..0	-1..0.6	-1..1.5	-1..3	-1..5	-1..9	-1..15	0...-1
Overpressure-proof in bar	2	3	3	8	12	20	32	2

Linearity	< 1 % of the measuring range
Hysteresis	< 0.5 % of the measuring range
Permissible ambient temperature	0 .. 60 °C
Admissible medium temperature	0 .. 85 °C
Type of protection:	IP 65 acc. to DIN EN 60529
	Electrical data
Rated Voltage	24V DC/AC ± 10%
Output signal	0..20 mA / 4..20 mA / 0..10 V
Electrical connection type	Three-conductor
Load at rated voltage	500 Ω (0/4..20 mA); >5k (0..10 V)
Current/voltage limit	for output 0..10V: ca. 10.5 V for output 0/4..20 mA: ca. 24 mA
Temperature drift, zero-point	0.4 % FS/10 K
Temperature drift, measuring range	0.05 % FS/10 K
	Ports
Electrical connection	Angled connector M16 x 1.5 acc. to DIN EN 175301-803
Discharge port	Manometer connection spigot G½ according to DIN EN 837
	Materials
Parts in contact with the medium	AISI 316L (1.4404), Seal: Viton®
Material: Casing	AISI 304 (1.4305)

12 Dimensional drawings

(all dimensions in mm unless otherwise specified)



13 Order Codes

Digital manometer

Type ME01 | | | | 8 | 7 | | H | L |

Measuring 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**
-1 ... 0 bar	>	**3 1**
-1 ...0.6 bar	>	**3 2**
-1 ...1.5 bar	>	**3 3**
-1 ... 3 bar	>	**3 4**
-1 ... 5 bar	>	**3 5**
-1 ... 9 bar	>	**3 6**
-1 ... 15 bar	>	**3 7**

Measurement accuracy

Characteristic curve dev. Relative pressure 1.0 ...	>	**M**
Characteristic curve dev. Absolute pressure 1.0 ...	>	**S**

Discharge port

Connection shanks with external thread G½ B bottom, Stainless steel	>	**8 7**

Electrical output signal

0 – 20 mA 3-wire (STANDARD)	>	**A**
0 – 10 V DC 3-wire (STANDARD)	>	**C**
4 – 20 mA 3-wire (STANDARD)	>	**P**

Electrical connection

Plug 4-pin, standardised plug DIN EN 175 301-803-A	>	**H**

Operating voltage

24 V DC / AC	>	**L**

14 Attachments

FISCHER MESS- UND REGELTECHNIK

CE

EU Declaration of Conformity

(Translation)

For the product described as follows

Product designation **Digital Pressure Gauge**

Type designation **ME01**

it is hereby declared that it corresponds with the basic requirements specified in the following designated directives:

2014/30/EU	*EMC Directive*
2011/65/EU	*RoHS Directive*

The products were tested in compliance with the following standards.

Electromagnetic compatibility (EMC)

EN 61326-1:2013	*Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements*
EN 61326-2-3:2013	*Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-3: Particular requirements - Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning*

RoHS

EN 50581:2012	*Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances*

Also they were subjected to the conformity assessment procedure „**Internal production control**".

The object of the declaration described above is in conformity with Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Sole responsibility for the issue of this declaration of conformity in relation to fulfilment of the fundamental requirements and the production of the technical documents is with the manufacturer.

Manufacturer

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Documentation representative

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The devices bear the following marking: CE

Bad Salzuflen, 2016-11-17

S. Richter
General Manager R & D

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