

Operating instructions

# Pressure transducer | Type DS01



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# 1 Introduction

## 1.1 Notes on operating instructions

This operating manual was created to ensure optimal device installation, commissioning, operation and maintenance, and must be read before carrying out the following procedures. Keep this documentation handy and accessible for consultation by all users, whenever needed. Pass on this documentation to any future users of the product.

This manual contains descriptions of all necessary settings. Should any problems occur during commissioning or operation, please do not make any unauthorised modifications. By doing so, you could void your warranty. In such cases, please contact us immediately:

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## 1.2 Explanation of icons and symbols



### Danger

Indicates a hazard that could lead to personal injury.



### Notice

Indicates important information that could lead to e.g. material damage, if disregarded.

## 1.3 Intended use and foreseeable misuse

The DS01 differential pressure transducer serves for the detection of low pressure variations and their conversion into a pressure-proportional measurement signal. The device may only be used in the specified Measurement range. The DS01 may only be used for measurement differential pressure variations of non-aggressive gases.



### Notice

Do not use the device in explosive atmospheres or for measurement of aggressive gases.

No liability is accepted for damages resulting from non-intended use. If so, any warranty claims shall be rendered void. It is prohibited to modify the construction of the device or to extend/alter it in any way

## 1.4 Functions

Pressure transmitter of the DS01 type are suitable for detection of positive, negative and differential pressure within ranges of 2.5 to 100 hPa. A piezoresistive sensing element is used for the measurement. The pressure is then converted to a proportional output signal. Most common signals are available. The sensor can be retrofitted with a display.

## 2 Notes for your safety



### Danger

In order not to endanger any person involved in the installation and commissioning of the device, such work should only be carried out by qualified and trained personnel.

Persons using the device must also:

- > be conscious of the dangers present when working next to live parts.
- > take measures to protect themselves against direct contact with live parts.
- > have read and understood the operating manual.

## 3 Set up and installation

### 3.1 Scope of delivery

The following is included:

- > 1 x Pressure Transmitter DS01
- > > 1 x Short Instructions
- > > Optional: 1 x LC-Display
- > > Optional: 1 x Calibration Certificate

### 3.2 Installation

Use both straps at the sides of the sensor to mount the device in place.

#### Notice



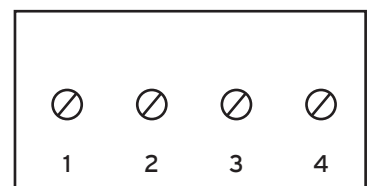
- > Attach the device to a vertical, smooth surface
- > Mount the device horizontally with the process connections facing downwards
- > Do not install the device close to sources of interference and heat.

### 3.3 Terminal diagram

Use both straps at the sides of the sensor to mount the device in place. Please connect the pressure transmitter according to the wiring diagram below:

Nummer der Klemme	Bezeichnung des Anschlusses
1	Output: 0 - 10 V / 0 - 20 mA / 4 - 20 mA
2	GND
3	C: 14 - 38 VDC / 14 - 31 VAC
4	GND

Connecting terminal



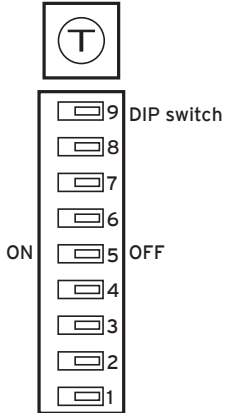
### 3.4 Set up

Connect the supply and output wiring according to the connection diagram. Put the wire through the cable glands and connect them to the screw terminals. The selected output signal is available now. To reach the specified accuracy, please ensure a one-hour run-in period. Afterwards please carry out a zero adjustment. (see 4.1 zero adjustment)

### 3.4.1 Adjusting the measurement range

You can choose your required measurement range by adjusting DIP-switches S1 and S2. Please find configuration options in the table below.

Basic version DS01	Measurement range	Switch position S1	Switch position S2
DS01 10 hPa	2,5 hPa	Off	Off
	5,0 hPa	On	Off
	7,5 hPa	Off	On
	10,0 hPa	On	On
DS01 100 hPa	25 hPa	Off	Off
	50 hPa	On	Off
	75 hPa	Off	On
	100 hPa	On	On



### 3.4.2 Adjusting the time constant

You can choose your required time constant by adjusting DIP-switches S3 and S4. Please find configuration options in the table below.

Time constant	Switch position S3	Switch position S4
10 ms	Off	Off
0,5 s	Off	On
2s	On	Off
4s	On	On

### 3.4.3 Adjusting the output signal

You can choose your required output signal by adjusting DIP-switches S6, S7, S8 and S9. Please find configuration options in the table below.

Output signal	Switch position S6	Switch position S7	Switch position S8	Switch position S9
-	Off	Off	Off	Off
0 - 10V	Off	Off	Off	On
0 - 20mA	Off	On	On	Off
4 - 20mA	On	On	On	Off

## 4 Operation

### 4.1 Zero adjustment

A zero-point shift due to ambient conditions can occur. Therefore it is recommended to perform a zero adjustment every year. Make sure to disconnect the sensor from the grid, then turn switch S5 to „off“. After doing so, push the button. The Zero point adjustment is now conducted.



#### Danger

When working on the open device, always interrupt the supply voltage or take suitable protective measures before touching electrically conductive parts.

### 4.2 Amplitude adjustment

To ensure best possible long term accuracy an additional amplitude adjustment can be carried out. The adjustment checks the maximal measurement range of the pressure sensor. Connect power supply to clamps 1 and 2 and turn dip switch S5 to „On“. Then connect positive pressure connector (+) to a pressure calibrator and regulate to highest pressure of the measurement range. As you reach nominal pressure, carry out a zero adjustment. Then switch S5 to “Off”.



#### Danger

When working on the open device, always interrupt the supply voltage or take suitable protective measures before touching electrically conductive parts.

## 5 Maintenance and service

### 5.1 Maintenance and cleaning

To clean the housing, you can use a damp cloth.  
Remove any external dirt on the housing, terminals, and display.



#### Notice

Do not use sprays, solvents, alcohol cleaners or abrasive cleaners to dampen the cloth.  
Remove soiling on housing, connections and display.

### 5.2 Repairs



#### Notice

Repairs should only be carried out by the manufacturer or by authorised and qualified personnel. The warranty is voided if you make any modifications yourself to the device.

## 6 Troubleshooting guide

If a fault occurs during installation or operation, you can use the following table to identify and rectify it.  
If the error is not listed, please contact FSM AG as soon as possible or send the device for repair together with a meaningful description of the error.

Error indication	Error description	Error rectification
No function	The pressure transducer does not show any function or measurement results	<ul style="list-style-type: none"><li>&gt; Check power supply</li><li>&gt; Check correct connection (see 3.3 connection diagram)</li><li>&gt; Check system pressure</li><li>&gt; Check fuses</li></ul>

Error indication	Error description	Error rectification
Accuracy not as specified	Measurement results out of specified tolerance	> Zero-/ and amplitude adjustment (see 4.1 zero adjustment and 4.2 amplitude adjustment)
Zero-/ Amplitude Adjustment not successful	Measurement results still out of specified tolerance	> Check dip-switches (see 4.1 zero adjustment and 4.2 amplitude adjustment) > Check system and reference pressure

## 7 Accessories and spare parts

The included accessories may vary according to the ordered version. **Section 3.1 Scope of delivery** contains all possible accessories. Spare parts must be acquired from the manufacturer. Spare parts may only be replaced by the manufacturer or an authorised technician.

## 8 Technical data

Technical data can be found in the corresponding data sheet, which is available at [www.fsm.ag](http://www.fsm.ag), or can be downloaded using the QR code below.



## 9 Disposal



### Danger

Incorrect disposal can lead to environmental hazards.

Equipment components and packaging materials must be disposed of in an environmentally sound manner in accordance with the local regulations on waste treatment and disposal.