

## Instruction manual for the level measurement system Level Data Collector

(Original Instruction Manual – German)



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### **Important Note**

*This instruction manual may exclusively - even in parts - be copied or translated in any other way with the express written consent of NIVUS GmbH*

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### **Translation**

If the device is sold to a country in the European currency area, this instruction handbook must be translated into the language of the country in which the device is to be used.

Should the translated text be unclear, the original instruction handbook (German) must be consulted or the manufacturer contacted for clarification.

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### **Names**

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## 1 General

### 1.1 About this manual



---

**Important**

*READ CAREFULLY BEFORE USE*

*KEEP IN A SAFE PLACE FOR LATER REFERENCE*

---

This Instruction manual for the Level Data Collector and is for the intended use of the device. This manual is oriented exclusively to qualified expert personnel.

Read this instruction manual carefully and completely prior to installation and connection since it contains relevant information on this product. Observe the notes and particularly follow the warning notes and safety instructions. Keep this manual in a safe place and make sure it is available for the users of this product at any time.

If you should have problems to understand information contained within this instruction manual either contact the manufacturer or one of the distributors for further support. The manufacturer cannot be held responsible for damage to persons or material due to incorrectly understood information in this manual.

In case of selling the instrument this instruction manual shall be provided to the purchaser since it is a part of the standard delivery.

The operation of the complete system is described in the separate manual "Device to Web Data logging system (D2W)" as well as to the "Instruction Manual for Pressure and Level Sensors".

### 1.2 Personnel requirements

Installation, commissioning and maintenance shall be executed only by personnel meeting the demands as follows:

- Expert personnel with relevant training and appropriate qualification
- Personnel authorised by the plant operator



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**Qualified personnel**

*within the context of this documentation or the safety notes on the product itself are persons who are sufficiently familiar with installation, mounting, starting up and operation of the product and who have the relevant qualifications for their work; for example*

- *Training, instruction or authorisation to activate/deactivate, isolate, ground, and mark electric circuits and devices/systems according to the safety engineering standards.*
  - *Education and instruction according to the standards of safety engineering regarding the maintenance and use of adequate safety equipment.*
  - *First aid training*
-

## 2 Safety instructions

### 2.1 Used symbols and signal words



The general warning symbol indicates the risk of personal injuries or death. In the text section the general warning symbol is used in conjunction with the signal words described below.

**DANGER**

---

**Warning of danger to persons**

*Indicates an immediate high risk which may result in death or severe personal injury if not avoided.*



**DANGER**

---

**Danger of electrical shock**

*Indicates a possible danger by electrical power with moderate risk which may result in death or severe personal injury if not avoided.*



**WARNING**

---

**Warning of danger to persons**

*Indicates a possible danger with moderate risk which may result in death or (severe) personal injury if not avoided.*



**CAUTION**

---

**Warning of personal injuries or material damage**

*Indicates a possible danger with moderate risk which may result in minor or moderate personal injury or material damage if not avoided.*



---

**Important Notes**

*Indicates a situation which may result in damage to the instrument if not avoided.*

*Contains information which needs to be emphasised particularly.*



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**Notes**

*Indicates situations that do not result in personal injury.*

---

## 2.2 Safeguards and precautions

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### DANGER



#### **Risk due to radio waves**

*In no case the Level Data Collector measurement system may be operated in Hospitals and/or near medical equipment such as cardiac pacemakers or hearing aids.*

*The effects of radio waves on devices and persons with pacemakers or similar have not yet been investigated sufficiently. There is a risk of malfunctions or unit failures.*

*The Level Data Collector measurement system under no circumstances must be operated in close proximity to highly flammable areas such as service stations or flammable gases, vapours or dust. The same applies for operation in close proximity to fuel depots, chemical plants and blasting sites.*

*High-capacity batteries (13 Ah) must be kept away from explosive substances.*

---

### DANGER



#### **Risk of fire and burns**

*The Level Data Collector measurement system contains two Lithium batteries.*

*Damaged Lithium cells may ignite or explode due to their extremely high energy density.*

---

### WARNING



#### **Toxic substances**

*Lithium batteries contain toxic substances and therefore must not be disposed of as normal household waste. Always dispose of such batteries in accordance with statutory regulations.*

---

### WARNING



#### **Germ contamination**

*Please note that due to operation in the wastewater field measurement system and cables may be loaded with dangerous disease germs. Respective precautionary measures shall be taken when getting in contact with cables and sensors to avoid damage to one's health.*

*Wear protective clothing.*

---

## 2.3 Liability disclaimer

The manufacturer reserves the right to change the contents of this document including this liability disclaimer without prior notice and cannot be held responsible in any way for possible consequences resulting from such changes. For connection, initial start-up and operation as well as maintenance of the unit the following information and higher legal regulations of the respective country (e.g. VDE regulations in Germany) such as applicable Ex regulations as well as safety requirements and regulations in order to avoid accidents shall be observed.

All operations on the device which go beyond installation or connection measures in principle shall be carried out by NIVUS staff or personnel authorised by NIVUS due to reasons of safety and guarantee.

Make sure to operate the Level Data Collector in technically perfect working order only.

### Improper Use

Not being operated in accordance with the requirements may impair the safety. The manufacturer is not responsible for failures resulting from improper use.

## 2.4 User's responsibilities



### Important Note

*In the EEA (European Economic Area) national implementation of the framework directive 89/391/EEC and corresponding individual directives, in particular the directive 2009/104/EEC concerning the minimum safety and health requirements for the use of work equipment by workers at work, as amended, are to be observed and adhered to. In Germany the regulations on health and safety at work shall be followed.*

The customer must (where necessary) obtain any local **operating permits** required and observe the provisions contained therein.

In addition to this, he must observe local laws and regulations on

- personnel safety (accident prevention regulations)
- safety of work materials and tools (safety equipment and maintenance)
- disposal of products (laws on wastes)
- disposal of materials (laws on wastes)
- cleaning (cleansing agents and disposal)
- environmental protection

All approvals from respective authorities shall be followed according to the latest applicable version.

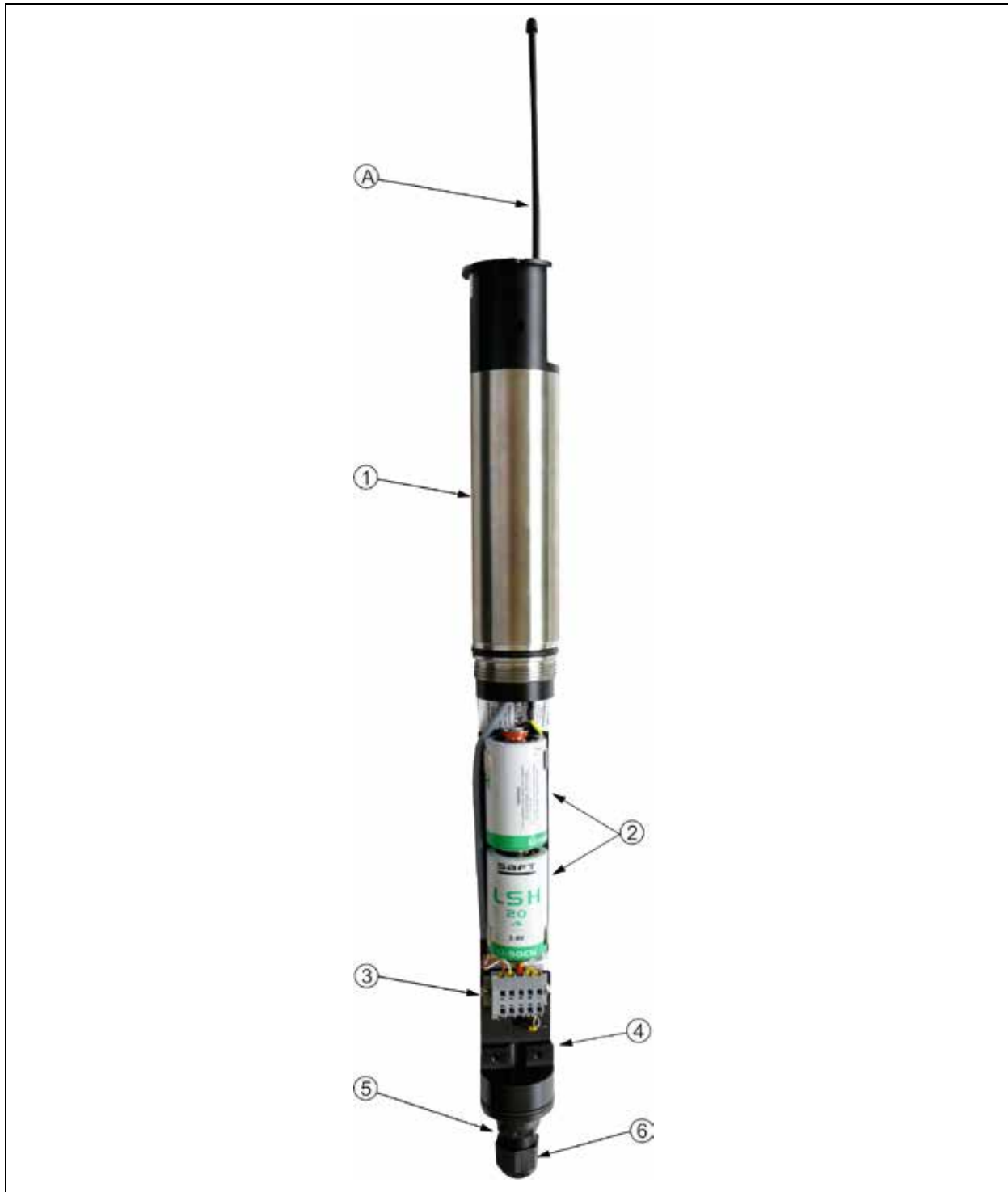
### Connections

Operators shall make sure prior to operating the instrument that during installation and initial start-up the local regulations (such as regulations for electrical connection) are observed..



### 3 Product specification

#### 3.1 Product overview



- A Flexible rod antenna
- 1 Data transmitter housing
- 2 Lithium batteries (not rechargeable)
- 3 Terminal clamps for external pressure probe
- 4 Cable strain relief
- 5 Pressure compensation (Gore-Tex)
- 6 Cable gland M20x1,5

**Fig. 3-1 Overview Level Data Collector**



- 1 Probe, Hanging on the cable, type NivuBar Plus II
- 2 Screw-in probe UniBar E II, 1/2", with plug connector
- 3 Screw-in probe UniBar E II, 1/2", stainless steel
- 4 Screw-in probe HydroBar G II, 1 1/2", stainless steel
- 5 Probe, Hanging on the cable, type AquaBar II
- 6 Probe, Hanging on the cable, type AquaBar BS (Submersible probe)

**Fig. 3-2 Overview pressure probes for Level Data Collector**

### 3.2 Intended use



#### **Important Note**

*The device is exclusively intended to be used for purposes as described above. Modifying or using the devices for other purposes without the written consent of the manufacturer will not be considered as use in accordance with the requirements.*

*Damages resulting from this are left at user's risk.*

The portable measurement system type Level Data Collector is intended to be used for fill level measurement. The device is supplied by batteries. The measured and detected data are saved on a non-volatile storage medium. Using the mobile phone network these data are transmitted to a central server for further processing. This is why the unit is equipped with a soldered SIM-Chip. In connection with 2-wire sensors (hydrostatic immersion probes) it is possible to continuously measure the flow in slight to heavily polluted media (liquids). Strictly observe the maximum permissible limit values as specified in chapter Product specification. Any case varying from these conditions which is not approved by NIVUS GmbH in written form is left at the owner's risk.



**Note:**

The integrated SIM-Chip ensures mobile phone connection thanks to a wide range of international service providers. Please make sure to be within the service range of such a provider to be able to use all the device functions available. You can find a list of all supported countries and the according service providers on [www.nivus.com](http://www.nivus.com). To be capable of using the mobile data transmission option it is necessary to purchase a "Prepaid (Data) Pack without binding contract" from NIVUS GmbH. This pack includes the provision of the mobile phone connection using the network services of the providers listed in the table mentioned above.



**Note:**

For installation and initial start-up the conformity certificates and test certificates of the respective authorities must be followed.

### 3.3 Device identification

The instructions in this manual are valid only for the type of device indicated on the title page. The nameplate is fixed on the side of the device and contains the following:

- Name and address of manufacturer
- CE label
- Type and serial number
- Year of manufacture (coded in the serial number)
- device designation
- Measurement range and cable length of the accompanying pressure probe

It is important for enquiries and replacement part orders to specify article number as well as serial number of the respective measurement unit. This ensures correct and quick processing.

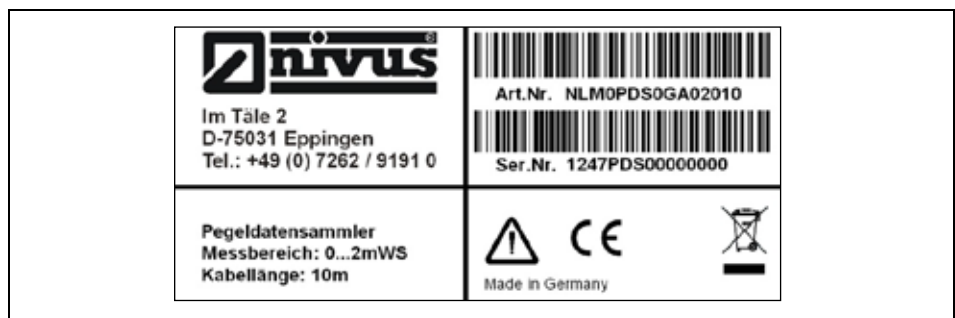


Fig. 3-3 Level Data Collector - nameplate



**Note:**

Check the device nameplate to ensure that the device is delivered according to your order.

### 3.1 Device versions

The Level Data Collector is available in different versions, which mainly vary in terms of measurement ranges.

From this article key the type of device can be specified.

NLM0PDS0	Type
	<b>G</b> Level transmitter incl. rod antenna, data transmission via GPRS <b>2-Wire Pressure Probe Type</b> <b>A06</b> Submersible probe AquaBar II, range 6 m <b>A10</b> Submersible probe AquaBar II, range 10 m <b>N06</b> Submersible probe NivuBar Plus II, range 6 m <b>N10</b> Submersible probe NivuBar Plus II, range 10 m <b>Axx</b> Submersible probe AquaBar II, special range <b>Nxx</b> Submersible probe NivuBar Plus II, special range <b>Cable length</b> <b>010</b> 10 m <b>020</b> 20 m <b>030</b> 30 m <b>050</b> 50 m
NLM0PDS0	

Fig. 3-4 Type keys for Level Data Collector

### 3.2 Specifications

#### Measurement system Level Data Collector (Transmitter)

Power Supply	Two Lithium batteries à 3.6 V DC in series; 13 Ah
Max. power consumption/ current drain	approx. 170 mA / 0.7 W in measurement or transmission mode
Typ. power consumption/ current drain	approx. 0.1 mA (sleep mode); 3 mA (wake-up mode)
Enclosure	Material: stainless steel/plastic, Dimensions: length – 466 mm; diameter – 48.3 mm
Weight	ca. 1800 g (without pressure probe)
Protection	IP68
Operation temperature	-20 °C to +60 °C
Storage temperature transmitter	-30 °C to +85 °C
max. humidity	80 %, non-condensing
Storage temperature Lithium batteries	Max. 21 °C – no variations in temperature
Display	red LED (status) to signal operation conditions and error messages
Operation	via magnetic switch. Start the Level Data Collector (ALOHA mode) using the magnetic key
Inputs	1 x 4-20 mA for external 2-wire sensors (pressure probe)
Outputs	Power supply: 15 – 17.3 Volt DC, max. 66 mA for 2-wire sensors (pressure probe)
Storage cycle	1 to 60 minutes
Data storage	internal flash memory for up to 1740 measurement cycles
Data transmission	via GSM/GPRS quad band modem to the respective Device to Web (D2W) Server

#### Measurement system Level Data Collector (Level sensor- AquaBar II)

Power supply	12 to 36 V DC
Measurement range	See name plate, standard: 2; 4; 6; 10 m
Measurement signal	4-20 mA
Connection cable	Polyurethane cable shielded 2 x 0.14 mm <sup>2</sup> , Diameter ca. 9 mm
Enclosure	Material: stainless steel 1.4404
Protection	IP 68
Measurement membrane	Material: stainless steel 1.4435
Operating temperature	Measurement medium -10°C to +70 °C (liquid)
Storage temperature	-25 °C to +70 °C
max. humidity	80 %, non-condensing

### Storing

The following storing conditions shall be strictly observed:

Data transmitter	max. temperature:	+85°C
	min. temperature:	-30°C
	max. humidity:	80 %, non-condensing
Submersible pressure probe (AquaBar II)	max. temperature:	+ 70°C
	min. temperature:	- 25°C
	max. humidity:	80 %, non-condensing
Lithium batteries	max. temperature:	+21°C
	max. humidity:	60 %, non-condensing



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**Note:**

- Before storing remove the batteries from the Level Data Collector.
  - Store the batteries in a frost-free place.
  - Effectively prevent the battery poles from short circuit!
- 

Protect the measurement system from corrosive or organic solvent vapours, radioactive radiation as well as strong electromagnetic radiation.  
Protect the batteries against heat, e.g. also against continuous sun exposure!

## 3.3 Equipment

### 3.3.1 Delivery

The standard delivery of the Level Data Collector system contains

- Instruction manual with the certificate of conformity. Here, all necessary steps to correctly install and to operate the measurement system are listed.
- Level Data Collector, type NLMOPDS0..... incl. two Lithium batteries
- One pressure probe, hydrostatic; 2-wire version for analog level measurement

Check extra accessories depending on your order and by using the delivery note.

### 3.3.2 Receiving inspection

Check if your delivery is complete. Check the packaging for visible damage immediately after receipt. Any possible damage in transit shall be instantly reported to the carrier. Furthermore a written report shall be sent to NIVUS GmbH in Eppingen.

Incomplete deliveries shall be reported in writing either to your local representative or directly to the NIVUS head office in Eppingen within 2 weeks.



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**Note:**

*Complaints received later shall not be considered!*

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## 3.4 Transport

### WARNING



#### ***Transport restrictions***

*The supplied Lithium batteries are subject to the transport restrictions of international rules (UN 3091, hazard class 9).*

*Observe the transportation requirements for this dangerous goods class.*

*Failure to observe may result in personal injury or damage to property.*

The measurement system Level Data Collector is conceived for harsh industrial conditions. Despite this do not expose them to heavy shocks or vibrations.

**Due to dangerous goods classification transportation shall be carried out using the original packaging!**

### 3.4.1 Return

The Level Data Collector must be returned at customer cost to NIVUS Eppingen in the original packaging.

Otherwise the return cannot be accepted!

#### **Lithium batteries**

In Germany the "Directive on the collection and disposal of spent batteries and accumulators (Battery Directive)" applies.

Collection point for Lithium batteries made by SAFT Company:

TADIRAN BATTERIES GmbH

Industriestrasse 22

63654 Buedingen, GERMANY

Phone: +49 (0)6042 954-0

Fax: +49 (0)6042 954-190

### 3.4.2 Installation of spare parts and parts subject to wear and tear

We herewith particularly emphasise that replacement parts or accessories not supplied by NIVUS moreover are not certified and approved by NIVUS too.

Installation and/or the use of such products hence may negatively influence predetermined constructional characteristics of the measurement system or even lead to instrument failures.

NIVUS cannot be held responsible for any damage resulting due to the use of non-original parts and non-original accessories. You can find original manufacturer spare parts or accessories in chapter 10.

## 4 Functional principle

### 4.1 General

The measurement system Level Data Collector consists of a data transmitter and a hydrostatic 2-wire pressure probe (submersible probe, type AquaBar II). The probe is independently supplied by the transmitter which in turn processes the probe's 4-20 mA signals. By using a built-in GPRS communication module (quad band modem) various data such as pressure probe level, internal temperature, signal strength of GPRS connection, battery status and many more are transmitted to the server-based data logging and recording system "Device to Web" (D2W).



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**Note:**

*The level detection method is based on the hydrostatic relative pressure principle, which operates by using a pressure probe with an integrated piezo-resistive measurement cell. Here the pressure of the static water column above the sensor is direct proportional to the filling level. A capillary air tube exposed to atmospheric conditions is integrated in the sensor cable and can be used to compensate fluctuations of the atmospheric air pressure.*

---

Basically all kinds of 2-wire sensors can be operated in connection with the data transmitter.



## 4.2 Dimensions

### 4.2.1 Dimensions Level Data Collector

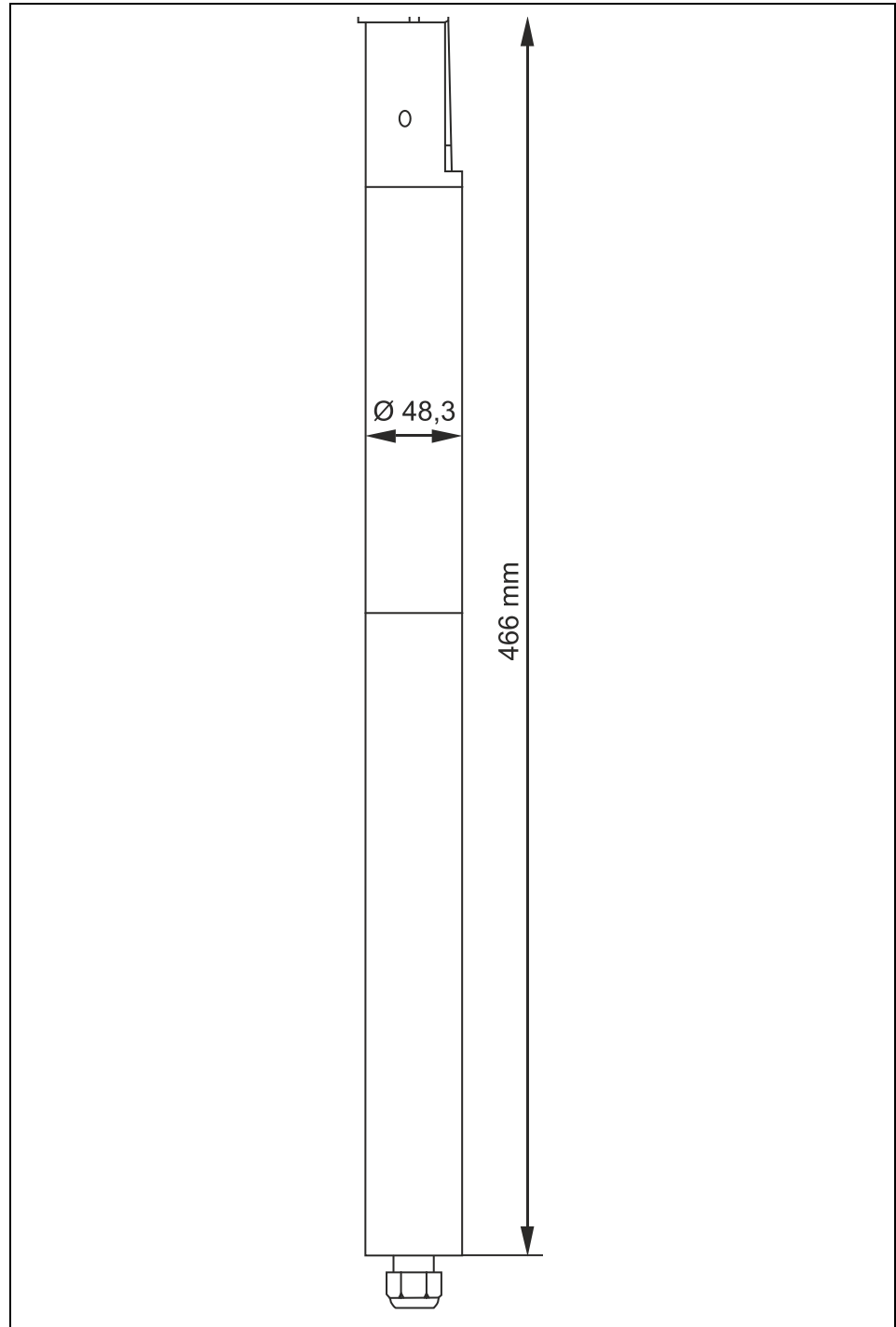
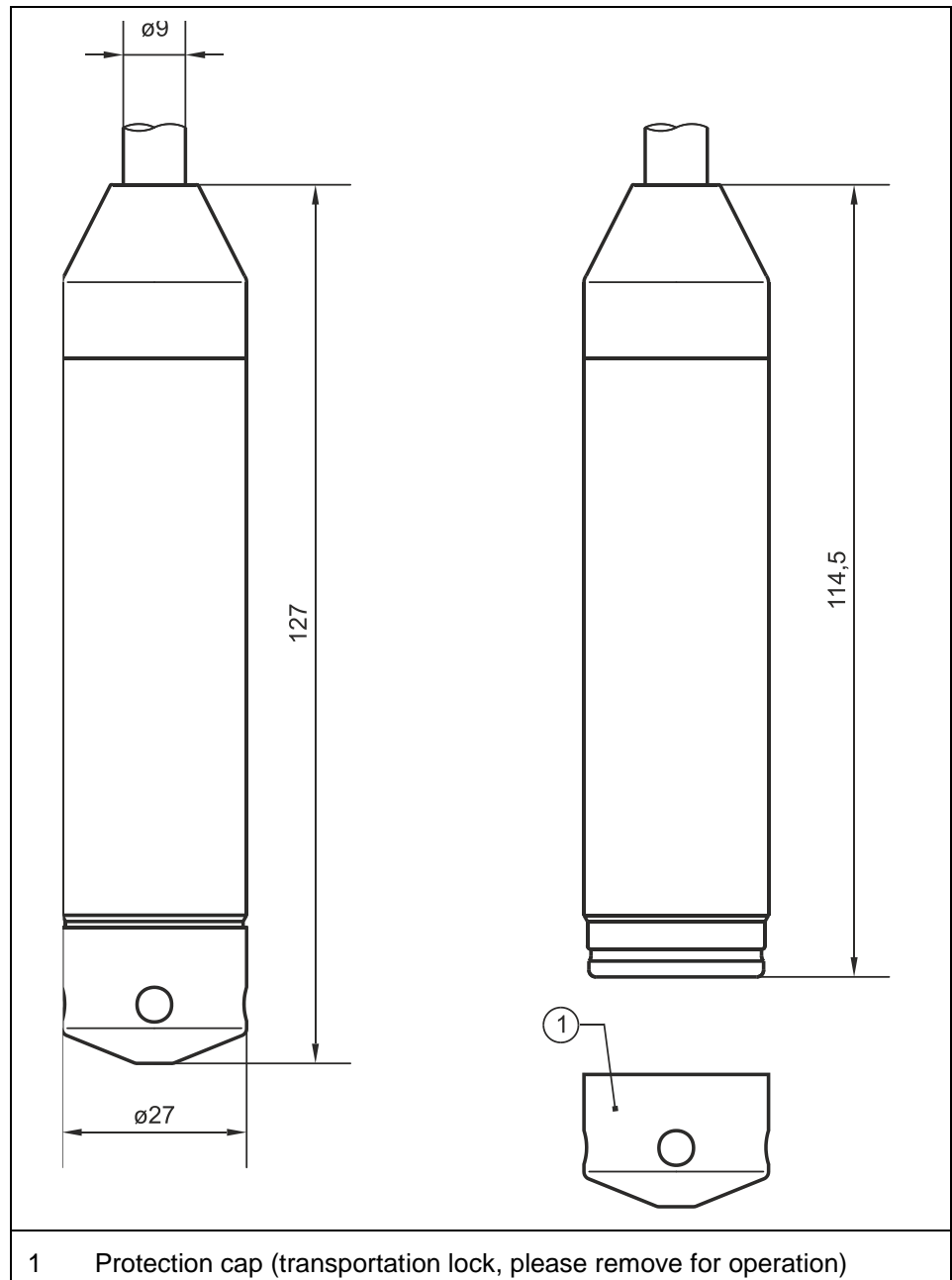


Fig. 4-1 Transmitter dimensions

#### 4.2.2 Dimensions submersible probe



1 Protection cap (transportation lock, please remove for operation)

**Fig. 4-2 Dimensions submersible probe AquaBar II**

## 5 Installation and connection

### 5.1 General installation conditions

- Observe proper installation!
  - Follow applicable legal or operational guidelines!!
- Improper handling can result in injury and / or damage to the equipment!

#### 5.1.1 Hints on how to avoid electrostatic discharge (ESD)

##### WARNING



##### **Risk due to radio waves**

*In following environments the measurement system Level Data Collector may not be operated:*

- *in hospitals and or near medical devices, such as cardiac pacemakers or hearing aids*
- *near highly inflammable areas, e.g. Filling stations*
- *in fuel depots, chemical plants and blasting sites*
- *near flammable gases, vapours or dust*

*See >Fehler! Verweisquelle konnte nicht gefunden werden.<*

The place to install the Level Data Collector measurement system shall be carefully chosen considering certain criteria.

##### **Strictly avoid when installing the device:**

- direct sunlight
- heat emitting objects
- objects with strong electromagnetic fields (e.g. frequency converters, operational protection devices, electric motors with high power consumption or similar)
- corrosive chemicals or gases
- mechanical shocks
- vibrations
- radioactive radiation

#### 5.1.2 Fastening Level Data Collector



##### **Note:**

*Mounting materials and tools are not parts of the standard delivery.*

The system is fastened by using either a 2" standard mast cap or an additional 3" to 6" adapter suspension plus appropriate mast cap. To do this, the complete Level Data Collector system incl. connected pressure probe is inserted from the top into the existing level pipe with a mounted mast cap. Restrain the system against rotation by tightening the 2 headless screws. Then fasten and secure the mast cap cover using a hexagon socket screw.

## 5.2 Electrical installation

### WARNUNG



**Disconnect the unit from mains power**

All work on electrical connections may only be carried out with the supply voltage turned off.

Observe electrical data specified on the nameplate.



### Note:

Observe the national installation instructions.

For electric installation the regulations in the respective countries must be referred to.

Before feeding the rated voltage, the system installation must be correctly completed.

Check that the installation is correct.

Observe that the installation shall be carried out by qualified personnel only. Further statutory standards (local), regulations and technical rulings have to be taken into account.

## 5.3 Connecting AquaBar II to the Level Data Collector

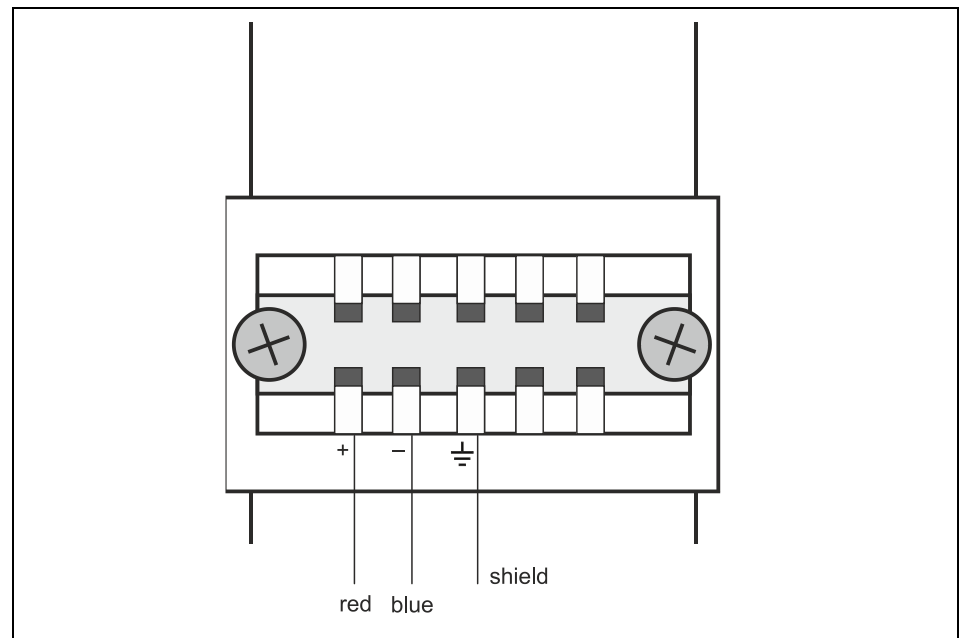


Fig. 5-1 Connection diagram

## 5.4 Communication

### 5.4.1 General

Insert the batteries into the Level Data Collector. After a short time the Level Data Collector will automatically connect with the NIVUS Device to Web Internet portal!

#### Prerequisite

The prerequisite for this is that a measurement place for the Level Data Collector has been created in the NIVUS Device to Web (D2W) Internet portal previously! For detailed information on the according procedure please refer to the D2W instruction manual.

The device must be assigned to the measurement place by specifying the device **name** and **serial no.** The serial no. can be found on the Level Data Collector's nameplate.

### 5.4.2 Communication with internet portal Device to Web (D2W)

#### Internet connection via connection portal D2W to Level data Collector

There is no need to install any additional software. All you need is the latest version of your preferred Internet browser and a network-compatible PC/laptop.

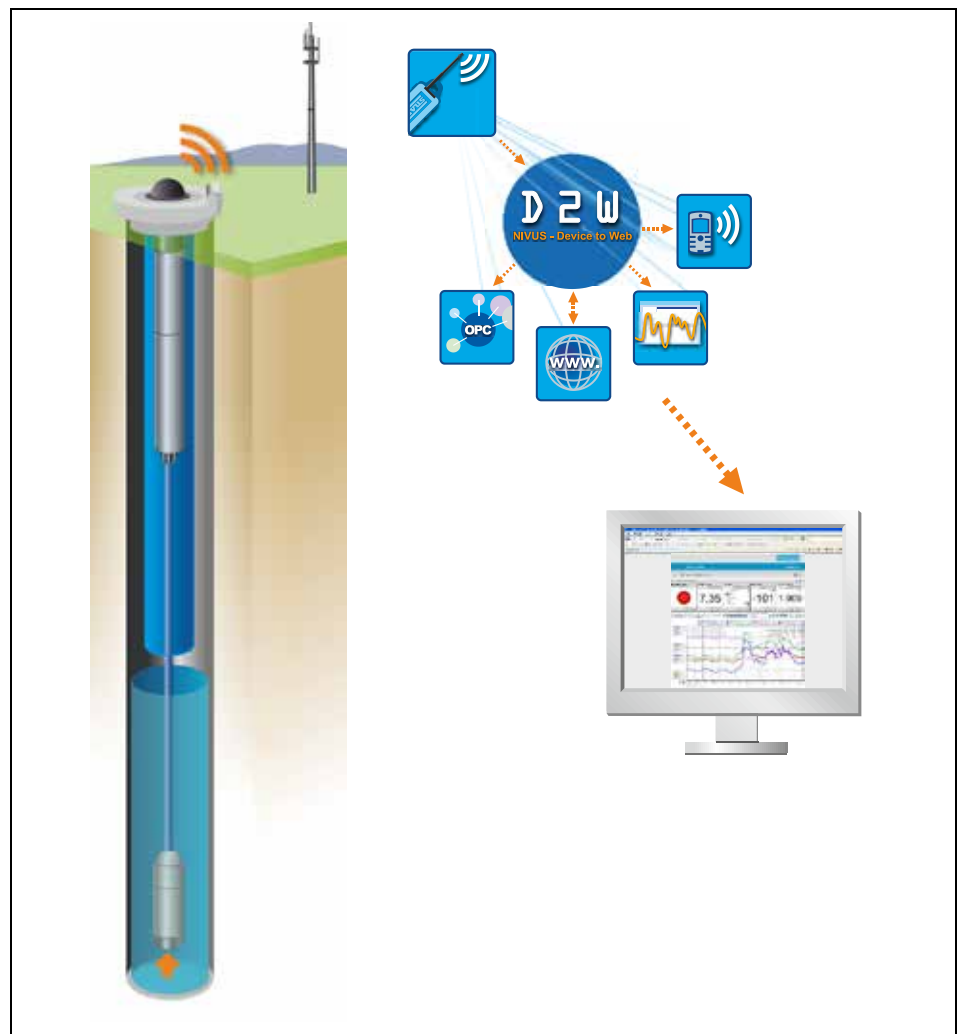


Fig. 5-2 Communication with Device to Web server

### 5.4.3 Communication setup and connection via access portal (D2W)



**Important Note:**

*Setting up a modem connection (analog, ISDN, GPRS or similar) will cause access expenses. These expenses may vary in terms of different providers, time online, flat rate or similar agreements and are not influenced by NIVUS.*

*Please observe while transmitting data.*

After the initial setup has been finished successfully following units, which are equipped with the same transmission system, can be set up by the customer or the customer's system administrator.

Starting the Internet connection requires a >Start Portal<. This Portal is available on the NIVUS homepage.

To start communication, enter the following address in your Internet Explorers:  
<http://www.nivus.de/>  
<http://www.nivus.com/>

The start screen of the NIVUS homepage will appear.

On upper right-hand corner of the start screen you can find the login area  
> **Device to Web**<

Click this button. This will take you to the >Device2Web< page where you will be led step-by-step through the activation process for Login with Pass word for your account.

NIVUS will provide you with this information upon request on initial setup. We strongly recommend you change the password during the first login or session.



**Fig. 5-3 Start of communication**



**Important Note:**

*Do not forward user names and passwords to unauthorised persons!  
Keep user names and passwords separated from each other and in a way which avoids misuse.*

Data are transmitted using SSL encryption to ensure access data security.  
Entering user name and password unlocks access to the Level Data Collector.



Fig. 5-4 Measurement place selection

After selecting the desired measurement place and clicking the >Log in< button communication with the selected Level Data Collector will be established.  
This may take between 15 and 120 seconds depending on modem type and quality of connection.



Fig. 5-5 Connection establishment

#### 5.4.4 Data transfer mode "Aloha"



##### **Additional documentation**

For this section please additionally refer to the >User Manual for Device to Web Data Logging system D2W<.

ALOHA transmission mode is a special connection mode where the Level Data Collector creates a connection to the Device to Web server. It is set to 10 minutes when the equipment is delivered.

The period of time can be configured using the "Basic settings" configuration section (see Manual D2W) "Aloha/wake-up duration".

There are two options to initiate the ALOHA transmission mode:

1. Directly on the device by means of the solenoid switch.
2. Via the Device to Web server if the "Interval & Wakeup" connection type has been selected (Manual D2W "Basic settings").



A speech bubble in the measurement device list (see "Device to Web Server Manual") saying "Aloha" indicates that a device is in ALOHA transmission mode.



Clicking on the "Aloha" speech bubble opens the ALOHA data window (Manual D2W). It includes the internal measurement values:

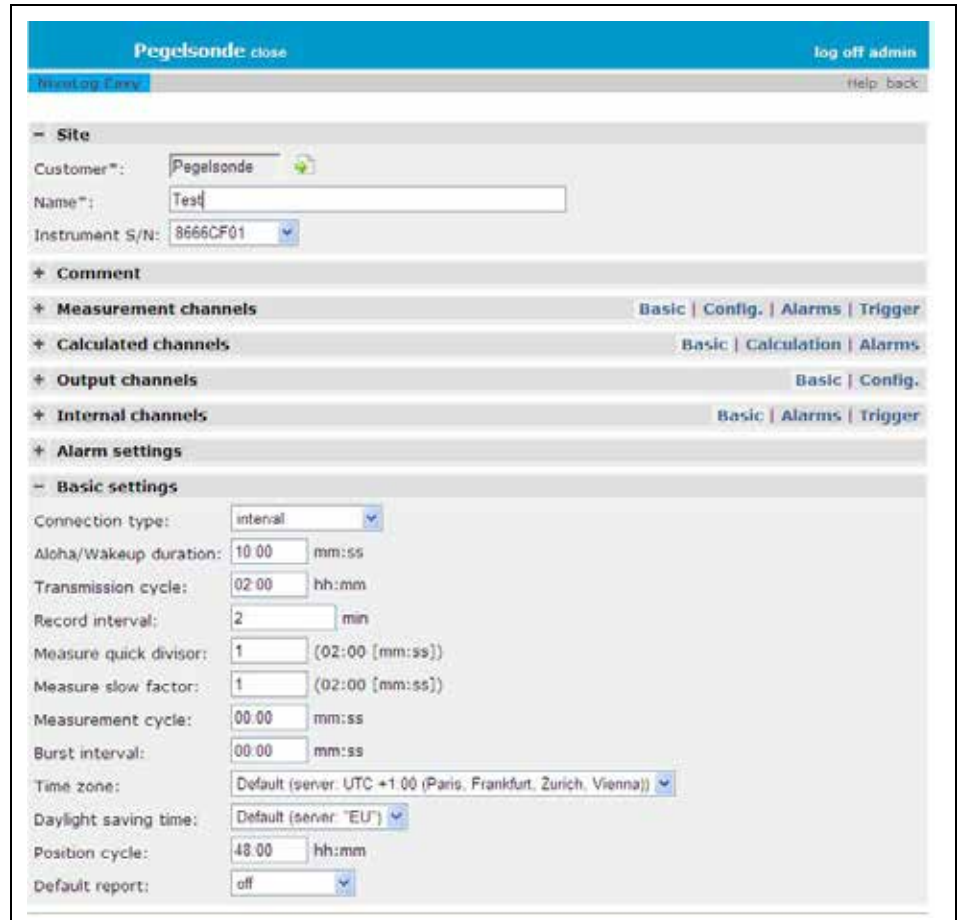
- voltage
- GSM level"
- battery"
- measurement value "Level".

The measurement values for the last thirty minutes are always shown in the ALOHA data window, this can mean the data from a previous ALOHA transmission is included.

The ALOHA data is generated every 3 seconds independently of the standard measurement result generation and is thus not saved with the standard measurement data.

If a measurement data set is recorded during ALOHA transmission mode, it is immediately transmitted to the Device to Web server and saved in the standard measurement data.





The screenshot displays the 'Pegelsonde' configuration page in the D2W Server. The page is titled 'Pegelsonde close' and includes a 'log off admin' link. Below the title bar, there are navigation links for 'New Log Entry' and 'help back'. The main content area is organized into several sections:

- Site:** Fields for 'Customer\*' (Pegelsonde), 'Name\*' (Test), and 'Instrument S/N:' (8666CF01).
- Comment:** A section for adding a comment.
- Measurement channels:** A section with sub-links for 'Basic', 'Config.', 'Alarms', and 'Trigger'.
- Calculated channels:** A section with sub-links for 'Basic', 'Calculation', and 'Alarms'.
- Output channels:** A section with sub-links for 'Basic' and 'Config.'.
- Internal channels:** A section with sub-links for 'Basic', 'Alarms', and 'Trigger'.
- Alarm settings:** A section for configuring alarms.
- Basic settings:** A section containing various configuration parameters:
  - Connection type: interval
  - Aloha/Wakeup duration: 10:00 mm:ss
  - Transmission cycle: 02:00 hh:mm
  - Record interval: 2 min
  - Measure quick divisor: 1 (02:00 [mm:ss])
  - Measure slow factor: 1 (02:00 [mm:ss])
  - Measurement cycle: 00:00 mm:ss
  - Burst interval: 00:00 mm:ss
  - Time zone: Default (server: UTC +1:00 (Paris, Frankfurt, Zurich, Vienna))
  - Daylight saving time: Default (server: "EU")
  - Position cycle: 48:00 hh:mm
  - Default report: off

Fig. 5-6 Measurement place >basic settings< of D2W Server

## 6 Initial start-up

### 6.1 General

#### Notes to the user

---



#### **Additional documentation**

*For proper start-up of the entire system it might be necessary to additionally refer to the accessories manuals.*

*These manuals are part of the standard delivery of the respective accessories.*

---

Before you operate the Level Data Collector you should strictly follow the notes below!

This instruction manual contains all necessary information to operate the device addressing qualified technical personnel that has appropriate knowledge about measurement technology.

To ensure the correct function of the Level Data Collector this instruction manual must be read thoroughly!

It is vital to read and comply with the safety instructions!

If any problems regarding installation, connection or configuration should occur please contact our technical division or our service centre.

#### **NIVUS GmbH**

Service hotline, Phone +49 (0)7262 9191-955  
or by e-Mail to: [Hotline-worldwide@nivus.com](mailto:Hotline-worldwide@nivus.com)

#### **General Principles**

The initial start-up of the complete measuring system is not allowed until the installation has been finished and checked. To exclude faulty configuration this instruction manual must be read before the initial start-up.

Please get familiar with the Level Data Collector operation and input masks of the D2W server by reading the instruction manual before you begin to configure the device.

## 6.2 Start-up of the system

We recommend the first initial start-up in the office before permanently mounting the device at the place of use. You should right now create a site for the later operation on the Device to Web server and determine a site configuration simultaneously (see Manual D2W "Create a Measurement point").

Use the opportunity to become familiarised with the device functions. You may even use appropriate test signals to simulate the sensors in order determine the best possible configuration of the Level Data Collector prior to the actual start-up procedure.

This will reduce the time needed for on-site installation.

### Please proceed as follows:

1. Unscrew the stainless steel sleeve
2. Pull the sleeve down

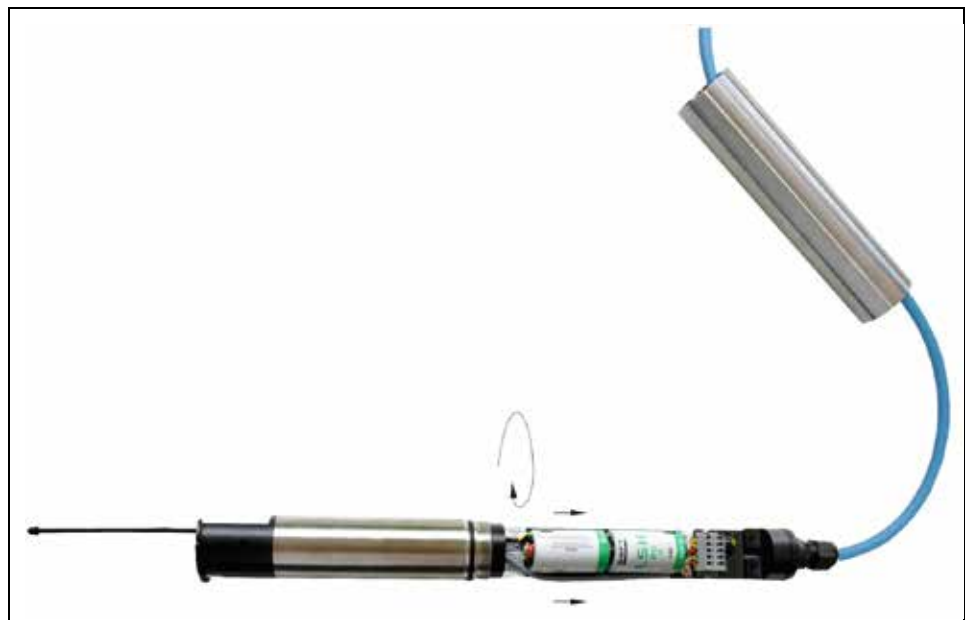


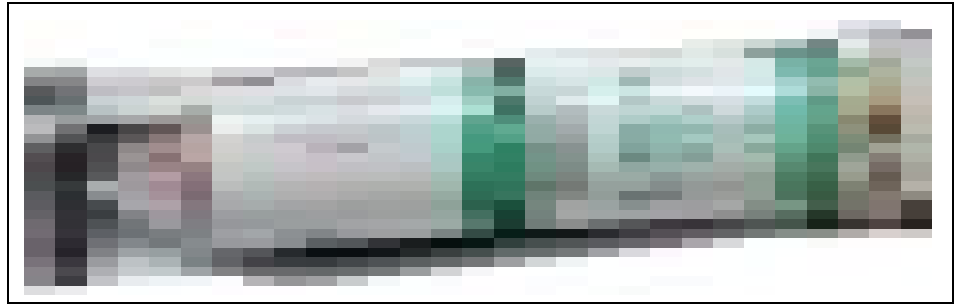
Fig. 6-1 Unscrew stainless steel sleeve

3. Connect Level Data Collector (note polarity + -)



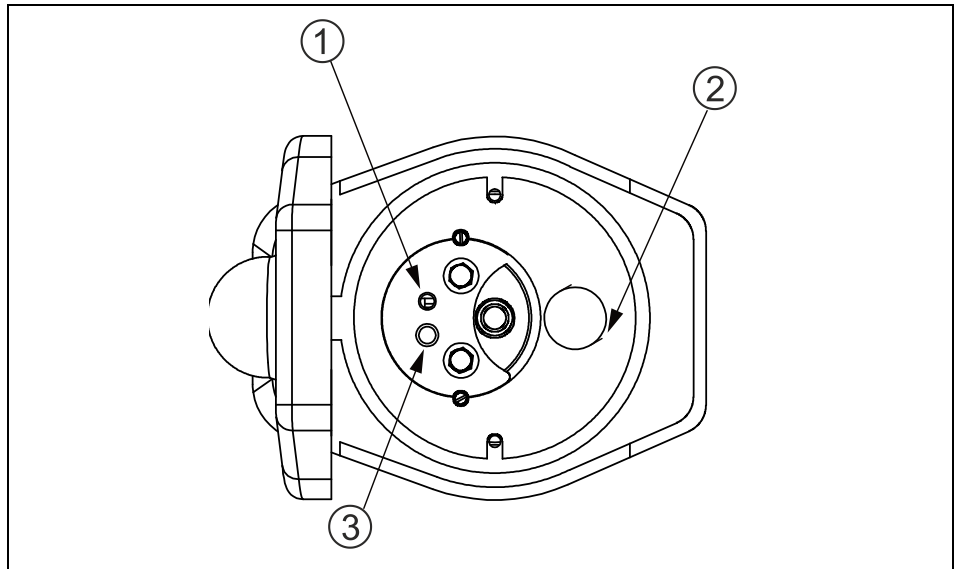
Fig. 6-2 Terminal clamps

4. Insert the two 3.6 V Lithium batteries (note polarity + -)  
A polarity disc prevents an incorrect battery insertion



**Fig. 6-3** Insert the two lithium batteries

5. Measurement system establishes a connection with the D2W-server automatically
6. Red status LED signals the operating condition of the measurement system



- 1 LED for function / status information
- 2 Opening for electric contact gauge
- 3 Reed sensor to switch the probe on using a magnet

**Fig. 6-4** Adapter suspension

### 6.3 Testing the communication with the Level Data Collector



**Additional documentation**

For this section you need >User Manual for Device to Web Data Logging system D2W <.

**For communication test proceed as follows**

- Create a site for the operation on the Device to Web server.
- Configure the created site according to your requirements (see "Configuration of measurement points").
- Connect the Level Data Collector to the created measurement site.
- Execute ALOHA transmission mode (see 7.4.5 "Data transfer mode ALOHA") so that the site configuration is transmitted to the Level Data Collector.
- The instrument list uses a speech bubble saying "Aloha" to indicate whether the device is in ALOHA mode.









**The following steps are only required, if the data acquisition and data transfer simultaneously is to be tested.**

- Stop the ALOHA transmission mode, clicking the "Aloha" speech bubble mark or wait until the ALOHA mode has terminated. The default setting is 10 min.
- Then connect the sensor / the pressure probe (see chapter 5.3) and restart the ALOHA mode.

Check the received data in the Device to Web data window of the server by clicking "ALOHA" speech bubble.

Special attention should be given to the internal values "GSM strength" and "Battery".

**Additional explanation to assess the "GSM signal strength":**

"GSM signal strength"	
> -64 dBm	
-64...-73 dBm	
-74...-83 dBm	
-84...-93 dBm	
-94...-107 dBm	
<= -108 dBm	

## 7 Device status

### 7.1 Operation mode / state LED

The red **status LED** flashes every 30 seconds to automatically indicate the current status...

Number	Description	Action
0 x	Transport lock (GPRS off, measurement off)	
1 x	Last connection OK	
2 x	Last transmission faulty	try again later
3 x	Last measurement incorrect	Contact Support
4 x	Standby (GPRS on, measurement off)	
6 x	Offline (GPRS off, measurement on)	
7 x	Network lock / no suitable Provider	- Lift network lock - Change operator
8 x	no GSM network	- try again later - Improve antenna placement
9 x	faulty PIN /1 attempt remaining	- Check/correct settings via Device to Web
10 x	no GPRS connection	- Check settings - Activate GPRS or GPRS for Roaming - Improve antenna placement - Change operator
11 x	D2W Server not available	Contact Support
12 x	faulty SIM chip	Return unit to manufacturer to check SIM

...Hold magnet to the indicator marked red (status LED lit!)...

hold briefly           à status info (see above) after releasing  
hold for min. 3 sec.   à flashes 3 x à **ALOHA** after releasing

Status LED after key action or logger start...

Flashing..... Establishing connection  
Lit           ..... GPRS/USB active

## 8 Maintenance and cleaning

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### WARNING



#### **Germ contamination**

*Please note that due to operation in the wastewater field measurement system and cables may be loaded with dangerous disease germs. Respective precautionary measures shall be taken when getting in contact with cables and sensors to avoid damage to one's health.*

*Wear protective clothing.*

---

### CAUTION



#### **Danger of injury due to electrical shock:**

*Disconnect the unit from mains power prior to executing any maintenance or cleaning measures.*

---

### 8.1 Maintenance

#### 8.1.1 Maintenance interval

The device type Level Data Collector is designed to be virtually maintenance-free, free of material wear and does not need to be calibrated,

NIVUS recommend having the entire measurement system inspected by the NIVUS customer service once per year.

Depending on the area of use the maintenance intervals however may vary.

Extent and intervals of maintenance depend on the following conditions:

- measurement principle of the Level Data Collector (Pressure probe)
- measurement medium and associated pollution
- general regulations for the operator of this measurement plant
- environmental conditions

To ensure reliable, accurate and error-free function of the measurement system, we recommend annual inspections of the entire measurement system by NIVUS.

#### 8.1.2 Customer service information

For annual inspection of the entire measurement system contact our customer service:

**NIVUS GmbH** - Customer Service

Phone +49 (0) 7262 9191 - 922

Kundencenter@nivus.com

## 8.2 Cleaning

### 8.2.1 Level Data Collector (Transmitter)

If required clean the transmitter enclosure with a dry, lint-free cloth. For heavy pollution NIVUS recommends the use of commercial detergents or surface-active agents. Using abrasive cleansing agents is not allowed.

### 8.2.2 Level probe (Submersible probe)

#### CAUTION



#### **Damage caused by hard objects**

*No hard objects such as wire brushes, rods, scrapers or similar shall be used to clean the Level Data Collector.*

*Never clean the Level Data Collector measurement system by using a water jet!*

*Using a high pressure cleaner may damage the Level Data Collector measurement system and is therefore absolutely not allowed!*

You can find detailed information on maintenance and cleaning of the level probes in the „Instruction Manual for Pressure and Level Sensors NivuBar Plus II, HydroBar G II, UniBar E II, AquaBar II“.

## 9 Dismantling/disposal

#### **Improper disposal may be harmful to the environment.**

Always dispose equipment components and packaging materials according to applicable local regulations on environmental standards for electronic products..



#### **EC WEEE-Directive**

*This symbol indicates that the Directive 2002/96/EG on waste electrical and electronic equipment requirements shall be observed on the disposal of the equipment.*

*The unit contains batteries (Lithium coin cell), which must be disposed separately.*

*Lithium batteries contain toxic substances and therefore must not be disposed of as normal household waste.*

## 10 Accessories

Adapter suspension NLM0 ZPDSAE...	For installation in 3" to 6" mast cap (SEBA)
Dome antenna NLM0 PDSANTSET...	Antenna set with associated cable for installation in mast cap up to 6"



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## 12 EU Declaration of Conformity