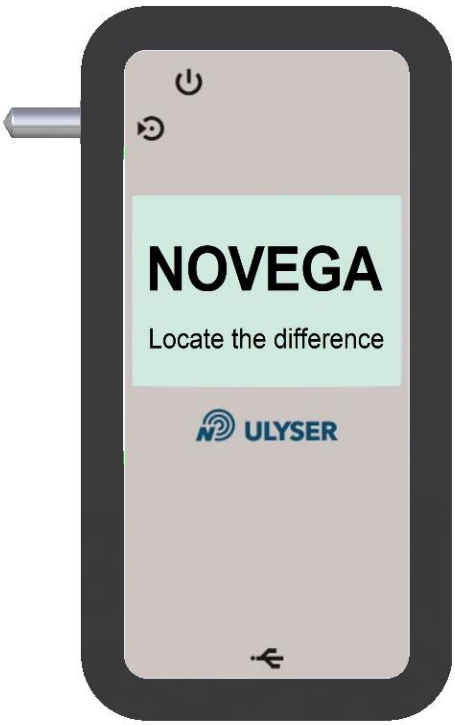
# ULYSER

## Document number CMM_685_Ulyser




# Ulyser Component Maintenance Manual

**Novega Produktionssysteme GmbH**
Gewerbepark 2 | 87477 Sulzberg (See) | Germany
Fon: +49/8376/92990-0
info@novega.de | www.novega.de

PNR: 22098-00
Cage Code: CG871
ECCN: EAR99

Rev01

| | |
|---|---|
| Item Type: | **Tester and Analyser for Underwater Locating Devices** |
| Item Name: | **Ulyser Maritime** |
| PNR: | **22098-00** |

Company: **Novega Produktionssysteme GmbH**
Gewerbepark 2 | 87477 Sulzberg (See) | Germany
Fon: +49/8376/92990-0
info@novega.de | www.novega.de



*Table 1-1: Authorizations Table*

# 1 Administration

## 1.1 Table of Contents

## List of Figures

## List of Tables

# 2 Introduction

This manual contains the description, as well as instructions for use and maintenance directions for the Ulyser.

Note: This manual must be read completely before using the Ulyser.

## 2.1 Log of Revisions

The following table summarizes the revision evolution, tracing the changes in the affected paragraphs.

| Revision Number | Issue Date | Description | Affected paragraphs |
|---|---|---|---|
| 01 | 09 Aug 2024 | Initial Issue | - |

*Table 2-1: Log of Revisions*

## 2.2 Definitions

“Activated” means the ULD is transmitting pulses.

“ULD Revalidation” means battery replacement of the ULD.

“Signal” means an acoustic sound emitted by the ULD.

“Pulse” in this document has the same meaning as signal.

“Pulse repetition rate” is the number of pulses emitted by the ULD in a specific time, measured in pulses per second (pulses/s).

“Qualified technician” means qualified aircraft mechanic.

“Service Operation Mode” means that the ULD is activated and transmitting pulses.

“Sleep Mode” means that the ULD is not activated and is not transmitting pulses.

“ULD” and “ULB” has the same meaning. These are acoustic beacons fitted to aviation flight recorders such as the Cockpit Voice Recorder or the Flight Data Recorder or to maritime Voyage Data Recorders.

“Other ULD” means non Novega-ULD

## 2.3 Abbreviations

ECCN ..... Export Control Classification Number
PNR ..... Part number
SER ..... Serial number
ULB ..... Underwater Locator Beacon
ULD ..... Underwater Locating Device

# 3 General

## 3.1 Description

The Ulyser is a battery-powered receiver for acoustic signals with a frequency range of 5 to 50 kHz. The Ulyser receives the acoustic signals via an integrated microphone. The received signals are optically displayed via a blinking symbol and acoustically via an integrated loudspeaker. With the Ulyser a functional test of an ULD can be performed. The Ulyser measures the battery voltage and reads out data of the ULD. This data can be analysed with a special software.

CE The Ulyser meets the requirements of the EU-Directives for CE marking.


*Figure 1: Ulyser*

## 3.2 Type Plate Example

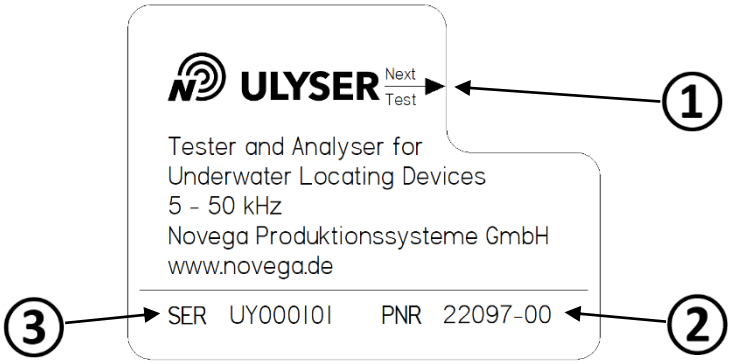



*Figure 2: Type Plate example*

| | |
|---|---|
| 1 | Works Test Sticker (chapter 3.3) |
| 2 | Part number (PNR) |
| 3 | Serial number (SER) |

*Table 3-1: Type Plate information*

## 3.3 Works Test Sticker

The Works Test Sticker (Figure 3) indicates the date of the next recommended works test. The marked Works Test Sticker is positioned in such a way that the arrow points to the month when the next works test should be performed. The year of the next recommended test is found in the middle of the sticker.

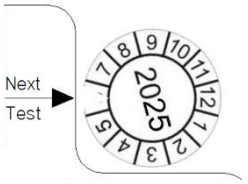



*Figure 3: Works Test Sticker*

## 3.4 Specification

| | |
|---|---|
| **Measurement range:** | |
| Voltage: | 2 to 4 V |
| Frequency: | 5 kHz to 50 kHz |
| | |
| **Technical data:** | |
| Power supply: | Button cell Lithium Type CR2032 / 3 V |
| Operating temperature range: | -20 °C (-4 °F) to + 60 °C (140 °F) |
| Protection class: | IP44 |
| Size (L x W x H): | 94 mm (3.70 inch) x 49 mm (1.93 inch) x 16 mm (0.63 inch) |
| Weight: | 55 g (1.9 oz) |

*Table 3-2: Specification*

## 3.5 Component Scope

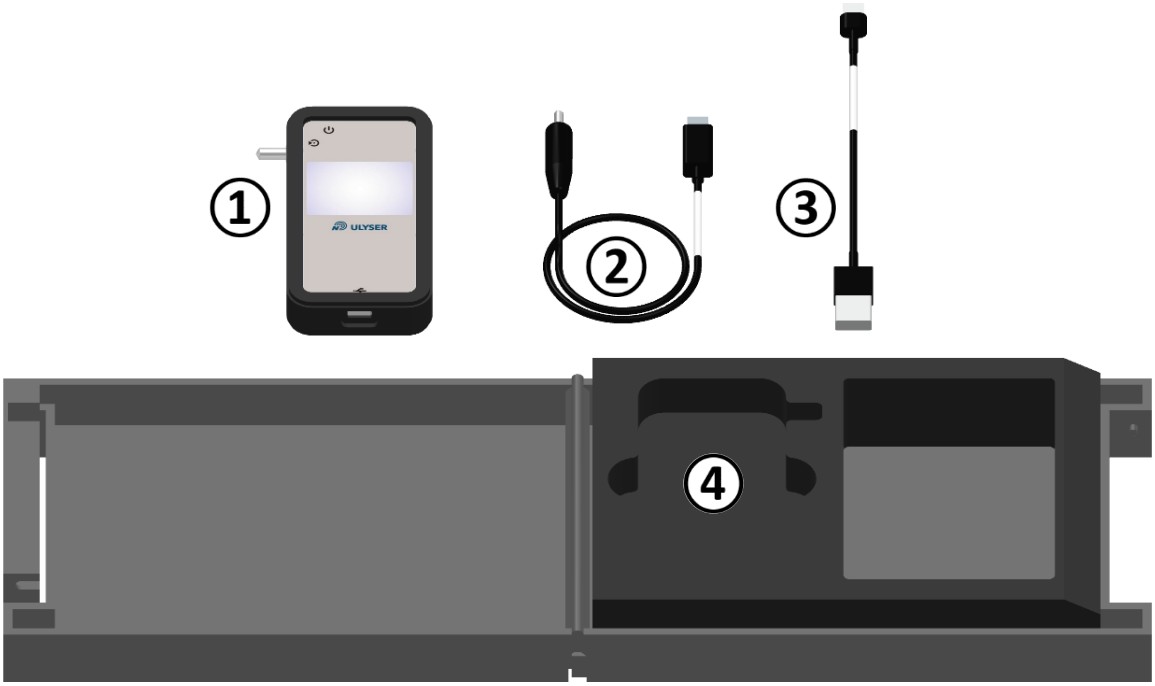



*Figure 4: Component scope*

| Position | Name | PNR |
|---|---|---|
| 1 | Ulyser | 22097-00 |
| 2 | Activation Cord | 21860-00 |
| 3 | Short USB Cord | 22099-00 |
| 4 | Case | 24082-00 |

*Table 3-3: Component scope*

# 4 Device and Setup Description

## 4.1 Device Description

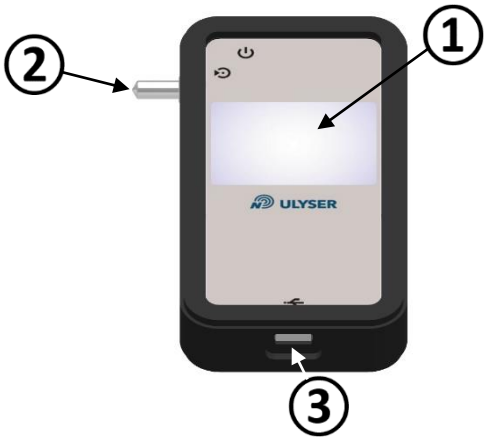



*Figure 5: Ulyser front side*


*Figure 6: Ulyser back side*

| Position | Name |
|---|---|
| 1 | Touchscreen |
| 2 | Jack/measuring adapter |
| 3 | USB Micro-B Port |
| 4 | On/Off-Button |
| 5 | Loudspeaker |
| 6 | Microphone |
| 7 | Works Test Sticker |

*Table 4-1: Device description*

## 4.2 Menu Description

This chapter describes the menu items.

### 4.2.1 Start Screen

Switch on the Ulyser by pressing the On/Off-Button until the Start Screen (Figure 7) appears.

Note: The Ulyser switches off automatically two minutes after the last operation.

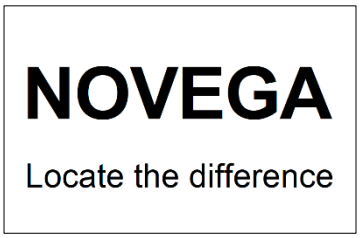



*Figure 7: Start Screen*

### 4.2.2 Start Menu

Four different functions (buttons see below and on Figure 8) can be selected in the Start Menu:

- Measurement Novega
- Memory
- Sending
- Measurement Other (function for aviation only and not relevant for this manual!)

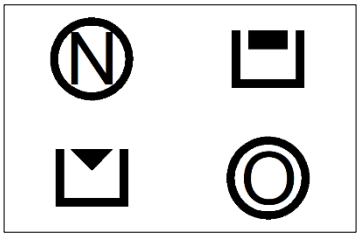


*Figure 8: Start Menu*

### 4.2.3 Connecting Screen for Novega-ULD

By pressing the Measurement Novega-button in the Start Menu the function test starts and the Connecting Screen (Figure 9) is shown. An ULD can be connected now.

Note: To return to the Start Menu (Figure 8) tap the screen.

If the Ulyser is successfully connected to an ULD, the measurement process for the functional test starts automatically. The Process Bar (Figure 10) is displayed and the ULD is activated. Successfully measuring is confirmed by a single “beep”; the Ulyser automatically switches to the Measurement Screen (Figure 11).

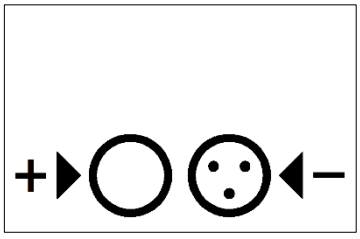



*Figure 9: Connecting Screen for Novega ULD*

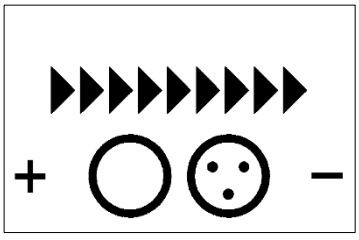



*Figure 10: Connecting Screen with process bar*

### 4.2.4 Measurement Screen for Novega-ULD

If the measurement is successful, the measurement data will be read out from the ULD, displayed and automatically stored on the Ulyser (Figure 11).

- The Pulse-symbol represents the visualization of every received pulse.
- The Pulse-symbol stays active (also visible in the Start Menu), as long as the Ulyser receives a signal.
- The battery voltage value is displayed.
- The year of manufacture is displayed.
- The serial number is displayed.

Note: Furthermore, the received signal is reproduced simultaneously in an audible way for human ears.

- The Signal OK-symbol appears after the Ulyser has received three pulses (Figure 12). Please note the pulse repetition rate of the ULD.

Note: Return to the Start Menu (Figure 8) by tapping the screen.

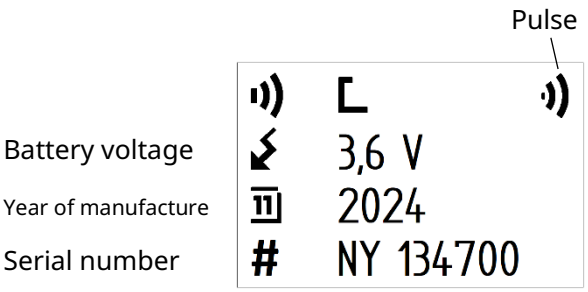



*Figure 11: Measurement Screen example (Novega)*

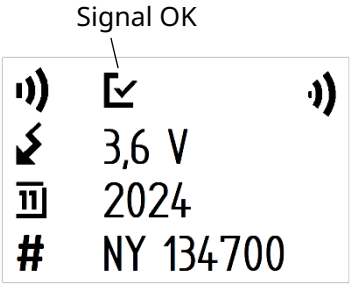



*Figure 12: Measurement Screen example (Novega) with Signal OK-symbol*

### 4.2.5 Memory Screen

By pressing the Memory-button, the last stored measurement data of a Novega device is displayed (Figure 13).

Note: Return to the Start Menu (Figure 8) by tapping the screen.

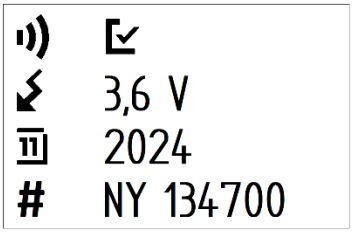



*Figure 13: Memory Screen example*

### 4.2.6 Sending Screen

By pressing the Sending-button, the Ulyser sends the last measured data (Figure 14).

Note: The Ulyser returns to the Start Menu (Figure 8) automatically.

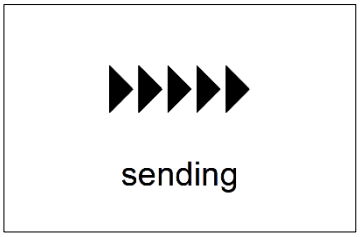



*Figure 14: Sending Screen*

### 4.2.7 Low Battery Screen

This screen (Figure 15) is displayed, as soon as the Ulyser has a low battery level. The battery needs to be replaced (see chapter 8.1).

Note: The Low Battery Screen is only displayed after the Start Screen (Figure 7), when the device is turned on. Then the Ulyser automatically switches into the Start Menu (Figure 8).

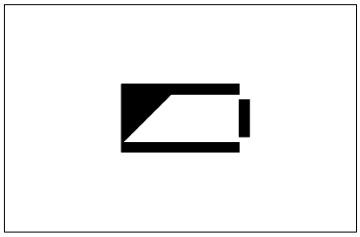


*Figure 15: Low Battery Screen*

# 5 Test Procedure

## 5.1 General

Clean the water switch pins and the housing of the ULD with a soft cloth and a mild detergent before each test, and dry them carefully with a clean cloth. Also make sure that the jack of the Ulyser and the contact pin of the Activation Clamp are clean.

The Ulyser is a sensitive instrument. It is to be protected from moisture and destruction!

Note: Surrounding sounds can affect the measurement by triggering an acoustic signal.

## 5.2 Switching On/Off the Ulyser

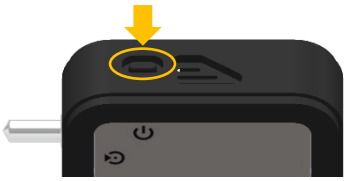


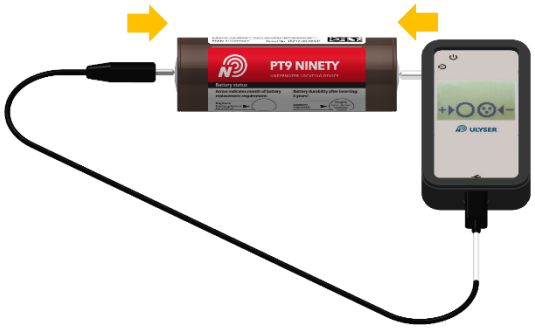
*Figure 16: Switch On/Off the Ulyser*

Switch on the Ulyser by pressing the On/Off-Button (Figure 16) until the start screen (Figure 7) appears.
Switch it off by pressing the On/Off-Button until the screen disappears.

Note: The Ulyser turns off automatically two minutes after the last operation. Data of the last readout remain recorded under normal conditions (e.g. battery level is not low) on the Ulyser.

## 5.3 Functional Test and Readout of Novega-ULD

**Perform the following steps for the functional test and readout of a Novega-ULD**

| | |
|---|---|
| 5.3.1<br>Place the Ulyser, the Activation Cord and the ULD on a table.<br>Insert the USB Micro-B plug into the USB socket of the Ulyser.<br>**Ensure the correct polarity alignment of ULD and Ulyser!** (see Figure 17) |  <br>*Figure 17: Prepare measurement of Novega ULD* |
| 5.3.2 Switch on the Ulyser (see chapter 5.2). | |
| 5.3.3 Press the Measurement Novega-button Ⓝ to start the functional test. | |
| 5.3.4<br>Connect both jacks with the corresponding water switch pins of the ULD (Figure 18).<br>Note: The error message *"Check polarity retry in 66 sec"* appears when the poles have been inverted. In this case the ULD is also activated. The value time of 66 seconds is necessary because the ULD is in the service operation mode. The next measurement can be performed when the ULD drops back into sleep mode. |  <br>*Figure 18: Connect with ULD* |
| 5.3.5<br>The measurement process for the functional test starts automatically. The Process Bar is displayed (Figure 10) and the ULD is activated. Successfully measuring is confirmed by a single "beep". The Ulyser automatically switches to the Measurement Screen (Figure 11). Now the jacks can be removed (Figure 19).<br>Note: The error message *"Reading incomplete retry in 66 sec"* appears when contact is lost during measurement or the readout has failed. The ULD is activated. The value time of 66 seconds is necessary because the ULD is in the service operation mode. The next measurement can be performed when the ULD drops back into sleep mode. |  <br>*Figure 19: Remove jacks after connecting successfully* |

5.3.6

The acoustic signal emitted by the activated ULD can be checked with the Ulyser (Figure 20).

Note: The Ulyser has to be held in direction of the ULD to prevent losing the acoustic signal.


*Figure 20: Checking the acoustic signal*

5.3.7

The functional test is successful when the Signal OK-symbol appears. The Ulyser has received three valid pulses.

Note: Measurement data are still displayed after performed testing.

Note: To ensure that the ULD switches back into sleep mode, wait until the pulse symbol on the display disappears and the audible pulse repetition of the Ulyser stops.

# 6 ULD Report Creator

## 6.1 Setup ULD Report Creator

To transfer the readout data from the Ulyser to a PC, the ULD Report Creator needs to be installed on the PC. The software is provided as zip-file by e-mail. Uninstall an old software version before installing a new one.

Note: The ULD Report Creator Software requires a computer with Windows 10 or higher and "Microsoft.NET Framework 4.8" or higher as minimum system requirements.

**Perform the following steps to setup the ULD Report Creator**

6.1.1 Start the ULD Report Creator (Figure 21).


*Figure 21: ULD Report Creator*

6.1.2 Fill in the fields marked in red with your company data and test equipment data (Figure 22).

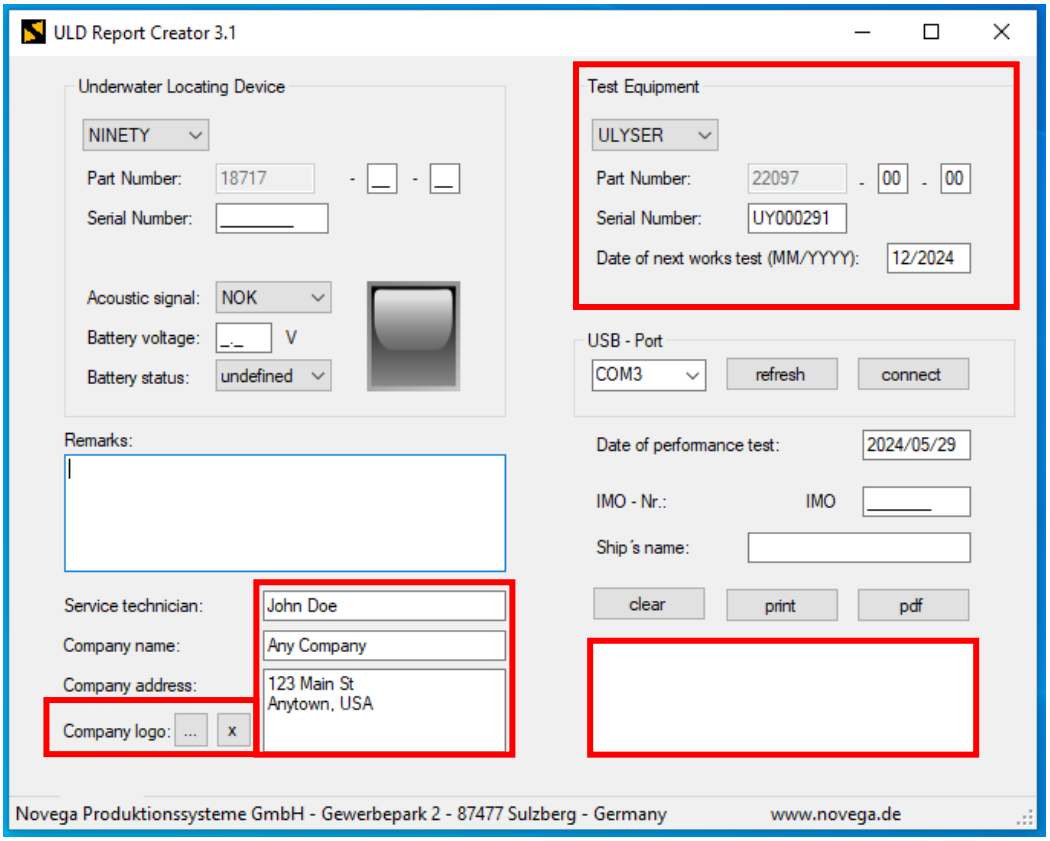



*Figure 22: Input of Information*

6.1.3 It is possible to upload an own company logo for the test report (Figure 23).
Note: At the next software start, the entered data will still be displayed.


*Figure 23: Adding a company logo*

## 6.2 Data Transfer

**Perform the following steps to transfer the data**

6.2.1 Turn on the Ulyser.

6.2.2 Connect the Ulyser to the PC using the short USB cord.

6.2.3 Start the ULD Report Creator if the software is not already open.

6.2.4
Select the USB port that connects the Ulyser to the computer and press the connect button connect (Figure 24).

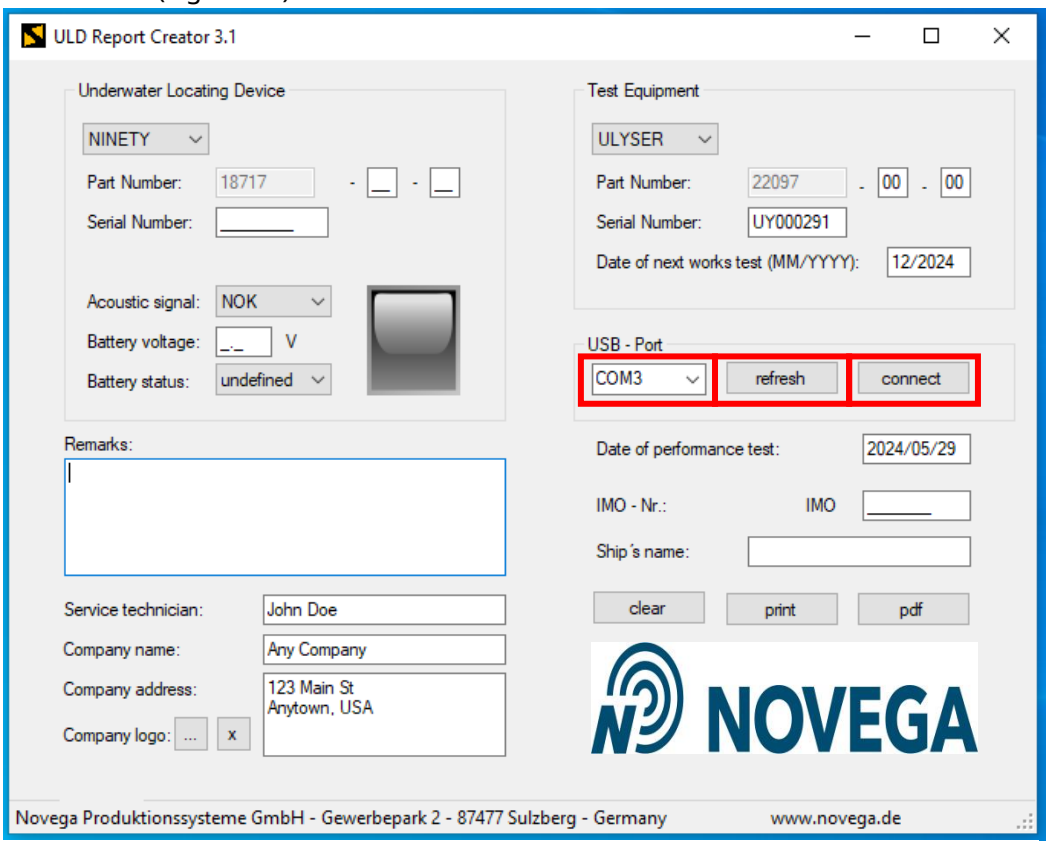



*Figure 24: Connecting the Ulyser*

Note: If no COM Port is available, reconnect the Ulyser and try it again or press the refresh button refresh in the ULD Report Creator window and press the button connect again.

Note: If the Ulyser is correctly detected, the button connect is disabled.

6.2.5
Press the sending button on the Ulyser to transfer the readout data from the Ulyser to the PC.

## 6.3 Analyse the transferred Data

The analysis of the transferred data is automatically done. The result and the transferred data are automatically filled in the test report. Please check if all automatically transferred data is in accordance with the test data of your device. Please fill out the input fields of the ULD Report Creator window with all required information. In the field “Remarks” comments about the measurement can be entered.

Note: The “Underwater Locating Device” area is automatically filled with the transferred data.

### 6.3.1 Test passed

The test results are shown as passed, if the acoustic signal, the battery voltage and the battery status are ok (Figure 25).

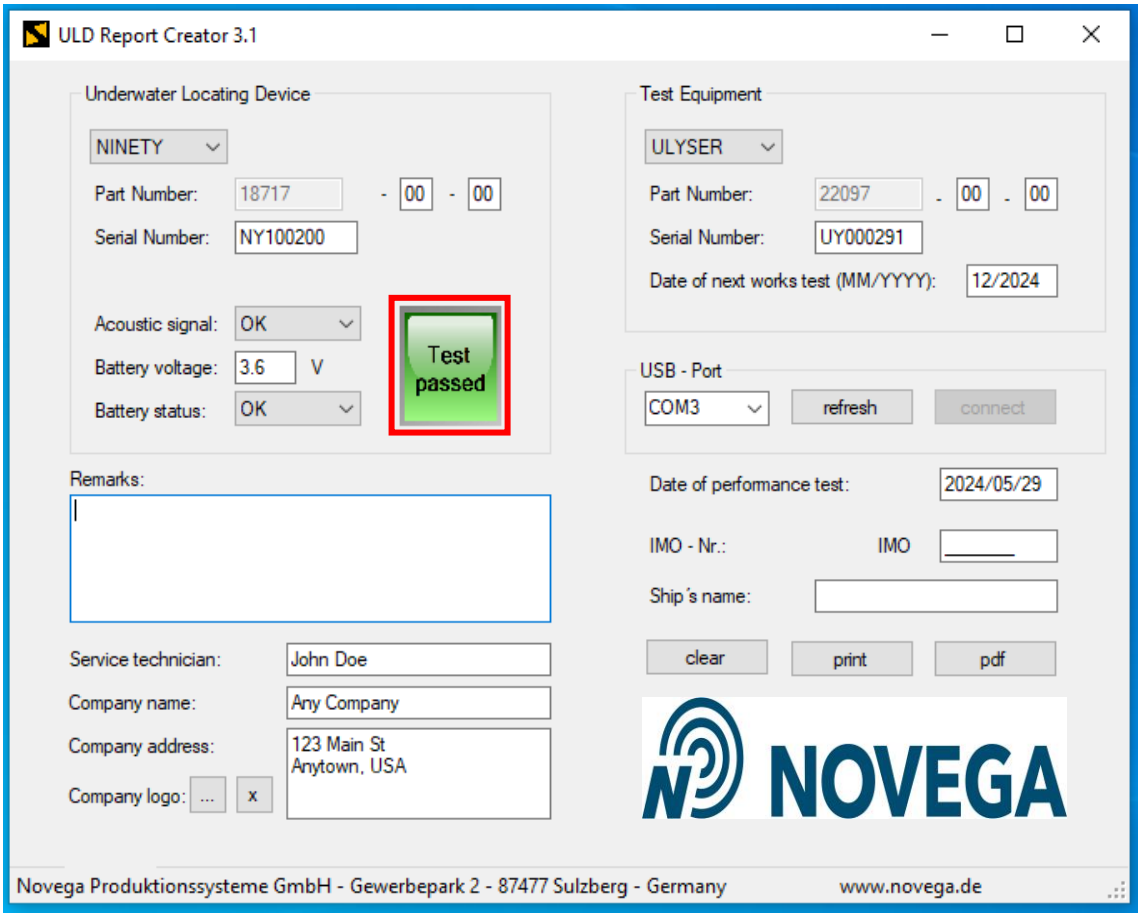



*Figure 25: Test passed*

### 6.3.2 Test failed

The test results are shown as failed, if the acoustic signal, the battery voltage or the battery status are not ok (Figure 26).

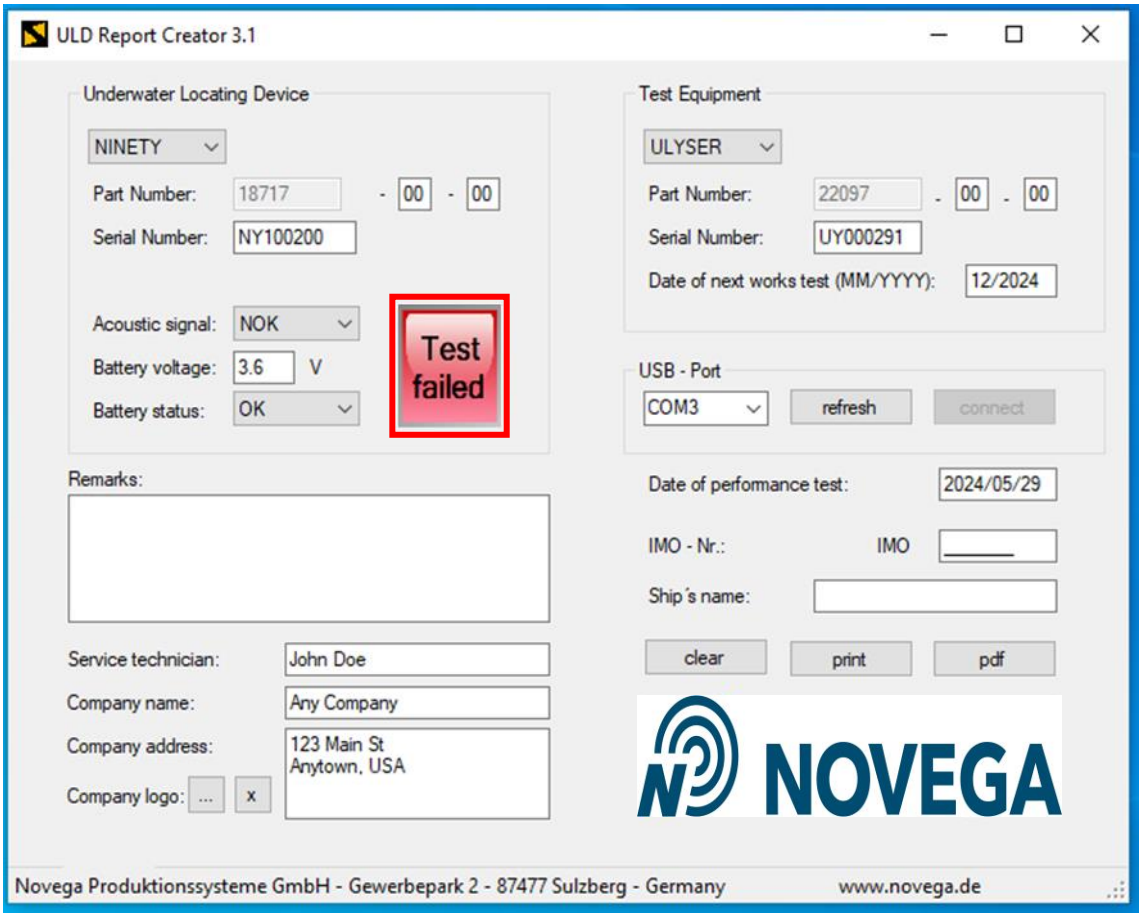
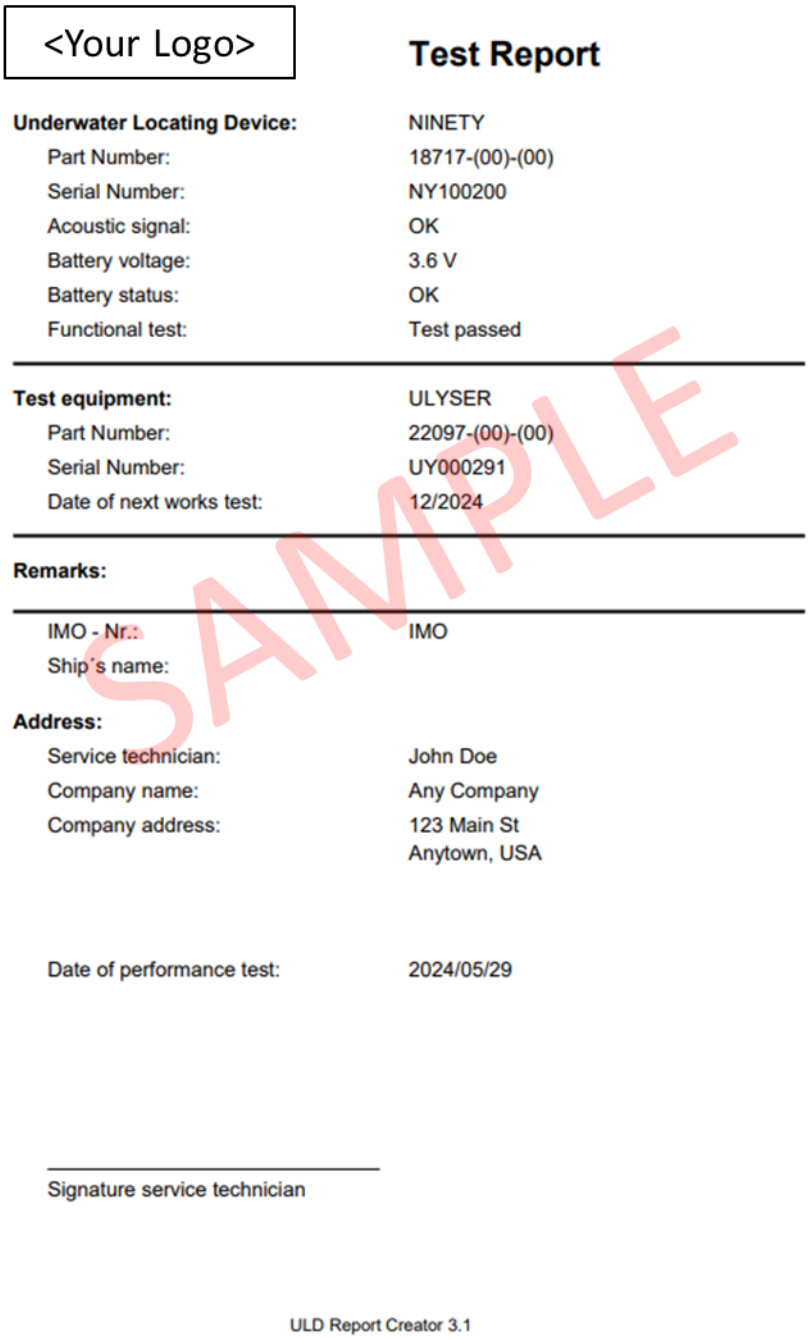



*Figure 26: Test failed*

## 6.4 Report Creation

Press the button print or pdf to create the test report (Figure 27).



<Your Logo>

**Test Report**

| | |
|---|---|
| **Underwater Locating Device:** | NINETY |
| Part Number: | 18717-(00)-(00) |
| Serial Number: | NY100200 |
| Acoustic signal: | OK |
| Battery voltage: | 3.6 V |
| Battery status: | OK |
| Functional test: | Test passed |
| **Test equipment:** | ULYSER |
| Part Number: | 22097-(00)-(00) |
| Serial Number: | UY000291 |
| Date of next works test: | 12/2024 |
| **Remarks:** | |
| IMO - Nr.: | IMO |
| Ship´s name: | |
| **Address:** | |
| Service technician: | John Doe |
| Company name: | Any Company |
| Company address: | 123 Main St<br>Anytown, USA |
| Date of performance test: | 2024/05/29 |

Signature service technician

ULD Report Creator 3.1



*Figure 27: Test report*

# 7 Fault Isolation

Faults that can occur are shown below with their probable causes and the correction action.

| Fault | Probable cause | Correction action |
|---|---|---|
| The Ulyser cannot be turned on. | The battery level of the Ulyser is too low. | Replace the battery, follow the instructions in chapter 8.1. |
| | The battery was not inserted correctly. | Check the battery, follow the instructions in chapter 8.1. |
| | The wrong battery type has been inserted. | Check the battery, follow the instructions in chapter 8.1. |
| | Defect of the Ulyser. | Contact our service department (Service Address). |
| Testing with the Ulyser does not deliver the expected result.<br><br>Note: For fault prevention and the complete testing procedure with the Ulyser please follow the instructions of chapter 5 step by step. | The battery level of the Ulyser is too low.<br><br>Note: The low battery screen is only displayed after the start screen (see chapter 4.2.7). | Restart the Ulyser (chapter 5.2) to check if the low battery screen is displayed. In case of this replace the battery and follow the instructions in chapter 8.1.<br>Start the functional test again. |
| | Bad contact on the water switch pins of the ULD. | Clean the water switch pins of the ULD with a soft cloth and a mild detergent.<br>Start the functional test again. |
| | Defect of the Activation Cord. | Contact our service department (Service Address). |
| | Defect of the ULD. | Check the ULD. |
| | Defect of the Ulyser. | Contact our service department (Service Address). |
| | Contact has lost during measurement or readout has failed.<br><br>Note: The error message *"Reading incomplete retry in 66 sec"* appears at the Ulyser after starting measurement. | Ensure that the water switch pins of the ULD are clean and also the jacks of the Ulyser.<br>Start the functional test again.<br><br>Note: The next measurement can be performed when the ULD drops back into sleep mode after 66 seconds. |
| | The poles have been inverted.<br><br>Note: The error message *"Check polarity retry in 66 sec"* appears at the Ulyser after starting measurement. | Note the correct polarity between ULD and Ulyser and start the functional test again.<br><br>Note: The next measurement can be performed when the ULD drops back into sleep mode after 66 seconds. |

| | | |
|---|---|---|
| | The wrong measurement mode is active.<br><br>Note: The error message *"Change to N"* appears. | Return to the Start Menu (chapter 4.2.2) and choose the correct measurement button. For Novega ULD choose ***"N".***<br>Start the functional test again. |
| Impossibility of switching the ULD into "service operation mode". | Bad contact on the water switch pins of the ULD. | Clean the water switch pins of the ULD with a soft cloth and a mild detergent.<br>Start the functional test again. |
| | Defect of the ULD. | Check the ULD. |
| The Signal OK-symbol ☑ does not appear. | The ULD is no longer in service operation mode. | Start the functional test again.<br><br>Note: The next measurement can be performed when the ULD drops back into sleep mode after 66 seconds. |
| | The Ulyser did not receive three pulses.<br>Note the pulse repetition rate of the ULD. | Start the functional test again and hold the Ulyser in the direction of the ULD to prevent losing the acoustic signal. |

# 8 Maintenance

This paragraph contains instructions for the battery replacement of the Ulyser and information on the annual works test.

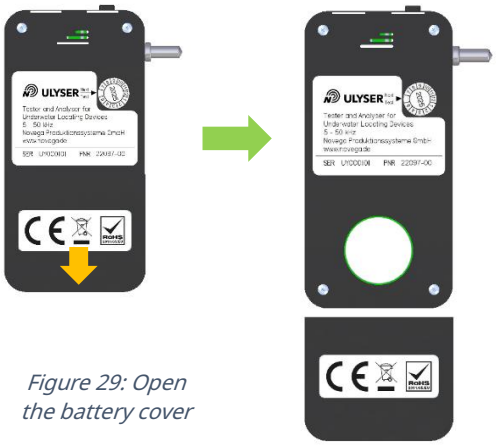
## 8.1 Battery Replacement

The Ulyser contains a button cell lithium battery Type CR2032. The battery is not rechargeable. As soon as the Ulyser has a low battery level, the Low Battery-symbol appears on the screen (chapter 4.2.7). The battery needs to be replaced.

Note: The used battery should be disposed of in accordance with all local, state and federal regulations.

Note: The Low Battery Screen (chapter 4.2.7) is only displayed after the start screen when the Ulyser is switched on. Then as usual the Ulyser automatically switches to the Start Menu (chapter 4.2.2).

**Perform the following steps to replace the battery**

| | |
|---|---|
| 7.1.1 Clean the Ulyser with a soft, anti-static and dry cloth. | |
| 7.1.2 Wear an ESD grounding wristlet to protect the electronic. | |
| 7.1.3 Remove the silicone sleeve (Figure 28). |  *Figure 28: Remove the silicone sleeve* |
| 7.1.4 Open the battery cover on the back side of the Ulyser by pulling it in the direction shown (Figure 29). |  *Figure 29: Open the battery cover* |

7.1.5
Replace the battery. Attend to the correct polarity when inserting the new battery (plus pole on top, see Figure 30).

Note: Incorrect installation of the battery might cause a damage to the Ulyser electronics.

*Figure 30: Replace the battery*

7.1.6
Discard the used battery.

Note: The used battery should be disposed of in accordance with all local, state and federal regulations.

7.1.7 Close the battery cover (Figure 31).

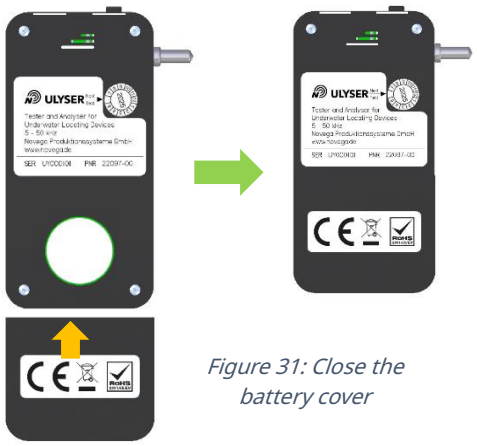


*Figure 31: Close the battery cover*

7.1.8 Mount the silicone sleeve (Figure 32)

*Figure 32: Mount the silicone sleeve*

## 8.2 Annual Works Test

An annual works test is recommended. Due to this please send the Ulyser to our service department. Please provide all required information for the return. We will perform the works test, issue a Works Test Certificate and send the Ulyser back. The recommended implementation date can be read at the Works Test Sticker (see 3.3).

## 8.3 End of Service Life

The number of possible revalidations is principally unlimited. However, revalidation is only possible if the Ulyser is in a good and undamaged condition with full functionality.
If revalidation is not possible, the Ulyser must be taken out of service and disposed of in accordance with all local, state and federal regulations.
For further information regarding the end of service life, please contact our service department (Service Address).

## 8.4 Returns

Please contact our service department (Service Address) for clearing the details and planning before returning the Ulyser.
Required information:

- Reason for return
- Serial number of the Ulyser
- Order (if required) for replacement of the Ulyser
- Company
- Contact data (name, telephone, e-mail address)

## 8.5 Service Address

**Novega Produktionssysteme GmbH**
Gewerbepark 2 | 87477 Sulzberg (See) | **Germany**
Fon: (+49) 8376-92990-0
E-Mail: info@novega.de
www.novega.de

# 9 Warranty and Guaranty

For further information regarding warranty and guaranty, please contact our service department (Service Address).