

Flow data sensor

Original Operating Manual

**Series
ZE3000 for
flow meter (DFM)**



Version BA-2016.04.26 EN
Print-No. 300 748
TR MA DE Rev001

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We reserve the right to make technical changes.
Read carefully before use.
Save for future use.

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1 About this document

This manual

- Is part of the equipment
- applies to all series referred to
- describes safe and proper operation during all operating phases

1.1 Target groups

Operating company

- Responsibilities:
 - Always keep this manual accessible where the device is used on the system.
 - Ensure that employees read and observe this document, particularly the safety instructions and warnings, and the documents which also apply.
 - Observe any additional country-specific rules and regulations that relate to the system.

Qualified personnel, fitter

- Mechanics qualification:
 - Qualified employees with additional training for fitting the respective pipework.
- Electrical qualification:
 - Qualified electrician
- Transport qualification:
 - Qualified transport specialist
- Responsibility:
 - Read, observe and follow this manual and the other applicable documents, especially all safety instructions and warnings.

1.2 Other applicable documents

To download: Data sheet (300 742) Technical data, operating conditions	
	To download: Original operating manual DFM
To download: Resistance Guide Chemical resistance of the materials used	
	To download: CE declaration of conformity

http://www.asv-stuebbe.de/pdf_datosheets/300742.pdf

http://www.asv-stuebbe.de/pdf_manuels/300458.pdf

http://www.asv-stuebbe.de/pdf_resistance/300051.pdf

http://www.asv-stuebbe.de/pdf_DOC/300757.pdf

Tab. 1 Other application documents, purpose and where found

1.3 Warnings and symbols

Symbol	Meaning
 DANGER	• Immediate acute risk • Death, serious bodily harm
 WARNING	• Potentially acute risk • Death, serious bodily harm
 CAUTION	• Potentially hazardous situation • Minor injury
NOTE	• Potentially hazardous situation • Material damage
	Safety warning sign ► Take note of all information highlighted by the safety warning sign and follow the instructions to avoid injury or death.
►	Instruction
1. , 2. , ...	Multiple-step instructions
✓	Precondition
→	Cross reference
	Information, notes

Tab. 2 Warnings and symbols

2 General safety instructions

 The manufacturer accepts no liability for damages caused by disregarding any of the documentation.

2.1 Intended use

The device supplies a 4 ... 20 mA signal more measuring the flow in an ASV DFM flow meter with float.

- Only suitable for ASV flow meters of types DFM 165 - DFM 350 with magnetic floats.
- Only use the device for the DFM float meter for which it is programmed.
- Observe the original DFM operating manual (→ 1.2 Other applicable documents, Page 3).

2.2 General safety instructions

 Observe the following regulations before carrying out any work.

2.2.1 Obligations of the operating company

Safety-conscious operation

- Only operate the device if it is in perfect technical condition and only use it as intended, staying aware of safety and risks, and in adherence to the instructions in this manual.
- Ensure that the following safety aspects are observed and monitored:
 - Intended use
 - Statutory or other safety and accident-prevention regulations
 - Safety regulations governing the handling of hazardous substances
 - Applicable standards and guidelines in the country where the pump is operated
- Make personal protective equipment available.

Qualified personnel

- Make sure all personnel tasked with work on the device have read and understood this manual and all other applicable documents, especially the safety, maintenance and repair information, before they start any work.
- Organize responsibilities, areas of competence and the supervision of personnel.
- The following work should be carried out by specialist technicians only:
 - Installation, repair and maintenance work
 - Work on the electrical system
- Make sure that trainee personnel only work on the device under supervision of specialist technicians.

2.2.2 Obligations of personnel

Only complete work on the device if the following requirements are met:

- System is empty
- System has been flushed
- System is depressurized
- System has cooled down
- System is secured against being switched back on again
- Do not make any modifications to the device.

2.3 Specific hazards

2.3.1 Hazardous media

- When handling hazardous media, observe the safety regulations for the handling of hazardous substances.
- Use personal protective equipment when carrying out any work on the device.
- Collect leaking pumped liquid and residues in a safe manner and dispose of in accordance with environmental regulations.

3 Layout and Function

3.1 Name plate

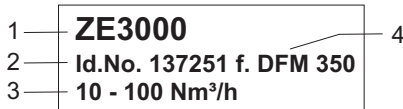


Fig. 1 Name plate

- 1 Device type
- 2 ID number
- 3 Flow measurement range
- 4 DFM flow meter for which the device was calibrated

3.2 Description

The device supplies a 4...20 mA signal for flow the flow rate at the DFM. To do this, it records the position of the magnet in the DFM magnetic float.

The device is programmed for the corresponding DFM via a microprocessor.

3.3 Layout

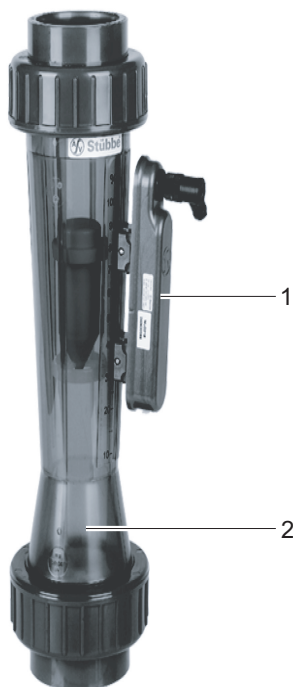


Fig. 2 ZE3000 with DFM

- 1 ZE3000
- 2 DFM

4 Transport, Storage and Disposal

4.1 Unpacking and inspection on delivery

1. Unpack the device when received and inspect it for transport damage and completeness.
2. Check that the information on the type plate agrees with the order/design data.
3. Report any transport damage to the manufacturer immediately.
4. If fitted immediately: Dispose of packaging material according to local regulations.
 - If fitted at a later point: leave device in its original packaging.

4.2 Transportation

- Device should preferably be transported in the original packaging.

4.3 Storage

NOTE

Material damage due to inappropriate storage!

- Store the device properly.

1. Make sure the storage room meets the following conditions:
 - Dry
 - Frost-free
 - Vibration-free
 - Not in direct sunlight
 - Storage temperature +10 °C to +60 °C
2. Device should preferably be stored in the original packaging.

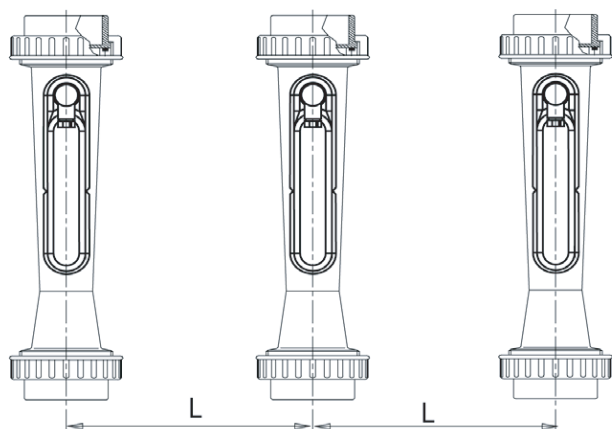
4.4 Disposal

- Dispose of devices with electronic parts in accordance with local regulations.

5 Installation and connection

5.1 Check operating conditions

1. Ensure the required operating conditions are met:
 - Select the appropriate device for the flow meter (DFM) (→ 3.1 Name plate, Page 6).
 - The flow meter (DFM) contains a magnetic float
2. When several DFMs with ZE3000 are installed in parallel:
 - Maintain the minimum spacings



Minimum DFM spacings for parallel installation

DFM type	L [mm]
165	200
170	200
185	200
200	200
335	400
350	400

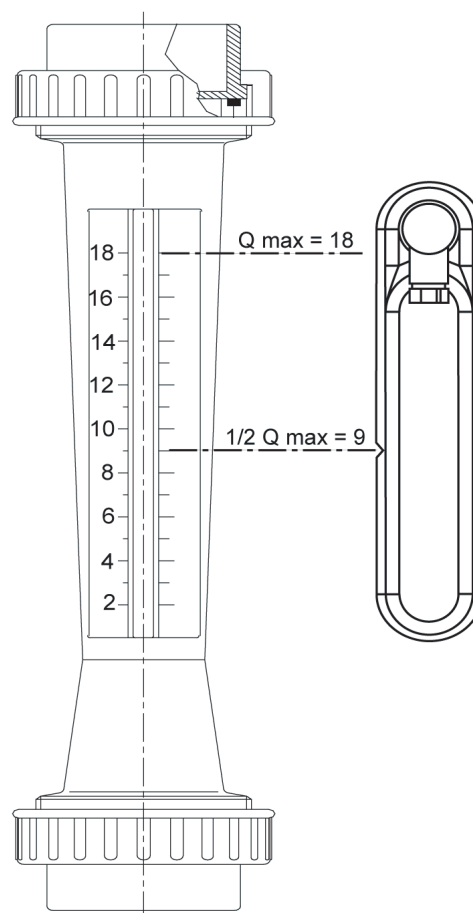
Tab. 3 Minimum distances

3. Consult with the manufacturer regarding any other use of the device.

5.2 Installing the device

5.2.1 Installing the device on the DFM

- ✓ The DFM has been properly put into service.
- Mount the device with the screw terminals on the dovetail guide of the DFM.
The notch on the device must be located at the **half-way mark** of the flow capacity (Q) on the DFM medium scale.



5.2.2 Electrical connection of the device

- ✓ The device is installed properly.
- ✓ Power supply is switched off and secured against being switched back on again.

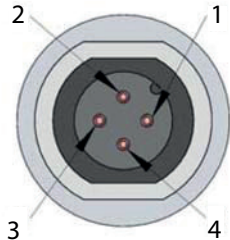


Fig. 3 Connection diagram

- 1 Signal (+)
- 2 Signal (-)
- 3 n.c.
- 4 n.c.

- Connect the device according to the connection diagram.

5.2.3 Initial start-up

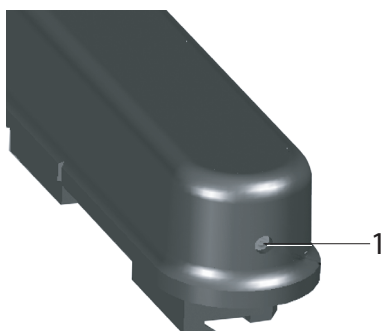
- ✓ The DFM has been properly put into service.
- ✓ The device is properly installed on the DFM.
- ✓ The throttle valves in inlet and outlet line are closed.
- ✓ The float of the DFM is in the bottom position.



To compensate for ambient magnetic effects, the O button must be pressed once.

During normal operation, the O button must **not** be pressed.

- Press and hold the O button (1) for at least two seconds.



6 Operation

6.1 Commissioning

- ✓ The DFM is properly connected to the process pipework.
- ✓ The float is floating freely in the DFM.
- ✓ The device is properly installed on the DFM.
- Open throttle valves in inlet and outlet line.

7 Maintenance

7.1 Servicing

- Clean the device with a damp cloth as necessary.

7.2 Maintenance

7.2.1 Replacement parts and return

1. Have the following information ready to hand when ordering spare parts (→ 3.1 Name plate, Page 6).
 - Device type
 - ID number
 - Nominal pressure and diameter
 - Connection and gasket material
2. Please complete and enclose the document of compliance for returns (→ www.asv-stuebbe.com/service/downloads).



3. Only use spare parts for ASV Stübbe.

8 Troubleshooting

Error	Possible cause	Corrective action
Faulty or absent signal	Device not selected for appropriate DFM	► Make sure the device is programmed for the corresponding DFM
	Fault on the DFM	► Consult the DFM troubleshooting table (→ 1.2 Other applicable documents, Page 3).
	O button not pressed before start-up	► Repeat the start-up (→ 5.2.3 Initial start-up, Page 8).
	Float without magnet used	► Check that the flow meter (DFM) used is suitable (→ 5.1 Check operating conditions, Page 7).

Tab. 4 Troubleshooting

9 Appendix

9.1 Technical specifications

9.1.1 Mechanical specifications

Size	Value
Ambient temperature	-30 ... 65 °C
Protection class	IP67
Housing	ABS

Tab. 5 Mechanical specifications

9.1.2 Electrical data

Size	Value
Power supply	8 ... 28 VDC
Output signal	4 ... 20 mA

Tab. 6 Electrical data

9.1.3 Dimensions

 Dimensions are specified in the data sheet (→ 1.2 Other applicable documents, Page 3).

