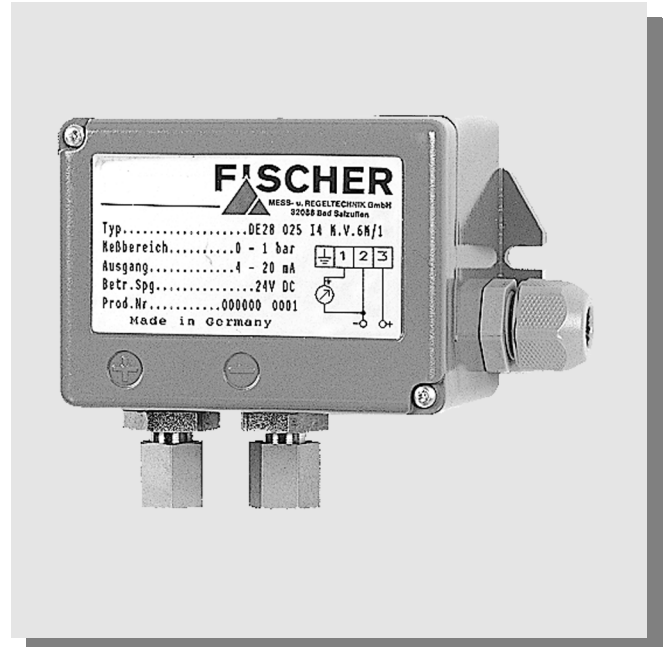


Instruction Manual

DE28 || Differential Pressure Transmitter

Table of Contents

1. Safety Instructions
2. Intended Applications
3. Product Description and Functions
4. Installation
5. Commissioning
6. Maintenance
7. Transport
8. Service
9. Accessories
10. Disposal
11. Specifications
12. Dimensions
13. Ordering Code
14. CE-Certificate



1. Safety Instructions

1.1. General



This manual contains detailed information about the product, and instructions for its installation, operation and maintenance. Operators and other technical personnel responsible for the equipment must read this thoroughly before attempting to install or operate this equipment. A copy of this manual must always be kept accessible at the place of work for reference by concerned personnel.

Chapter 1 (sections 1.2 through 1.7) contains general as well as specific safety instructions. Chapters 2 through 10, covering topics ranging from intended purpose of the equipment to its final disposal, also include important points relating to safety. Overlooking or ignoring any of these safety points can endanger humans and animals, and possibly cause damage to other equipment.

1.2. Personnel Qualification

Personnel responsible for installation, operation, maintenance and inspection of this product must have the qualifications, training and experience necessary to carry out such work on this type of equipment.

1.3. Risks of Disregarding Safety Instructions

Disregarding safety instructions, use of this product for purposes for which it is not intended, and/or operation of this product outside the limits specified for any of its technical parameters, can result in harm to persons, the environment, or the plant on which it is installed. Fischer Mess- und Regeltechnik GmbH will not be responsible for consequences in such circumstances.

1.4. Safety Instructions for Operators

Safety instructions for the proper use of this product must be followed.



This information must be available at all times to by personnel responsible for installation, operation, maintenance and inspection of this product. Adequate steps must be taken to prevent the occurrence of hazardous conditions that can be caused by electric energy and the convertible energy of the process media. Such conditions can, for example, be the result of improper electrical or process connections. Detailed information is available in relevant published norms (DIN EN, UVW in Germany; and equivalents in other countries), industrial standards such as DVWG, Ex-, GL-, VDE guidelines, as well as regulations of the local authorities (e.g., EVUs in Germany).

1.5. Modifications Forbidden

Modification or other technical alteration of the product is not permissible. This also applies to the use of unauthorized spare parts for repair / maintenance of the product. Any modifications to this product, if and as necessary, should be done only by Fischer Mess- und Regeltechnik GmbH.

1.6. Operational Restrictions

The operational reliability of the product is guaranteed only when used for intended purposes. The product must be selected and configured for use specifically with defined process media. The limiting values of operating parameters, as given in the product specification sheet, must never be crossed.

1.7. Safety Considerations during Installation and Maintenance

The safety instructions given in this manual, existing national regulations relating to accident prevention, and the internal safety rules and procedures of the user organization regarding safety during installation, operation and servicing must all be followed meticulously.

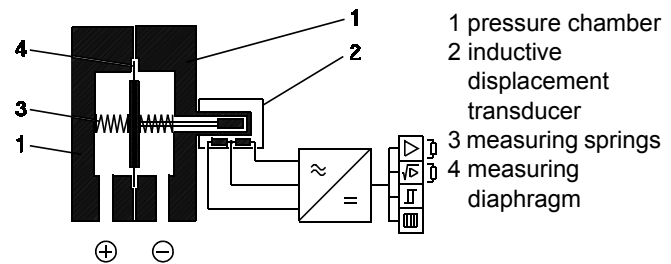
It is the responsibility of the users to ensure that only suitably qualified and experienced technical personnel are used for installation, operation and servicing of this equipment.

2. Intended Applications

Measuring Transmitter for overpressure, partial vacuum and differential pressure of liquid and aerial media. The product may be used only for applications and under conditions specified by the manufacturer. Please confer with Fischer Mess- und Regeltechnik prior to using this transmitter along with polluted or aggressive media. For use with this media it needs to be adjusted in every part with direct contact to the media.

3. Product Description and Functions

3.1. Block Schematic Diagram



3.2. Principles of Operation

This transmitter is based on a rugged and uncomplicated diaphragm movement. The operating principle of the system is identical for all applications of this type. In a state of equilibrium, the forces of the springs on both sides of the diaphragm are balanced.

The pressure or differential pressure to be measured creates an unbalanced force of the springs for the measuring range until a new equilibrium is reached.

A centre-mounted tappet transfers the motion of the diaphragm system to the core of an inductive displacement transducer. The subsequent converter circuit converts this motion into an electrical output signal 0(4) - 20 mA linear, 3-wire connection.

4. Installation

The electronic module is mounted on a flat plate or panel, for which it has integral hole flanges. The pressure transmitters are calibrated at the factory while mounted upright, pressure ports downward and must be mounted this way.

4.1. Process Connections

- Only technicians who are qualified and authorized for this type of work should undertake installation.
- Only for intended mechanic process connection - see ordering code on type plate on the instrument for model specification.
- Ensure that the process equipment and pressure lines are at atmospheric pressure before making pressure connections to the instrument.
- The instrument should be provided with suitable protection against pressure surges.
- Ensure that the mechanical configuration and materials of construction of the instrument are compatible with the process media.
- Ensure that process pressure is always less than the specified safe pressure rating.

4.2. Electrical Connections

- Only technicians who are qualified and authorized for this type of work should undertake installation.
- Electrical connections must conform to relevant international, national and local regulations and norms relating to electrical and instrumentation installations.
- Switch off electrical power to the plant before attempting electrical installation work of any kind.
- Make electrical connections to the transmitter through a suitable energy-limiting safety device (isolation or zener barrier).

5. Commissioning

Power supply, pressure lines, switching lines and signal cabling to the pressure transmitter must be correctly selected to meet operational requirements, and installed in a way that does not cause physical stress to the instrument.

5.1. Pressure Connections

The instruments pressure ports are marked by + and – symbols. The pressure applications need to be installed according to the label.

Differential pressure measurement: + higher pressure
– lower pressure

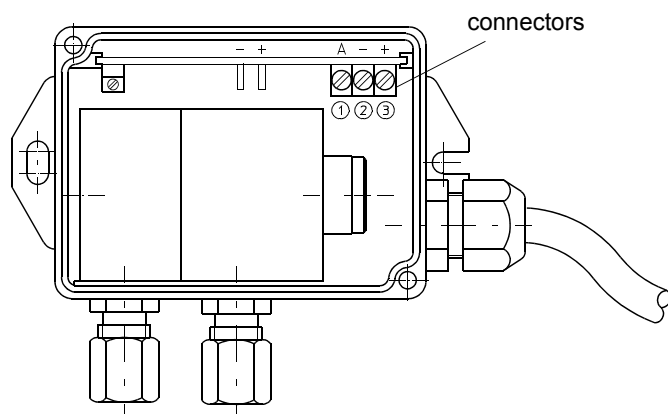
Pressure measurement: + pressure port

Negative pressure measurement: – negative pressure port

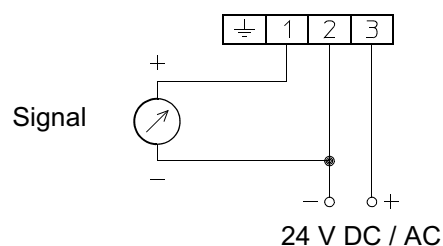
5.2. Shock Pressure Moderation

During pulsating pressure on the plant mechanical wear and disturbances in functional capability may occur. To avoid this we recommend installing absorbers into the pressure lines.

5.3. Location of Connectors



5.4. Electrical Connection



6. Maintenance

The instrument is inherently maintenance-free.

However, to ensure reliable operation and maximize the operating life of the instrument, it is recommended that the instrument is regularly inspected, e.g.:

- Check the output signal.
- Check the pressure connections for leaks.
- Check the electrical connection (screw terminals).

Inspection and test schedules depend on operating and site conditions. The operating manuals of other equipment to which the differential pressure transmitter is connected must be read thoroughly to ensure that all of them work correctly when connected together.

7. Transport

The product must be protected against shock and vibration during transport. It must therefore be properly packed, preferably in the original factory packaging, whenever it is to be transported.

8. Service

Any defective devices or devices with missing parts should be returned to Fischer Mess- und Regeltechnik GmbH. For quick service contact our service department.



Remaining medium in and on dismantled measuring instruments may cause danger to persons, environment and equipment. Take reasonable precautions! Clean the instrument thoroughly if necessary.

9. Accessories

N.A.

10. Disposal



Protect your environment!

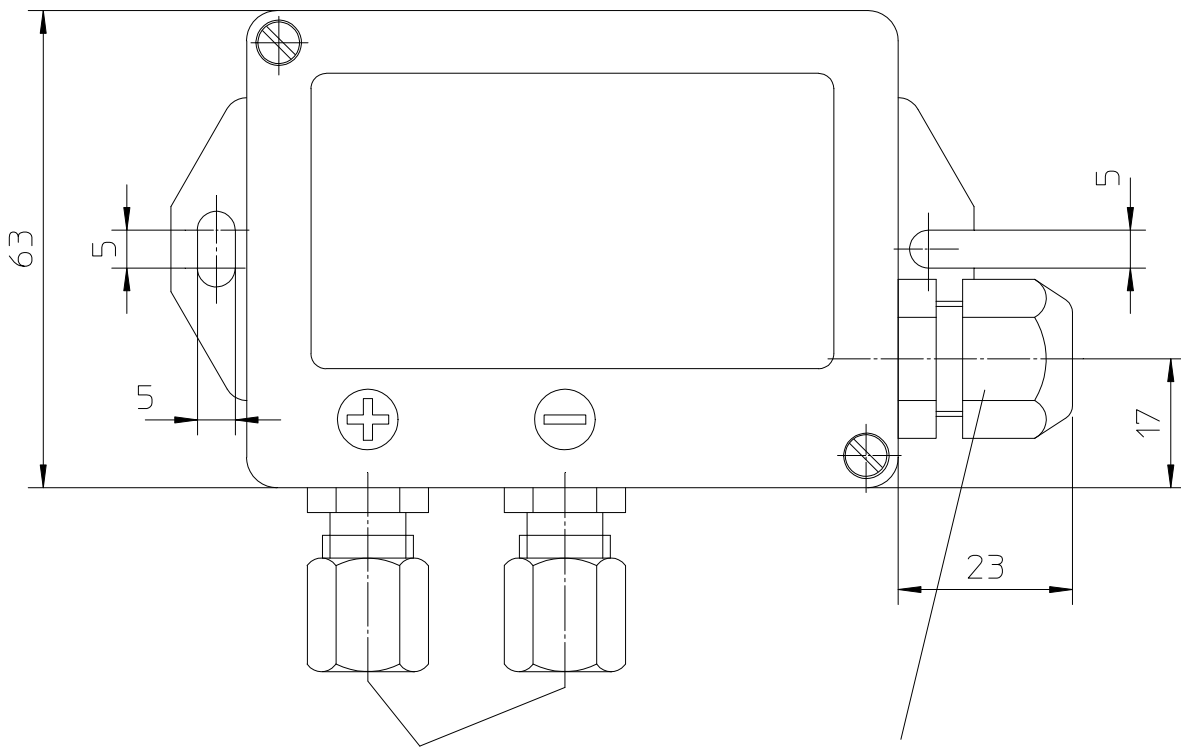
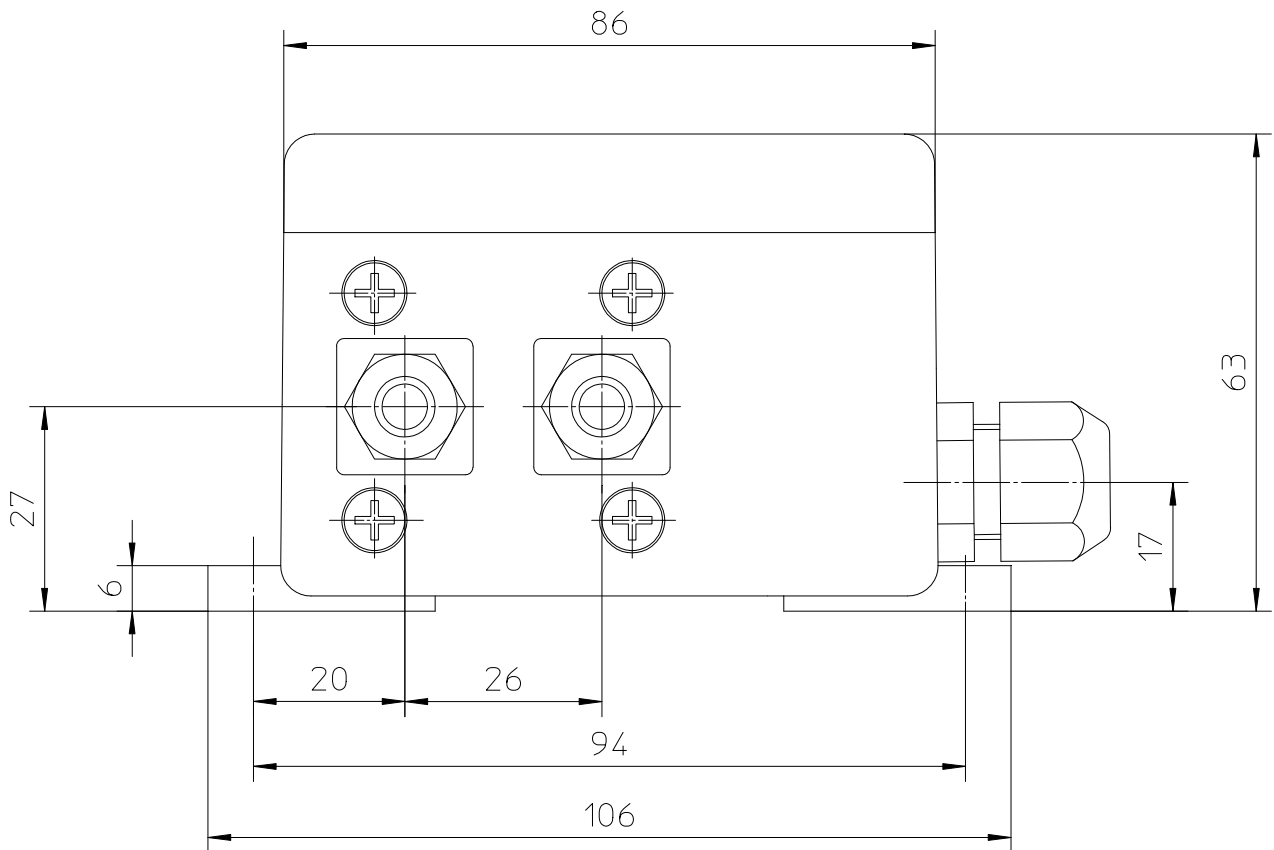
Use the product in accordance with relevant regulations. Please be aware of environmental consequences of disposal at the end of the product's life, and take care accordingly.

11. Specifications

General		
Measuring ranges	0-0.4 0-0.6 0-1 0-1.6 0-2.5 0-4 0-6 bar	
Nominal pressure	16 bar	
Max. pressure load	one-sided overpressure protected up to nominal pressure, on (+) and (-) side of diaphragm, partial vacuum protected	
Permissible ambient temperature	0 up to +70°C	
Max. storage temperature	70 °C	
Protection class	IP54 per DIN EN 60529	
Linearity	≤ 2% FS	
Hysteresis	≤ 1% FS	
Electrical		
Electrical connection	3-wire	
Operating voltage	24 V DC / AC range 15...30 V DC 20...30 V AC	24 V DC / AC range 15...30 V DC 20...28 V AC
Output signal	0...20 mA 4...20 mA	0...10 V
Load	≤ 380 Ω for all operating voltages	≥ 2 K Ω
Connections		
Pressure connection	female thread G 1/8 cutting ring connection (brass) for 6mm tube cutting ring connection (brass) for 8mm tube	
Electrical connection	fixed numbered cable, prewired	
Materials		
Case material	polycarbonate	
Pressure chamber	brass	
Measuring diaphragm	NBR / Viton®	
Mounting		
Mounting position	upright, pressure ports downward	

Measuring transmitter is reverse battery and short circuit protected.

12. Dimensions (all units in mm unless stated otherwise)



cutting ring connection for \varnothing 6 mm

M12x1.5 cable gland

13. Ordering Code

Differential Pressure Transmitter DE 28

						L	0	0	0	0
--	--	--	--	--	--	---	---	---	---	---

Measuring Range						
0 ... 400 mbar.....>	8	3				
0 ... 0.6 bar.....>	0	1				
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				
Pressure Chamber / Gaskets						
pressure chamber, measuring diaphragm, gasket: Ms/NBR.....>	M					
pressure chamber, measuring diaphragm, gasket: Ms/Viton®.....>	N					
Pressure Connection						
Female thread G 1/8.....>	0	0				
Cutting ring connection (brass) for 6mm tube.....>	2	8				
Cutting ring connection (brass) for 8mm tube.....>	2	9				
Electrical Connection						
Numbered cable, 1m, prewired.....>					1	
Numbered cable, 2.5m, prewired.....>					2	
Numbered cable, 5m, prewired.....>					5	
Output Signal						
0 - 20 mA linear, 3-wire connection.....>						A
4 - 20 mA linear, 3-wire connection.....>						P
0 - 10 V DC linear, 3-wire connection.....>						C
Power supply						
24 V DC / AC.....>						L

14. CE-Certificate



EG-Konformitätserklärung

EC Declaration of Conformity

Wir erklären in alleiniger Verantwortung, dass nachstehend genannte Produkte

We declare under our sole responsibility that the products mentioned below

Differenzdrucktransmitter / Differential Pressure Transmitter

DE28 #####

gemäß gültigem Datenblatt übereinstimmen mit der

specified by the actual data sheet complies with the

EG-Richtlinie

EC Directive

2004/108/EG (EMV)

2004/108/EC (EMC)

Die Produkte wurden entsprechend den folgenden Normen geprüft (Störfestigkeit für Industriebereich, Störausendung für Wohnbereich):

The instruments have been tested in compliance with the norms (Immunity for industrial environments, emission for residential environments)

DIN EN 61326-1:2004-05
DIN EN 61326-2-3
DIN EN 61010-1:2002-08

DIN EN 61326-1:2004-05
DIN EN 61326-2-3
DIN EN 61010-1:2002-08

Die Geräte werden gekennzeichnet mit:

The gauges are marked with:



Bad Salzuffen, 27.11.07
(Ort, Datum / place, date)

(rechtsverb. Unterschrift / authorized signature)

Fischer Mess- und Regeltechnik GmbH
Bielefelder Straße 37a
32107 Bad Salzuffen
USt-IdNr.: DE124602659
Steuer-Nr.: 313/5729/0559

Fon (0 52 22) 97 40
Fax (0 52 22) 71 70
Internet:
www.fischermesstechnik.de
eMail: info@fischermesstechnik.de

Sparkasse Lemgo
(BLZ 482 501 10)
Kto-Nr.: 11 841
BIC: WELADED1LEM
IBAN: DE90482501100000011841

Postbank Hannover
(BLZ 250 100 30)
Kto-Nr.: 0201 830 307
BIC: PBNKDEFF
IBAN: DE982501003000201830307

Sitz: Bad Salzuffen
Amtsgericht Lemgo HRB 226
Geschäftsführer:
Günter B. Godde