

# DENIOS.



Technical changes reserved

## Operating instructions **SpillGuard® connect**



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Original instructions

## **Copyright**

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These instructions represent the legal situation in Germany.

## **IMPORTANT**

**Read carefully before commissioning**  
**Keep safe for later reference**

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## 1 Information regarding the operating instructions

Before you install and commission your product, ensure you read these operating instructions completely. Always observe the safety information and warnings.

These operating instructions are intended for all persons who come into direct contact with the product.

These operating instructions are a part of the product.

### Further applicable documents

Depending on the product, you will receive the following documents separately as a part of your delivery:

- Quick guide
- EU Declaration of Conformity (Download)
- Resistance list (Download)

Differences are possible depending on country.

### 1.1 Warnings

Warnings are shown at the start of a chapter or section before instructions for action where a hazard may occur. The warnings are structured as follows:

- Type of hazard
- Consequence of hazard
- Avoidance of hazard



## DANGER



**The symbol indicates the type of hazard.**

Symbol and signal word indicate a hazard which leads to serious injury or death.

■ Measure.



## WARNING



**The symbol indicates the type of hazard.**

Symbol and signal word indicate a hazard which can lead to serious injury or death.

■ Measure.



## CAUTION



**The symbol indicates the type of hazard.**

Symbol and signal word indicate a hazard which can lead to minor injury.

■ Measure.


## NOTICE

Signal word indicates a hazard which can lead to damage to property.



**The symbol indicates instructions for use and other useful information.**

Pictograms are used to warn of hazards:

Pictogram	Meaning
	General warning

## 1.2 Instructions for action

These operating instructions contain various instructions for action.

### Perform the following action

- ✓ This is a requirement.
  - a. This is an action step.
- ⇒ This is an intermediate result.
  - b. This is another action step.
- ☑ This is a final result.

### 1.3 Text styles

*Italic text*

Is used to emphasise individual words or phrases

*Reference* [ ▶ 10 ]

Indicates that content is explained on another page

**NOTICE! Text.**

Important information in the text, instructions for action or tables

**CAUTION! Text.**

**WARNING! Text.**

**DANGER! Text.**







Important information on explosion protection



[www.denios.com/spillguard](http://www.denios.com/spillguard)

Further information as download

## 1.4 Additional symbols

Symbol	Meaning
	Disposal in normal household waste is prohibited
	Visual LED signal
	Acoustic signal
	Wireless signal

## 2 Safety information

This chapter provides important information regarding the safe use of the product. This information refers to the protection of persons and the safe, fault-free operation. You can find action-related warnings before the corresponding instructions for action.

There may be hazards associated with the product if it is used, maintained or repaired in an incorrect manner, not in accordance with the intended use or by untrained personnel.

Hazards may arise affecting:

- Health and life of personnel
- Product and other assets near the product

Follow all the safety instructions in these operating instructions.

Ensure that the national regulations and safety rules relating to hazardous substances, safety directives, industrial safety and operator obligations are observed.

### 2.1 Intended use

SpillGuard® connect is an autonomous leak recognition system for detecting leaks of liquid media or hazardous substances. In the event of a leak, the integrated wireless module transmits a digital alarm signal. Every 7 days, the product reports its status and supports the operator in carrying out inspection obligations.

The product is intended for use in clean, uncontaminated spill sumps that are installed indoors.

The spill sumps should preferably be made of metal or non-metallic (plastic) materials. Outdoor use is not permitted.

SpillGuard® connect may only be used within the limits for use defined on the nameplate. The product is suitable for Ex Zone 0, due to gases.

As a precaution, the product may only be used with liquids that have already been positively tested by DENIOS. The list can be found here:

 [www.denios.com/spillguard](http://www.denios.com/spillguard)

Media that are not included in the list must be tested for suitability.



**The resistance list contains a representative selection of liquid hazardous substances. Upon request DENIOS can carry out a laboratory test for the medium you wish to store. The laboratory test covers checking the reliable detection of the medium as well as the subsequent maintenance of the visual and audible alarm signals for a period of 24 hours (resistance test).**

## 2.1.1 Misuse

DENIOS takes no responsibility for any damage caused by contravention of the intended use. All warranties and guarantees are excluded in the event of misuse. The party causing the misuse is solely responsible for any consequential damage.

The following actions are considered as not in accordance with the intended use:

- Using SpillGuard® connect in spill sumps for storing non-approved media:

 [www.denios.com/spillguard](http://www.denios.com/spillguard)

- Using SpillGuard® connect in potentially explosive areas outside the limits indicated on the nameplate
- Using SpillGuard® connect after a leak detection has occurred for a medium

- Changing the batteries

**WARNING! Opening the housing in Ex atmospheres poses an explosion hazard. Do not open the housing.**

## **2.2 Operator obligations**

### **2.2.1 Before commissioning**

Check the product for damage.

### **2.2.2 About inspection obligations of spill sumps**

SpillGuard® connect is an additional safety device, which indicates the occurrence of a leak both via a visual and acoustic signal, as well as a notification via SMS and/or email.

Regardless of using the product, the operator of containment devices is obliged to carry out and document the weekly visual inspections required by the Steel Spill Sumps Guidelines (StawaR) and the General Technical Approval (abZ).

Using the SpillGuard® connect does not release the operator of the system from this obligation.

### **2.2.3 Compliance with the specifications of the safety data sheet**

According to the REACH Regulation, the distributor is required to supply a safety data sheet for any hazardous substance.

As an operator, observe the safety and hazard information in the safety data sheet.

## 2.2.4 Training

Train the relevant personnel in a sufficient manner and in regular intervals, especially in case of modifications or adjustments. If the product is used in an **Ex Zone 0**, train personnel especially regarding the measures on the prevention of explosion hazards established in the risk assessment or in the explosion protection document.

## 2.2.5 Use in Ex Zones – explosion protection requirements



Storage systems for flammable liquids are systems that may be used in potentially explosive atmospheres. According to the ATEX Directive, the system's operator is obliged to carry out a risk assessment and also to prepare an explosion protection document in which appropriate protective measures are defined in order to avoid explosion hazards.

Furthermore, Directive 1999/92/EC contains minimum regulations for improving work health and safety for employees, who may be at risk due to explosive atmospheres. The main contents include:

- Duty of coordination
- Explosion protection document
- Classification of areas where an explosive atmosphere may be present
- Minimum regulations for improving the health and safety protection of employees, who may be at risk due to explosive atmospheres, as well as criteria for selecting equipment and protection systems

The explosion protection document produced by the operator specifies the conditions at the installation site. The operator must test in detail whether the product meets the requirements of the explosion protection document.

When creating the explosion protection document, the product and measures contained therein must be incorporated.

## **2.3 Personnel requirements**

Risk-free working is only guaranteed, when only specially qualified workers install and use the product.

Personnel undergoing training may only be permitted to work with the product if a qualified person is constantly supervising the work.

## **3 Transport and storage**

The product is delivered in cardboard packaging including a quick guide and a cardboard insert.

Keep the quick guide at hand and near the product.

Store the product as follows:

- Dry
- At room temperature
- NOT outdoors
- NOT exposed to direct sunlight

## 4 Product description

### 4.1 Full view



Abb. 1: Top view

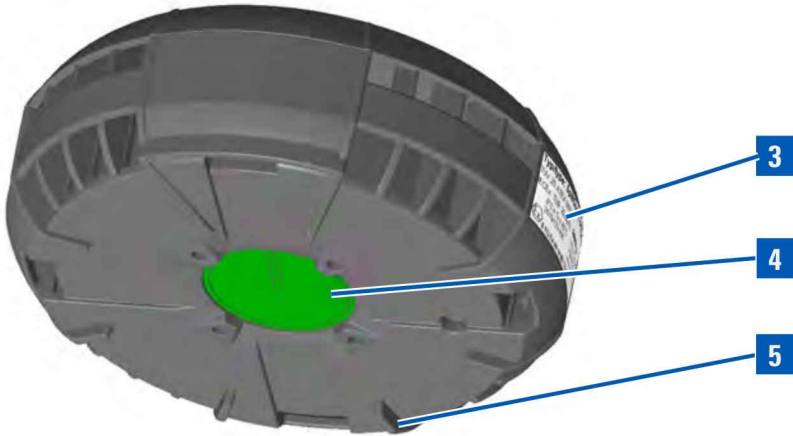




Abb. 2: Bottom view

	Element	Function
1	 <b>Signal LED</b> <b>"red"</b>	Display of results during commissioning, operation, and when an alarm is triggered
2	 <b>push button</b>	Switching the product on and off, and to turn off/cancel the signal when an alarm has been triggered
3	<b>Nameplate</b>	Label of the product with information for use in Ex Zones
4	<b>Sensor surface</b>	If the sensor surface becomes wet, it will detect a leak and will emit an acoustic and visual signal. At the same time, the product emits a wireless signal (narrowband network NB-IoT) to the DENIOS server, and the SMS recipients stored there and/or email recipients.

**5****Foot**

Secure stand: due to varying heights of the feet, the leak is fed to the sensor surface without generating any bubbles

**4.2****Service life**

The contract term for using the NB-IoT mobile network and therefore the service life of the SpillGuard® connect is 5 years. The battery service life has been designed for this period in which the expected conditions of use have been taken into account. Deviating conditions of use, such as insufficient network coverage (modem makes multiple attempts to activate and send in case of bad signal quality) or at low operational temperatures can impact the battery's service life and thereby the product's service life.

## 4.3 Dimension sheet

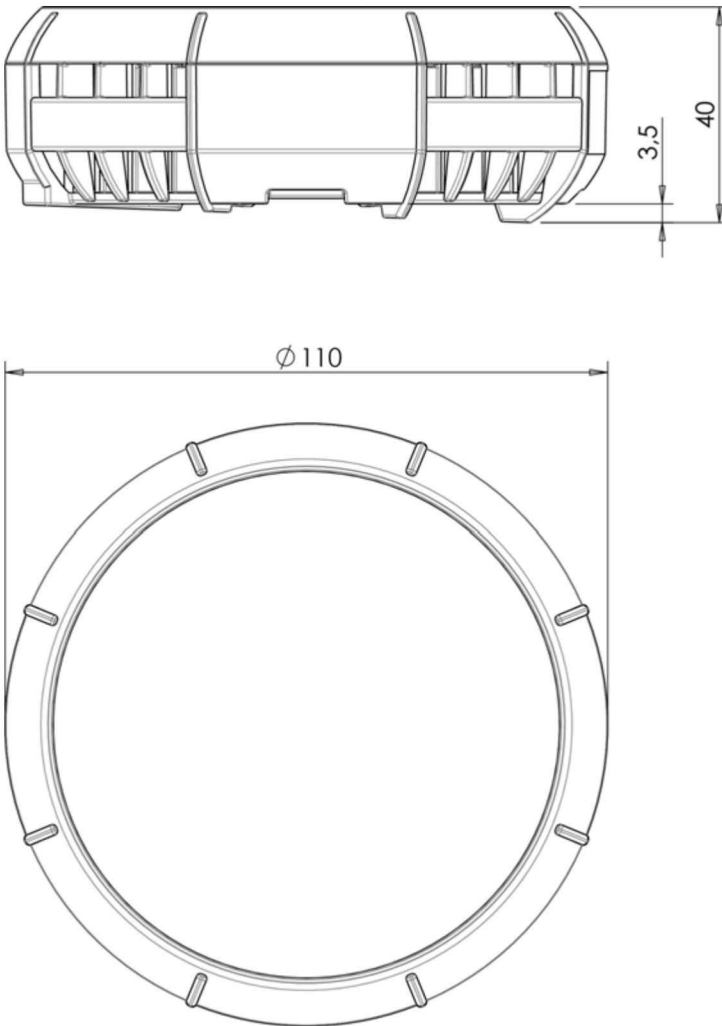



Abb. 3: Data in mm

4.4      **Technical data**

Description		Value
Dimensions		Ø 110 mm, height 40 mm
Operational temperature range		0 °C to a maximum of 40 °C
Ignition protection types		Intrinsically safe Encapsulation
Marking in accordance with Directive 2014/34/EU		 II 1G Ex ia ma IIB T4 Ga
Weight		215 g
Nominal voltage		3.0 V
Service life		Max. 5 years
Required level height for sensor wetting		6 mm
Noise level according to DIN EN ISO 3744		91.6 dB (A)
Certification number of the EU type examination	ATEX	TÜV 20 ATEX 8602
	IECEx	IECEx TUR 20.0076



**The recommended operational temperature range is the basis for the indicated service life of 5 years. The product can also be used at a temperature of down to a maximum of -10 °C. However, in this limit threshold, the indicated service life of 5 years cannot be ensured. In case of temperatures fluctuating around the dew point, false alarms can occur more often.**

## 4.4.1 Explanation of the nameplate



Abb. 4: Schematic representation CE

- 1 CE marking
- 2 Name and address of the manufacturer
- 3 Product label
- 4 Ex marking
- 5 Year of manufacture/serial number
- 6 Ambient temperature range T<sub>a</sub>
- 7 EU type examination certificate
- 8 Model

## 5 DENIOS connect

### 5.1 Carrying out the registration

Your delivery includes a 12-digit registration code for registering your company account.

For initial registration:

#### Perform the following action

- ✓ A registration code is available.
- ✓ An Internet connection was established.

1. Start your web browser and enter the following address:

<http://connect.denios.com>

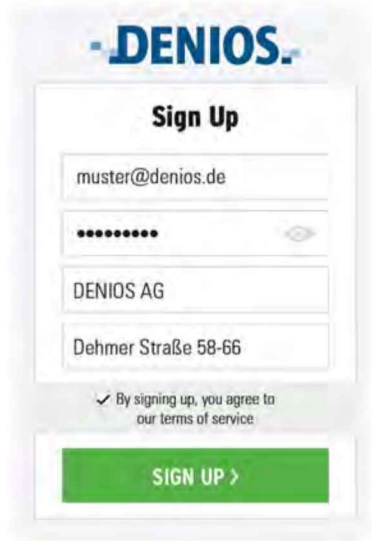
- ⇒ The following input field appears:



2. Enter the 12-digit registration code and press *NEXT*.

3. Enter the following data:

- Email address (required field)
- Password (required field)
- Company name (optional)
- Address (optional)

A screenshot of the DENIOS Sign Up form. The form is titled "DENIOS." at the top and "Sign Up" below it. It contains five input fields: an email field with "muster@denios.de", a password field with masked characters and an eye icon, a company name field with "DENIOS AG", and an address field with "Dehmer Straße 58-66". Below the fields is a checkbox with the text "By signing up, you agree to our terms of service". At the bottom is a green button labeled "SIGN UP >".

4. *Press SIGN UP.*

- ☒ The login page opens after successful registration.

## 5.2 Logging in online

- ✓ Registration is complete.
- 1. Log in using your determined account information.
- ☒ The user interface is being opened.

The following areas are available:

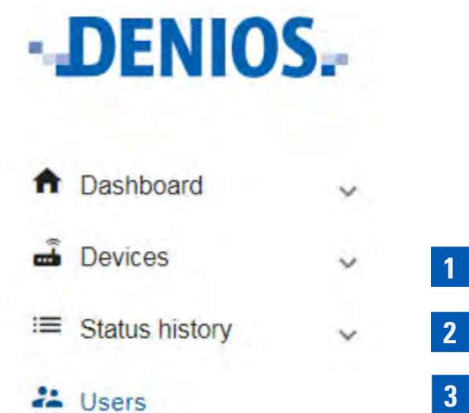


Abb. 5: Dashboard view


**1** Devices

 Click to open this view

**2** Status history

 Click to open this view

**3** Users

 Click to open this view

## 5.3 Devices view

	Last status	Last update	Device name	Plant	Building	Substance	Time to end-of-life	Battery	Signal strength
<input type="checkbox"/>	Online	2023-10-27 10:10:10	DENIOS Subgrip 1	Plant 1	Building 1	Substance 1	100%	100%	100%
<input type="checkbox"/>	Online	2023-10-27 10:10:10	DENIOS Subgrip 2	Plant 1	Building 1	Substance 1	100%	100%	100%
<input type="checkbox"/>	Offline	2023-10-27 10:10:10	DENIOS Subgrip 3	Plant 1	Building 1	Substance 1	100%	100%	100%

Abb. 6: Devices view

**Last status**

Display of the last sent status

**Last update**

Date and time of the last transmitting status

**Device name**

Display of device name

**Plant**

Display of plant

**Building**

Display of building

**Substance**

Display of stored medium

**Time to end-of-life**

Display of remaining service life

**Battery**

Display of battery capacity



**Signal strength**






Display of signal strength

The display for each device contains the following information:

Menu item	Description
Activation	Contains information on the time of the activation, the email address of the activating user, and the end of service life
Details	Contains information on the ID, device name, the stored medium, the plant and the building, as well as additional information
Telemetry	Contains information on the last condition, the battery, signal strength, temperature and the last update
Alarm notification	Contains text on alarm notifications and the recipient
Status	Contains the last 5 device notifications with timestamp
Location	Contains location information and a map

### 5.3.1 Table overview of the status notifications dashboard

Last status	Description
	The product is switched off and does not detect leaks
	The product is ready for operation and detects occurring leaks

	The product has detected a leak and is in alarm status, a notification was sent via SMS and/or email
	The product detected an error in signal transmission via NB-IoT
	The maximum ambient temperature of > 70 °C was exceeded
	The battery charge has fallen below the lowest threshold and can no longer ensure fault-free functioning
	The product has detected a leak; at the same time, the battery charge has fallen below the lower threshold

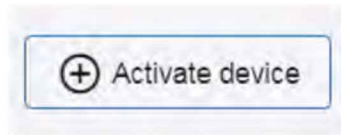
## 5.4 Activating and configuring the product

For SpillGuard® connect to appear under *Devices*, activate the product in the user interface and configure it afterwards.

### Perform the following action

✓ A company account has been registered.

1. Push the *Activate device* button.



⇒ The following input field appears:

2. Enter device ID or  
Open camera and scan device ID using  
the QR code



3. Enter device name.



4. Enter stored medium.



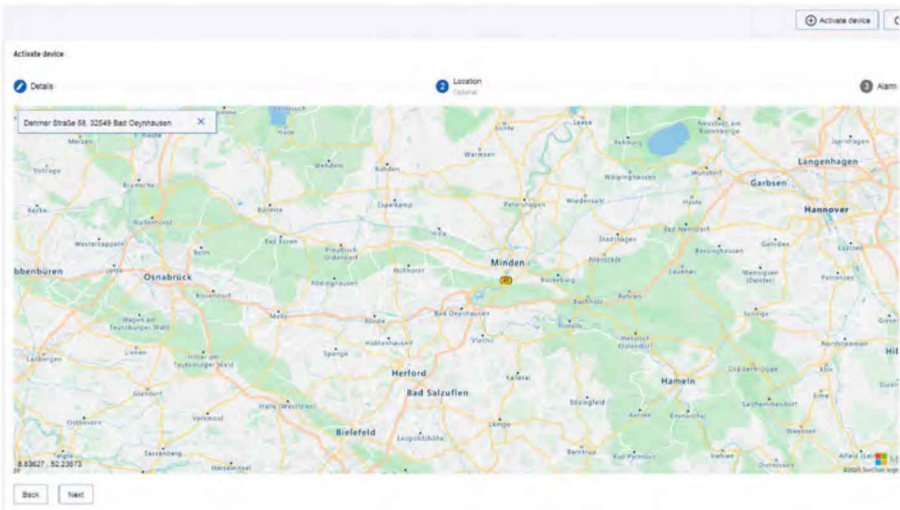
5. Enter installation site/plant.



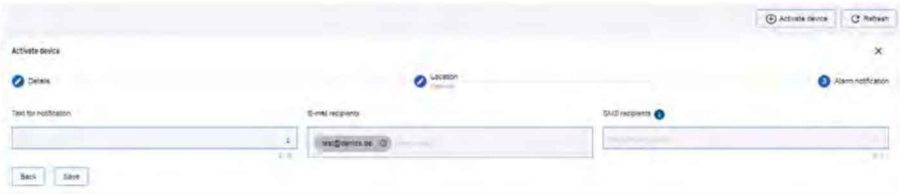
6. Enter building.



7. Enter free text (optional).



8. Enter location.



9. Enter alarm notification text.

Text for notification

10. Enter email address.

E-mail recipients

11. Enter phone number.

SMS recipients

12. Save entries.

- ☒ After commissioning, a confirmation message will be sent to your stored phone number, as well as your stored email address.

## 5.5 Status history view

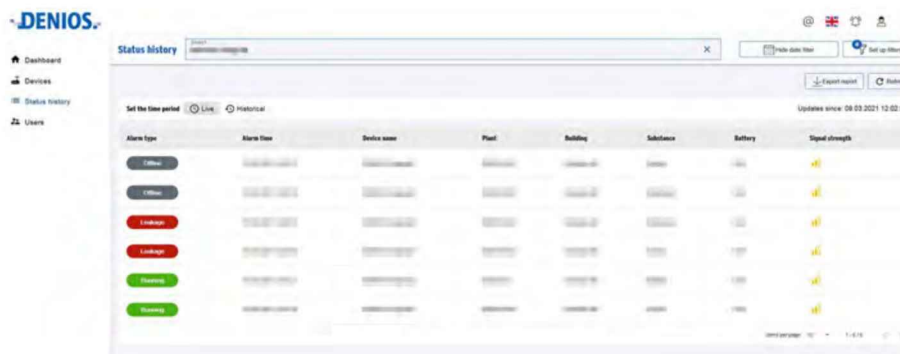


Abb. 7: Devices view

**Alarm type**

Display of sent status

**Alarm time**

Date and time of the transmitting signal

**Device name**

Display of device name

**Plant**

Display of plant

**Building**

Display of building

**Substance**

Display of stored medium

**Battery**

Display of battery capacity

**Signal strength**

Display of signal strength

## 5.6 User view

This view is only available to users with administrator rights:

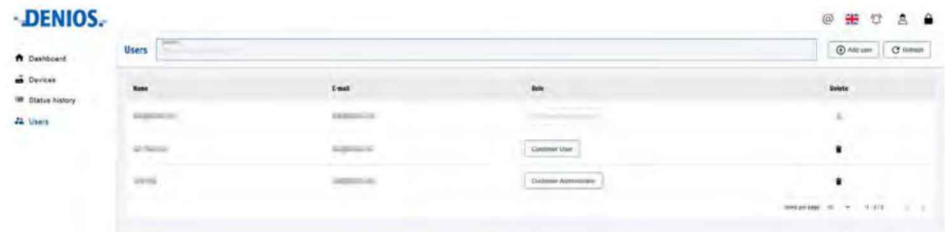


Abb. 8: User view

### 5.6.1 Creating a new user

#### Perform the following action

1. Push the *Users* button.
- ⇒ The *Users* view opens.
2. Push the *Add user* button.
- ⇒ The menu *Add user* opens.
3. Enter user name.
4. Enter the user's email address.

5. Select user rights:

Customer Administrator      Reading and editing rights

Customer User                Reading rights

6. Save entries.

☒ A new user has been successfully added.

## 6 Installation

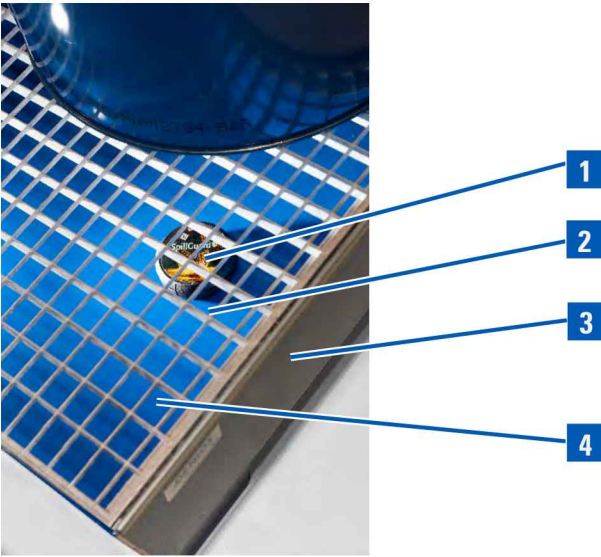


Abb. 9: SpillGuard® connect inside the spill sump

- 1 Leak sensor
- 2 Grid
- 3 Spill sump
- 4 Spill sump base

## 6.1 Requirements for the installation site

This chapter provides information and instructions for the safe installation. The installation site of the product is the base of a spill sump.







The following prerequisites must be met:

- The base of the spill sump must be free of any type of contamination.
- The base must be level.
- There must be sufficient space available for the product.
- The installation site should be at the lowest point of the spill sump so that a leak is detected as early as possible.

## 7 Operation

### 7.1 Commissioning the product








#### Perform the following action

- ✓ The product has been activated and configured.
  - ✓ The product is correctly unpacked.
  - ✓ The product is not damaged.
1. Position the product at the lowest point of the spill sump with the sensor surface towards the base.
  2. Press the push button until the signal tone°  sounds.
    - ⇒ LED  flashes quickly.
  3. Wait 30 seconds until the calibration process is complete.
    - ⇒ Signal tone°   sounds 2 times.
    - ⇒ LED  flashes once per minute.
- ☑ The product is ready for operation.
  - ☑ The dashboard shows: 

### 7.2 Using the product in a new location





If you would like to use the product in a new location, you have to shut off the product before and switch it back on afterwards.

## Perform the following action

1. Press the push button until the signal tone°  sounds.
  - ⇒ The product is switched off.
2. Position the product in the new location.
3. Press the push button until the signal tone°  sounds.
  - ⇒ LED  flashes quickly.
4. Wait 30 seconds until the calibration process is complete.
  - ⇒ Signal tone°   sounds 2 times.
  - ⇒ LED  flashes once per minute.
  - ☑ The product is ready for operation.
  - ☑ The dashboard shows: 

## 7.3 Implementing measures in case of an alarm

After a leak has been detected, the following signals occur:

-  Signal tone sounds 5 times, 15-second pause
-  rapid flashing during the pause
- The status of the user interface is updated.
-  The saved alarm text is sent via SMS/email to the stored recipient addresses.
- The dashboard shows: 



**When handling hazardous substances, please observe the requirements listed in the safety data sheet for the leaked hazardous substance, see *Compliance with the specifications of the safety data sheet* [ ▶ 12].**



## CAUTION




**Irritation from direct contact with the hazardous substance.**

Injury possible to hands, eyes etc.

Wear personal protective equipment (PPE).

## Perform the following action

1. Implement measures to clean up the leak.
  2. Immediately remove and clean hazardous substances residues from the spill sump.
- ⇒ Press the push button until the signal tone<sup>o</sup>  sounds.
3. Check the spill sump for damage and integrity.

☒ The product is switched off.

☒ The dashboard shows:

Offline

Decommission the product: *Decommissioning* [ ▶ 43 ]

8                    **Fault and malfunction**

This chapter provides you with information on possible faults. In addition, it describes troubleshooting measures.

8.1                **Possible faults**

<b>Fault</b>	<b>Possible cause</b>	<b>Remedy</b>
<b><i>Status notification</i></b>		
Alarm-like tone without leak: Signal tone sounds 2 times, 0.1 s pause between each signal tone LED lights up synchronously in the duration and frequency of the signal tone Display of status <i>Battery empty</i> in the dashboard	Battery charge is too low	Replace product

Alarm triggered  
without leak  
Display of status  
*Leakage*  
in the dashboard

Under certain climatic  
conditions condensation can  
form on the sensor surface.  
This can trigger a false  
alarm.

1. Press the push button  
(>1 s and <10 s) to turn off  
the alarm.
  2. Clean the sensor surface  
with a soft, lint-free cloth.
  3. Press and hold the push  
button until the signal tone  
sounds.
- ⇒ After 30 seconds,  
SpillGuard® connect is ready  
for operation again. [ ▶ 35 ]

Product cannot be  
switched on

The push button was not  
pressed long enough

Press and hold the push  
button until the signal tone  
sounds (> 10 s)

Battery is defective or empty

Replace product

Leak is not detected by the product	The installation site was changed without implementing a new calibration	Switch on the product again if the installation site has been changed
	The necessary level has not been reached	SpillGuard® connect detects only once the sensor surface is wet. This means a level height of 6 mm must be reached.
	The product has not been installed in the lowest part of the spill sump	Position the product in the lowest part of the spill sump
Product cannot be switched off after the alarm	Push button was NOT pressed in the prescribed time interval	Press the push button until the signal tone sounds (> 1 s und < 10 s)
The product cannot be switched off while it is ready for operation	Push button was NOT pressed in the prescribed time interval	Press the push button until the signal tone sounds (> 1 s und < 10 s)
Display of status <i>Error</i> in the dashboard	Product was unable to send weekly status request	Contact DENIOS service

Display of status <i>Temp. high</i> in the dashboard	The product's temperature sensor has exceeded the threshold of 70 °C	Remove the cause for the increase in temperature
Display of status <i>Leakage, Battery empty</i> in the dashboard	Product has detected a leak, battery charge is also too low	Implement measures to clean up the leak, then replace product

## **9 Maintenance**

The product is maintenance-free. Due to the enclosed design, repair or replacement of components or spare parts is not possible.

After the service life of 5 years, replace the product to ensure continuously faultless leak detection.

## 10 Decommissioning



**When handling hazardous substances, please observe the requirements listed in the safety data sheet for the leaked hazardous substance, see *Compliance with the specifications of the safety data sheet* [ ▶ 12].**



### CAUTION




**Irritation from direct contact with the hazardous substance.**

Injury possible to hands, eyes etc.

- Wear personal protective equipment (PPE).

### 10.1 Switching off the product

#### Perform the following action

- ✓ The end of the service life is reached, or a leak has been detected.
- 1. Press the push button until the signal tone<sup>o</sup>  sounds.
- ☑ The product is switched off.

## 10.2 Cleaning

### Perform the following action

- ✓ The product is switched off.
- 1. Thoroughly clean the product of all hazardous substance residues.

**WARNING! Opening the housing in Ex atmospheres poses an explosion hazard. Do not open the housing.**

- ☒ The product has been cleaned.

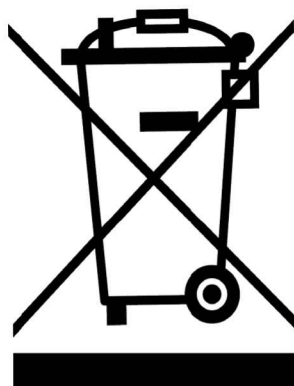
## 11 Disposal



**Use the local collection points established for disposal, or return the product to DENIOS.**

### Perform the following action

- ✓ The product has been cleaned.
  - 1. Do not dispose of the product in a normal household waste bin; observe the relevant national regulations.
- ☒ The product is properly disposed of.



## 12 EU conformity

Production is monitored by regular and independent inspections for continuous compliance with legal and normative requirements.



The product SpillGuard® connect conforms to the basic requirements on health protection, safety, and environmental protection of the following directives:

- 2014/34/EU (ATEX)
- 2014/53/EU (RED)
- 2011/65/EU (RoHS)

The EU Declaration of Conformity can be found at the following address:

 [www.denios.com/spillguard](http://www.denios.com/spillguard)



**DENIOS.**

279530