

Data Sheet and Operating Manual

ME01

Digital manometer

ME01 ## # 87 # HL S####

Dust explosion protection Zone 22



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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

The instrument may only be installed and commissioned by specialized personnel familiar with the installation, commissioning and operation of this product.

Specialized personnel are persons who can assess the work they have been assigned and recognize potential dangers by virtue of their specialized train-

ing, their skills and experience and their knowledge of the pertinent standards.

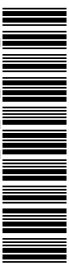
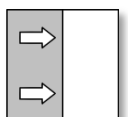
For explosion-proof models the specialized personnel must have received special training or instruction or be authorized to work with explosion-proof instruments in explosion hazard areas.

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. The supplier of the equipment 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. The particulars can be found in the respective regulations such as DIN, EN, explosion hazard,



accident prevention regulations and also in the industry guidelines issued by the DVWG, GL, etc. and the VDE as well as the local EVUs.

The instrument must be decommissioned and secured against inadvertent re-operation if a situation arises in which it must be assumed that safe operation is no longer possible. Reasons for this assumption could be:

- evident damage to the instrument
- failure of the electrical circuits
- long storage in temperatures over 85°C
- considerable strain due to transport

Repairs may be carried out by the manufacturer only.

A professional single conformity inspection as per DIN EN 61010, section 1, must be carried out before the instrument can be re-commissioned. This inspection must be performed at the manufacturer's location. Correct transport and storage of the instrument are required.

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

Electronic manometer for measuring over-pressure and under-pressure of fluid and gas-like measuring substances. The device is to be exclusively used for the applications agreed between the manufacturer and the user.

Explosion hazard area classification

The digital manometers ME01 are suitable for use as 'Electrical equipment for use in areas with combustible gases', zone 22 - dry dusts.

Designation as per guideline 2014/34/EU

⊕ II 3D Ex tc IIIB T125°C IP65

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. At 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.
- Do not mount the device against existing water columns, and secure suitably against pressure surges.
- Use only with media suitable for operation.
- Observe the maximum pressure.
- Check that the pressure connections do not leak before commissioning.

4.2 Electrical connection

- By authorized and qualified specialized personnel only.
- Disconnect the system from the mains before connecting the device.
- Do not take out the connecting plug while energized

Explosion protection instructions



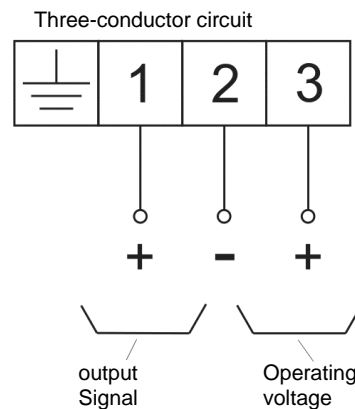
To guarantee safe operation of the instrument, the supply circuit must satisfy the requirements for zone 2, category 3, and the locally applicable regulations and guidelines for the installation and operation of electrical systems in explosion hazard areas (e.g. EN 60079-0).

The supply voltage may not exceed 30 V DC. The supply circuit must be protected by a slow 200 mA fuse. Only a CE-compliant power supply unit may be used as a power supply.

4.3 Wiring diagram



Do not take out the connecting plug while energized



Static electricity



The case must be equipped with an earth connection to reduce the surface resistance.

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.
- If liquid measuring media are used the pressure connection line must be vented, as liquid columns of different heights in the pipes can cause measuring errors. The instrument must be protected against frost if water is used as a medium.
- 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.
- Appropriate shutoff valves must be provided to ensure safety during installation, maintenance and inspection

6 Maintenance

The instrument is maintenance-free.

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

- Inspecting the 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.



Measuring 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.

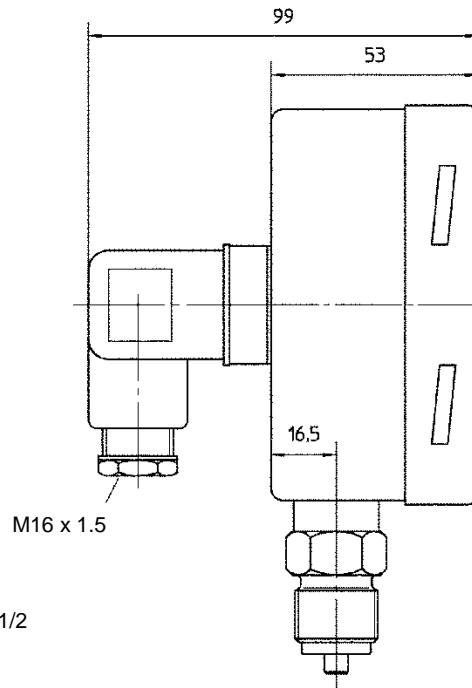
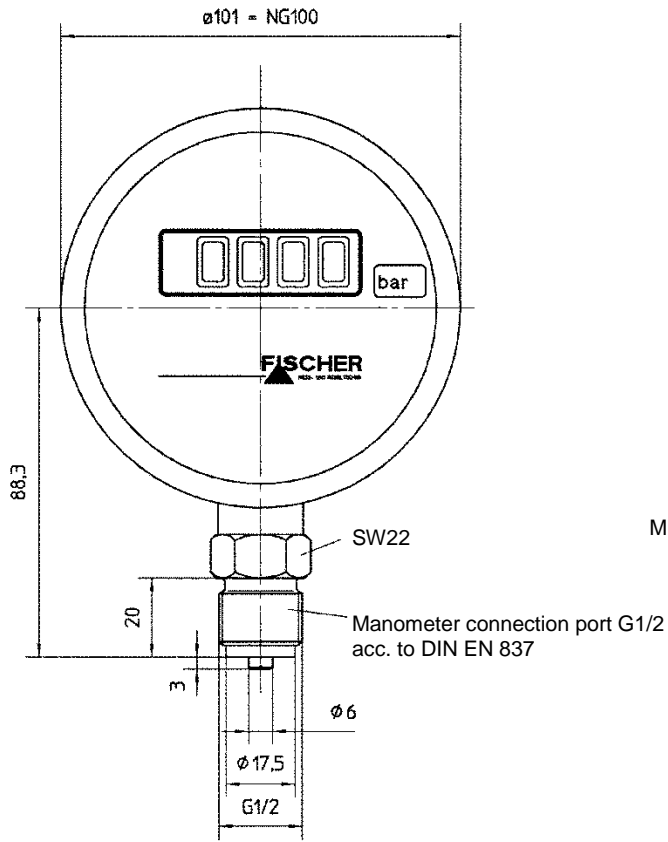
11 Technical Data

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	

Permissible ambient temperature	-10°C ... + 60°C
Admissible medium temperature	Max. 60°C
Pressure connection	Connection ports with external thread G½ B stainless steel, rustproof
Electrical connection	Standardised plug DIN EN 175 301-803-A
Protection class:	IP 65 acc. to DIN EN 60529
Parts in contact with the medium	AISI 316L (1.4404), Seal: Viton®
Casing	AISI 304 (1.4305)
Electrical data	
Power supply	Only CE-compliant power supply units with a slow 200 mA fuse may be used.
Rated voltage	24V DC
Allowed operating voltage U_b	15...30 V DC
inner effective capacity C_i	max. 270nF
effective inner inductivity L_i	max. 980µH
Electrical connection type	Three-conductor
Output signal	0..20 mA / 4..20 mA / 0..10 V
Load at rated voltage	450 Ω
Current/voltage limit	for output 0..10V: ca. 10.5 V for output 0/4..20 mA: ca. 24 mA
Zero-point, temperature drift	0.4 % FS/10 K
Measuring range, temperature drift	0.05 % FS/10 K
Linearity	< 1 % of the measuring range
Hysteresis	< 0.5 % of the measuring range
Identification acc. to ATEX guideline 2014/34/EU	Ⓔ II 3D Ex tc IIIB T125°C IP65

12 Dimensional drawings

(all dimensions in mm unless otherwise specified)



13 Order Codes

Digital manometer

Type ME01

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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 ports 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

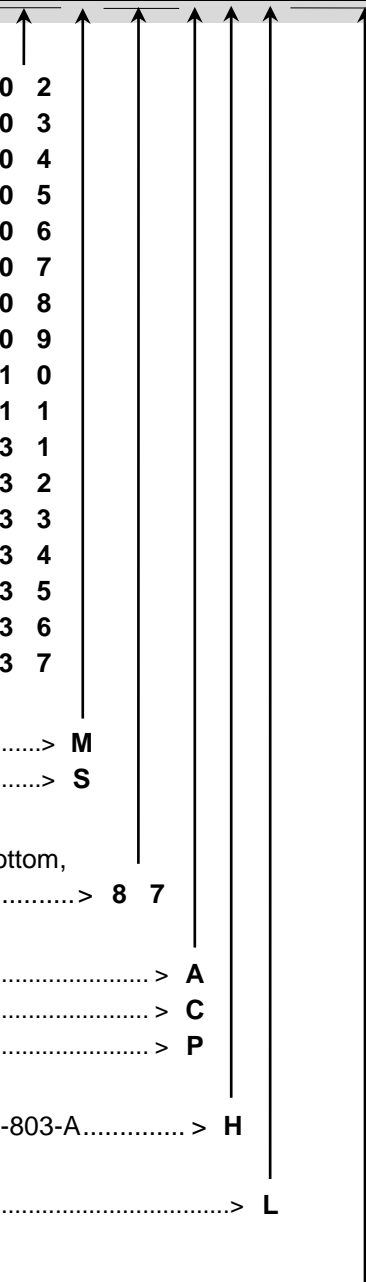
- Plug 4-pin, standardised plug DIN EN 175 301-803-A > **H**

Operating voltage

- 24 V DC / AC > **L**

Customer-specific no.

- Code for use in Zone 22 -
Danger due to dry dusts: II 3D Ex tc IIIB T125°C IP65 > **S####**



14 Attachments



EU Declaration of Conformity

(Translation)

For the product described as follows

Product designation **Digital Pressure Gauge**
Type designation **ME01 ## # 87 # HL S####**

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

- 2014/30/EU EMC Directive
- 2014/34/EU ATEX 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
- Explosive atmospheres (ATEX)**
EN 60079-0:2012 + A11:2013 Explosive atmospheres - Part 0: Equipment - General requirements
- EN 60079-31:2014 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
- 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.

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Documentation representative Mr. Stefan Richter
Dipl. Ing.
General Manager R & D

The devices bear the following marking: **CE**

Ex II 3D Ex tc IIIB T125°C IP65

Bad Salzuflen, 2016-11-17 S. Richter
General Manager R & D

