

# Operating Instructions

## Electronics module

VEGAFLEX 80 series



Document ID: 43656



**VEGA**

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# 1 About this document

## 1.1 Function

This operating instructions manual provides all the information you need for mounting, connection and setup of the instrument. Furthermore there are important instructions for maintenance, fault rectification, the exchange of parts and the safety of the user. Please read this information before putting the instrument into operation and keep this manual accessible in the immediate vicinity of the device.

## 1.2 Target group

This operating instructions manual is directed to trained specialist personnel. The contents of this manual should be made available to these personnel and put into practice by them.

## 1.3 Symbols used



### Information, tip, note

This symbol indicates helpful additional information.



**Caution:** If this warning is ignored, faults or malfunctions can result.



**Warning:** If this warning is ignored, injury to persons and/or serious damage to the instrument can result.



**Danger:** If this warning is ignored, serious injury to persons and/or destruction of the instrument can result.



### Ex applications

This symbol indicates special instructions for Ex applications.



### SIL applications

This symbol indicates instructions for functional safety which must be taken into account particularly for safety-relevant applications.

- **List**

The dot set in front indicates a list with no implied sequence.

- **Action**

This arrow indicates a single action.

- 1 **Sequence of actions**

Numbers set in front indicate successive steps in a procedure.



### Battery disposal

This symbol indicates special information about the disposal of batteries and accumulators.

## 2 For your safety

### 2.1 Authorised personnel

All operations described in this operating instructions manual must be carried out only by trained specialist personnel authorised by the plant operator.

During work on and with the device the required personal protective equipment must always be worn.

### 2.2 Appropriate use

The components described in this manual are replacement components for existing sensors.

### 2.3 Approvals

If the instrument comes with approvals, the associated approval documents of the sensor must always be noted. They are included with the delivery but can also be downloaded under "[www.vega.com](http://www.vega.com)", "*Instrument search*" as well as via "*Downloads*" and "*Approvals*".

### 2.4 Environmental instructions

Protection of the environment is one of our most important duties. That is why we have introduced an environment management system with the goal of continuously improving company environmental protection. The environment management system is certified according to DIN EN ISO 14001.

Please help us fulfil this obligation by observing the environmental instructions in this manual:

- Chapter "*Packaging, transport and storage*"
- Chapter "*Disposal*"

## 3 Product description

### 3.1 Configuration

#### Scope of this operating instructions manual

This operating instructions manual applies to electronics modules with the following hardware and software versions:

- Hardware from 1.0.0
- Software from 1.1.0

#### Scope of delivery

The scope of delivery encompasses:

- Electronics module
- Documentation
  - This operating instructions manual
  - Ex-specific "*Safety instructions*" (with Ex versions)
  - If necessary, further certificates

### 3.2 Principle of operation

#### Application area

The electronics module is suitable for exchange in sensors of the VEGAFLEX 80 series. You can find information of the available versions in chapter "*Mounting preparations*".

### 3.3 Packaging, transport and storage

#### Packaging

Your instrument was protected by packaging during transport. Its capacity to handle normal loads during transport is assured by a test based on ISO 4180.

The packaging of standard instruments consists of environment-friendly, recyclable cardboard. For special versions, PE foam or PE foil is also used. Dispose of the packaging material via specialised recycling companies.

#### Transport

Transport must be carried out in due consideration of the notes on the transport packaging. Nonobservance of these instructions can cause damage to the device.

#### Transport inspection

The delivery must be checked for completeness and possible transit damage immediately at receipt. Ascertained transit damage or concealed defects must be appropriately dealt with.

#### Storage

Up to the time of installation, the packages must be left closed and stored according to the orientation and storage markings on the outside.

Unless otherwise indicated, the packages must be stored only under the following conditions:

- Not in the open
- Dry and dust free
- Not exposed to corrosive media
- Protected against solar radiation
- Avoiding mechanical shock and vibration

**Storage and transport temperature**

- Storage and transport temperature see chapter "*Supplement - Technical data - Ambient conditions*"
- Relative humidity 20 ... 85 %

**Lifting and carrying**

With an instrument weight of more than 18 kg (39.68 lbs) suitable and approved equipment must be used for lifting and carrying.

## 4 Mounting

### 4.1 General instructions

#### Safety during mounting

We recommended installing the replacement electronics with the instrument dismantled and brought to a suitable place, e.g. a workshop. If it is not possible to dismantle the instrument, the electronics module can also be installed on site at the measuring point.



#### Warning:

Switch off voltage supply before starting the installation procedure. The replacement electronics may only be installed when the sensor is in a **de-energised state**. Non-observance will damage the electronics!

#### Ex approval

It is absolutely necessary that the following points are observed with sensors with Ex approval:



For sensors with Ex approval, make sure that the replacement electronics module has the same designation as the exchanged electronics module.

For example, an electronics module with a hardware version  $\geq 2.0.0$  must be only installed in a sensor with hardware version  $\geq 2.0.0$ .

### 4.2 Mounting preparations

#### Assignment

The electronics modules are mounted in the electronics compartment and adapted to the respective sensor. First of all, check by means of the following lists if you are using a suitable electronics module.

- FX-E.80H for version 4 ... 20 mA/HART (two-wire/four-wire/Modbus)
- FX-E.80A for version 4 ... 20 mA/HART with SIL qualification
- FX-E.80P for version Profibus PA
- FX-E.80F for version Foundation Fieldbus



With SIL qualified instrument, only a respective electronics module with SIL qualification must be used.

Electronics modules for SIL qualified instruments can only be ordered by stating the sensor serial number. Have the sensor serial number ready when ordering.

### 4.3 Installation procedure

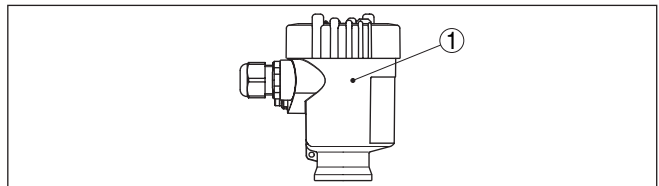


Fig. 1: Single chamber housing

1 Position electronics compartment/Electronics module

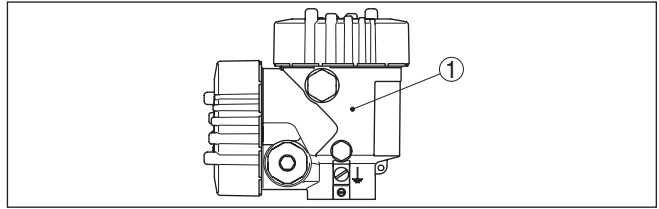


Fig. 2: Double chamber housing

1 Position electronics compartment/Electronics module

Proceed as follows:

1. Switch off power supply
2. Unscrew the lid of the electronics compartment
3. Remove the terminal blocks according to the operating instructions manual of the respective sensor
4. Loosen the two holding screws with a screwdriver (Torx size T 10 or slotted screwdriver size 4)

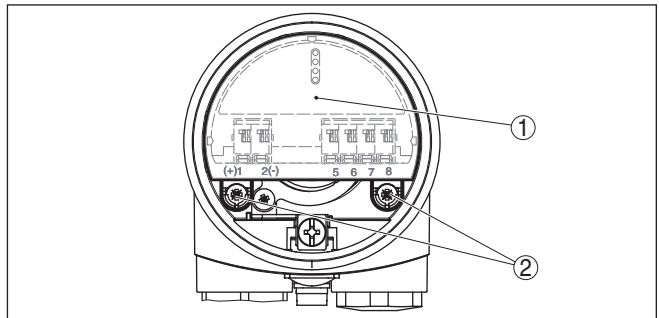


Fig. 3: Loosen the holding screws

1 Electronics module  
2 Screws (2 pcs.)

5. Pull the previous electronics out with the dismantling tool.
6. Insert the new electronics module carefully.
7. Screw in the two holding screws and tighten them
8. Attach the terminal blocks according to the operating instructions manual of the respective sensor
9. Screw the housing lid back on

The electronics exchange is now finished.



As a rule, an exchange of electronics must be documented internally if Ex applications are involved.



## 5 Setup

### 5.1 Setup preparations

If the electronics module is defective, it can be replaced quickly and safely by the user.

In general two types of information are necessary for an electronics exchange

1. Sensor data

These are the data the instrument gets by default during production. They include e.g. the sensor type, the probe length, the language, etc.

2. Parameter data

These are the application-specific data which you have entered or modified during the sensor setup. These are for example the displayed unit, the measuring point name, the adjustment date, the damping, etc.



In Ex applications, only instruments and electronics modules with appropriate Ex approval may be used.



With SIL qualified instrument, only a respective electronics module with SIL qualification must be used.

The electronics modules are adapted to the respective sensor. Hence the new electronics module must be loaded with the default settings of the sensor.

The following options are available for restoring the sensor data:

#### Sensor data - ex works

Order the replacement electronics module from the agency serving you.

When ordering the replacement electronics module, please state the serial number of the sensor.

The serial numbers are stated on the type label of the instrument, inside the housing as well as on the delivery note.



#### Note:

This procedure is only recommended if you have just a few sensors and, in case of an instrument failure, you have enough time for an ordering process that can last several days.

By default, the electronics module is loaded with the sensor data (factory settings) of the affected sensor. Remember that this electronics module can only be used for the corresponding sensor.

The replacement electronics module is provided with the serial number of the affected sensor. Before mounting, check if the serial number on the replacement electronics module and the serial number of the sensor correspond.

If you ordered the electronics module "ex works", it is ready for parameterization immediately after installation and connection to power supply.

Then all application-specific settings must be entered again. See the following chapter "*Setup steps*"

### Sensor data - on site via PACTware

First of all, you have to transfer the device-specific sensor data to the new electronics module.

Under "Instrument search (serial number)" you can download the specific sensor data as XML file and the PDF file (only with SIL qualified instruments) directly into the sensor.

If you can access the sensor via the adjustment software PACTware and a DTM, a direct transmission is the easiest and quickest method.

For this you need an Internet access.

1. Start PACTware and connect to the corresponding sensor.
2. Open the field "*Maintenance*" and select "*Electronics exchange*"
3. After the connection is established, you can choose how the sensor data should be loaded into the sensor.

Choose "*Load sensor data from the Internet*"

4. Enter in the next step the serial number of your sensor.

You can find the serial number outside on the type label of the instrument and inside the housing.

5. As soon as the sensor data are ready, you can load the data directly into the sensor.

This procedure lasts approx. 5 minutes.

6. Then all application-specific settings must be entered again. See the following chapter "*Setup steps*"



Instruments with SIL qualification

After the transfer of the sensor data, a check sum is displayed. You have to verify the correct transmission by means of a check sum. Only then is the instrument ready for operation again and SIL qualified.

The PDF document "*SIL electronics exchange check sum certificate*" is opened automatically.

After that, a list of all safety-relevant data is displayed.

Compare the displayed check sum with the data of the PDF document.

If the check sums match, the transmission was successful. Record the comparison of the check sums.

### Sensor data - on site via download

First you have to transfer the device-specific sensor data to the new electronics module.

You can download these individual, device-specific data of your sensor from our homepage.

This method is recommended if you have no Internet access on site.

1. Go via our homepage "[www.vega.com](http://www.vega.com)" to "*Instrument search (serial number)*".
2. Enter the serial number of your sensor.

After entering the instrument serial number, the order data of the sensor will be displayed.

3. Below the order data, you can find under "*Sensor data for service DTM*" the XML file: "DTM Configuration File".

Click with the right mouse key to the file and download this XML file with "*Save target under*" to your PC.

4. For instruments with SIL qualification you have to download the PDF document "*SIL electronics exchange check sum certificate*" also from the homepage.

Click with the right mouse key to the file and download this PDF file with "*Save target under*" to your PC.

5. Compare the serial number of the XML file with the serial number of your sensor.

You can find the serial number outside on the type label of the instrument and inside the housing.

6. Start PACTware and connect to the corresponding sensor.
7. Open the field "*Maintenance*" and select "*Electronics exchange*".
8. After the connection is established, you can choose how the sensor data should be loaded to the sensor.

Choose "*Load sensor data from local file*".

9. Click the button "*Selection*" to load the XML file from the file system of your computer.

Make sure that you are using the correct file.

10. As soon as the sensor data are ready, you can load the data directly into the sensor.

This procedure lasts approx. 5 minutes.

11. Then all application-specific settings must be entered again. See the following chapter "*Setup steps*".

## SIL

### Instruments with SIL qualification

After the transfer of the sensor data, a check sum is displayed. You have to verify the correct transmission by means of a check sum. Only then, the instrument will be ready for operation, again and SIL qualified.

Go in the via our homepage "[www.vega.com](http://www.vega.com)" to "*Instrument search (serial number)*".

Enter the serial number of your sensor.

After entering the instrument serial number, the order data of the sensor are displayed.

Download the PDF document "*SIL electronics exchange check sum certificate*" from the homepage. Compare the check sum with the data of the PDF document.

If the check sums match, the transmission was successful. Record the comparison of the check sums.

**Parameter data****5.2 Setup steps**

After transmission of the sensor data, all application-specific settings must be entered again. Carry out a fresh setup after exchanging the electronics or load the stored data of the setup.

If you saved the parameter settings during the first setup of the sensor, you can transfer them to the replacement electronics module. To do this, use the import function of the adjustment software PACTware with the device DTMs or the copy function of the display and adjustment module. A fresh setup is then not necessary.

You can find information on how to copy saved parameter adjustment data to the new electronics module under "*Additional settings - Copy instrument settings*".



On SIL qualified instruments, the settings of the electronics must be checked and verified after the electronics exchange. Only then is the instrument again ready for operation.

You can find information about the test and verification in the operating instructions corresponding to your sensor as well as in the Safety Manual.

**Information:**

If a false signal suppression already existed, we recommend creating a new one. If this is not possible, for example, because the vessel is filled, the false signal suppression can be imported via the DTM. However, the false signal suppression should be updated or created anew next time the vessel is empty.

During setup, take note of the operating instructions corresponding to your sensor.

## 6 Maintenance

### 6.1 How to proceed if a repair is necessary

You can find an instrument return form as well as detailed information about the procedure in the download area of our homepage: [www.vega.com](http://www.vega.com).

By doing this you help us carry out the repair quickly and without having to call back for needed information.

If a repair is necessary, please proceed as follows:

- Print and fill out one form per instrument
- Clean the instrument and pack it damage-proof
- Attach the completed form and, if need be, also a safety data sheet outside on the packaging
- Please contact the agency serving you to get the address for the return shipment. You can find the agency on our home page [www.vega.com](http://www.vega.com).

## 7 Dismount

### 7.1 Dismounting steps

**Warning:**

Before dismantling, be aware of dangerous process conditions such as e.g. pressure in the vessel or pipeline, high temperatures, corrosive or toxic products etc.

Take note of chapters "*Mounting*" and "*Connecting to power supply*" and carry out the listed steps in reverse order.

### 7.2 Disposal

The instrument consists of materials which can be recycled by specialised recycling companies. We use recyclable materials and have designed the electronics to be easily separable.

Correct disposal avoids negative effects on humans and the environment and ensures recycling of useful raw materials.

Materials: see chapter "*Technical data*"

If you have no way to dispose of the old instrument properly, please contact us concerning return and disposal.

**WEEE directive 2002/96/EG**

This instrument is not subject to the WEEE directive 2002/96/EG and the respective national laws. Pass the instrument directly on to a specialised recycling company and do not use the municipal collecting points. These may be used only for privately used products according to the WEEE directive.

## **8 Supplement**

### **8.1 Technical data**

#### **Technical data**

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The technical data are listed in the operating instructions manual of the respective sensor.

## 8.2 Industrial property rights

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进一步信息请参见网站[www.vega.com](http://www.vega.com)。

## 8.3 Trademark

All the brands as well as trade and company names used are property of their lawful proprietor/originator.









Printing date:

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All statements concerning scope of delivery, application, practical use and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.

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