

User Guide

SeaWire Pro 5G



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This manual is applicable to the following solution/product:

Item name	Manufacture part no.	Coverage
SeaWire Pro 5G	SWP-5G	Worldwide 5G and LTE-A coverage

Record of revisions

Rev.	Description	Release Date	Initials
1.00	First publication	January, 2025	NFP
1.01	LED description	April, 2025	NFP
1.02	Slot 1 and slot 2 SIM description update, restructuring of User Interface description, mounting of ferrite cores added	Feb, 2026	NFP

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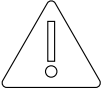
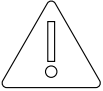

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Introduction

Thank you for purchasing SeaWire Pro. The SeaWire Pro makes it possible to extend the reach of mobile networks in coastal areas with an automatic directional turning antenna. The SeaWire Pro solution is a configuration of 2x automatic turning directional antennas (SeaWire RouDem) and a 19" Control Unit "BDU".

Safety information

Read, follow, and keep these instructions.

	<p>WARNING - Product installation</p> <p>To ensure the correct performance of this equipment, it is strongly recommended that professionals with expertise, properly trained, and likewise authorized within the industry complete the installation.</p>
	<p>WARNING – Do not disassemble</p> <p>Do not disassemble or modify this equipment.</p>
	<p>WARNING – Input Power</p> <p>The input voltage range is 100-240 VDC.</p>
	<p>CAUTION – Contains li-ion batteries</p> <p>The product contains li-ion batteries. Must not be opened or replaced by unauthorized buddies.</p>

Required information for the reader

IMPORTANT: Text marked 'Important' provides essential information to the reader and is key information for the user for the equipment to work properly. Damage to the equipment can occur if instructions are not followed.

Package Content

Item	Quantity
SeaWire RouDem 5G	2
Mounting Bracket	2
Below Deck Unit (BDU)	1
BDU Power Cable 100-240V	1
Screws M4x16mm	10
Unbraco 4 Key	1
Unbraco 2.5 Key	1
Ferrite core	4
Safety key	1
Privacy Policy	1
User Guide	1
Registration Information	1

Requirements

- **Data subscription**

To receive data via the SeaWire Pro solution you must have a subscription with a data provider. Each antenna needs a subscription.

- **Cable(s)**

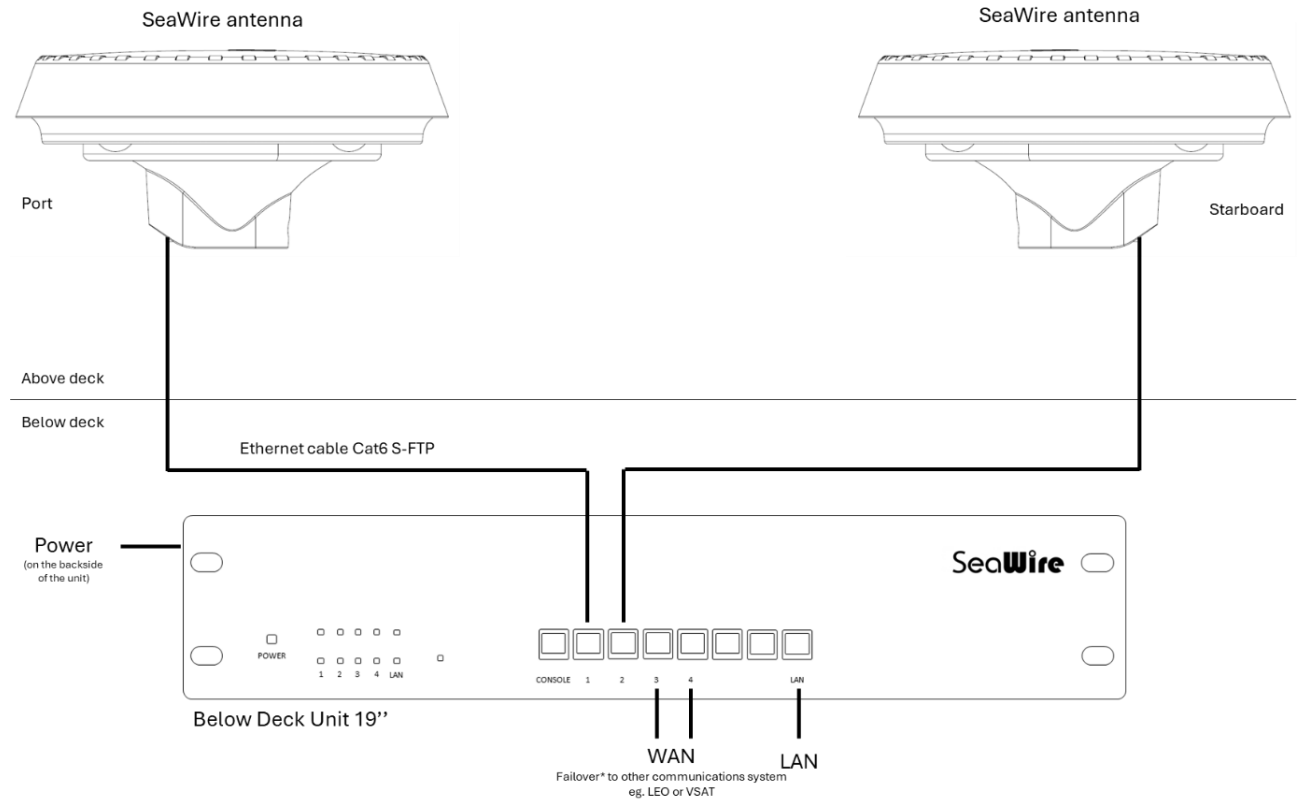
The package content **DOES NOT include cables for cable run installations**. To install SeaWire Pro one must follow these cable specifications when purchasing cables for installation:

Network cable type	S/FTP CAT7, UV- and water resistant, double shielded, grounded
Connector 1	RJ45 (male), CAT7 FTP, grounded
Connector 2	RJ45 (male), CAT7 FTP, grounded
Length	The length of the cables depends on the location for installation. In the System Configuration section, you will find an overview of the set up. Max. length is 100m

- **Mounting**

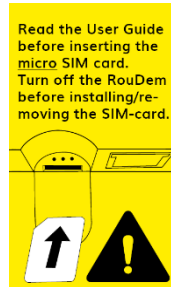
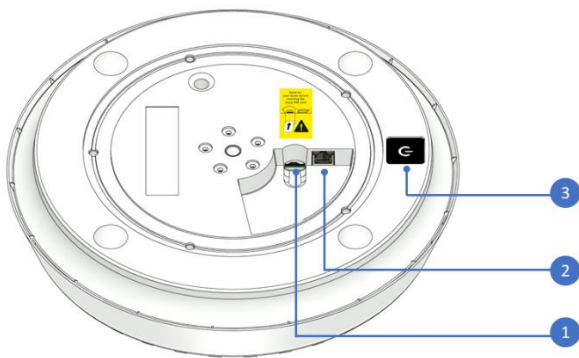
Depending on the vessel, mounting accessories can vary. The mounting should take place at the highest spot possible and where possible with a good 360° view with the longest possible distance to other radiocommunication systems. The Mounting Bracket interfaces to a pole of Ø38mm/1.5" (outer diameter). Read more about the mounting in Installation of the SeaWire RouDem section, step 3.

System Configuration



Hardware Overview

PORTS SEAWIRE ROUDEM



IMPORTANT: Read Step 1 in the section 'Installation of the SeaWire RouDem'

1 SIM card slot
Micro-SIM slot (Slot 1) for optional physical SIM card. The slot uses a push-click mechanism. The unit is delivered configured to use the pre-installed eSIM in Slot 2 (50 MB worldwide data/month). To use a physical SIM card, change to Slot 1 in the User Interface.
2 Ethernet port
RJ45 cable port
3 On/off button
Push button with LED

PORTS (BDU) BELOW DECK UNIT - FRONT PANEL



IMPORTANT: It is important that all SeaWire RouDems have different IP addresses. The SeaWire RouDem's comes with IP address 192.168.2.1 and 192.168.3.1.

CONSOLE port
RJ45 serial console port for Command Line Interface (CLI) management. Only use when you are advised to
Port 1 & 2
RJ45 ports reserved for the antenna(s)
Port 3 & 4
RJ45 ports reserved for WAN connection(s)
LAN port
The RJ45 port is for LAN connection

PORTS (BDU) BELOW DECK UNIT - BACK PANEL



Note: there are additional ventilation holes in the bottom.

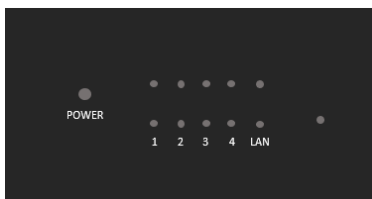
LED's

SEAWIRE ROUDEM



The LED will blink blue when the antenna starts up. As soon as it's connected to the mobile network, the LED will change to a steady blue light.

BELOW DECK UNIT (BDU)



Power	
State	Status
White	Ready for use
Blue	Ready for use, connected to cloud
1, 2, 3, 4, LAN (bottom row)	
State	Status
Off	No Link
Amber/amber flashing	Link established/activity at 10/100 Mbps
Green/green flashing	Link established/activity at 1 Gbps
Unnamed internal LED indication	
Green/green flashing	Link established/link activity at 1 Gbps

Note: 1, 2, 3, 4, LAN (upper row) will not light.

Installation of the SeaWire Pro

The SeaWire Pro solution is a configuration of 2x automatic turning directional antennas (SeaWire RouDem) and a Below Deck Unit (BDU). Repeat step 1-4 for each SeaWire RouDem.

STEP 1 – SIM CONFIGURATION

Default Configuration (eSIM - Slot 2)

When you receive your RouDem antenna, it is configured to use **SIM Slot 2 (eSIM) by default**. All units are pre-installed with an eSIM that includes 50 MB of worldwide data per month. For more information about how the eSIM solution works, please visit: <https://miwire.net/seawire/>

Switching to a Physical SIM Card (Slot 1)

If you wish to use your own physical SIM card, you must switch the active SIM slot from **Slot 2 (eSIM)** to **Slot 1**.

How to Change SIM Slot

1. Access the **User Interface** (see page 13).
2. Navigate to the **SIM Menu** from the MiWire dropdown menu in the left corner of the page.
3. Select **Slot 1**.
4. Press **“Save”**.

The system may take up to **1 minute** to switch from Slot 2 to Slot 1. Please remain on the page while the change is being applied.

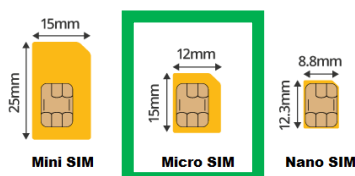
Inserting a Physical Micro-SIM Card

The SIM card slot is located at the bottom of the RouDem unit. **IMPORTANT BEFORE YOU BEGIN:**

- The device must be **powered OFF** when inserting or removing a SIM card.
- The SIM slot uses a **push-click mechanism**.
- Do **not** use tweezers, pliers, or other tools. Use your fingers only.

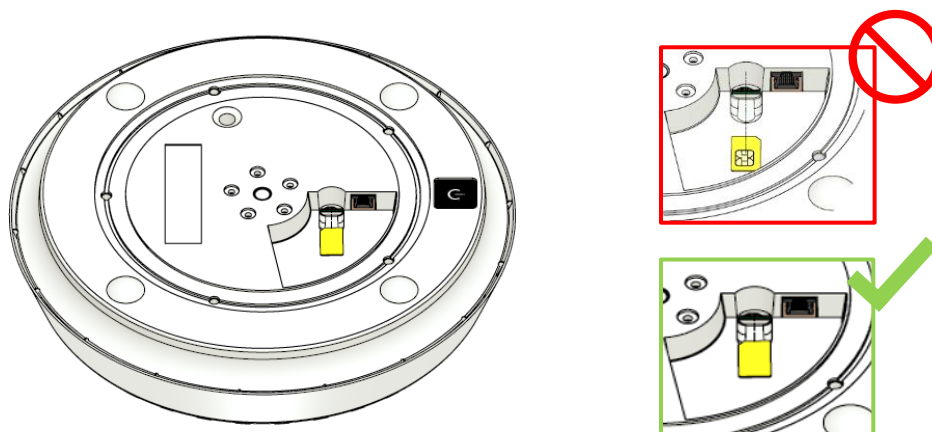
Installation steps:

1. Carefully detach the SIM card in **Micro-SIM format**.



2. Ensure the SIM card is flat and smooth before insertion.
3. Insert the SIM card with (see picture on the next page):
 - The angled corner facing **left**
 - The gold contacts facing **down**
4. Gently press the card into the slot until you hear or feel a distinct **click**.

If you experience resistance beyond normal spring pressure, remove the card and verify correct orientation.



Power On and Verification

1. Turn on the RouDem by pressing the power button.
2. Startup may take a few minutes.
3. When the device is ready and operating correctly, the LED will light continuously.

STEP 2 – PREPARING MOUNTING BRACKET AND CONNECTING THE ETHERNET CABLE

IMPORTANT: It is required to mount the mounting bracket to avoid humidity and dirt entering the RouDem.

1. Pass the cable through the cable gland.
 - a. Unscrew the sealing nut and use a small tool such as an Allen key or a pen to get the seal out.
 - b. Pass the cable through the body and the sealing nut, mount the seal on the cable and place the seal back into the claw.
 - c. Screw on the sealing nut and make sure it is tightened **very tight!**
2. Install the two supplied ferrite cores onto the Ethernet cable
 - The ferrite cores fit cables with a diameter of $\text{Ø}7\text{-}8.5$ mm
 - Place the ferrite cores around the cable as illustrated
 - Ensure each core is fully closed.



If the ferrite cores need to be opened, use the supplied safety key by pressing its legs into the two square holes on the clamp.

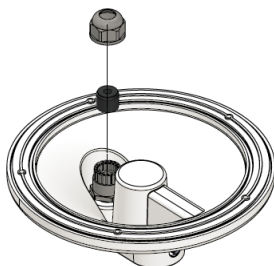


3. Connect the Ethernet cable to the Ethernet port in RouDem.
4. Affix the mounting bracket to the RouDem with the five screws using the supplied Unbraco 2.5 Key.

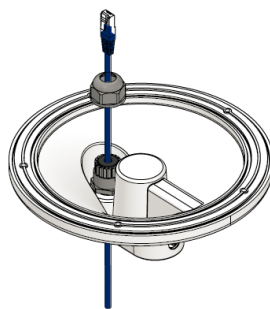
IMPORTANT: it is important that the mounting bracket is secured with all five screws to maintain waterproofness.

5. Tighten the mounting bracket to a pole of Ø38mm/1.5" pole by tightening the two pinole screws with the supplied Unbraco 4 Key. It is not possible to state which torque the pinole screws should be tightened with, as it depends on the pole material.

1 a



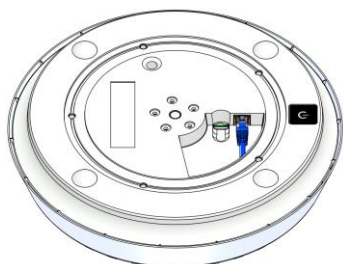
1 b



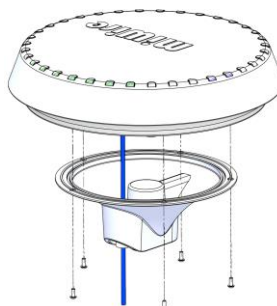
1 c



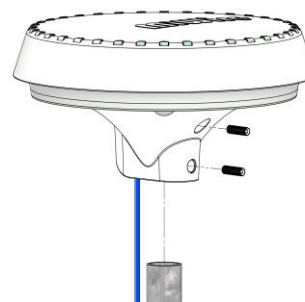
2



3



4



STEP 3 – INSTALLING THE SEAWIRE PRO

Before installing each SeaWire RouDem permanently you should determine the suitability of the location for installation.

Installation considerations:

- Install the RouDem above deck at the highest spot possible on a pole, a mast, or another appropriate platform with opportunity to accommodate a pole of Ø38mm/1.5”.
- Place the RouDem with the best 360° view possible. It is rarely possible to place RouDem where a complete 360° view is available, but as good as possible to obtain the best performance.
- The RouDem should always be installed in a horizontal position and upright.



- Install the RouDem away from radiocommunications antennas, radiotelephone equipment, radars, satellite, VHF's and GPS antennas to prevent electrical noise and interference.
- Install one RouDem on port side and the other RouDem on starboard side on the vessel to make up for blind spots.

! IMPORTANT INSTRUCTION !

Before permanent installation please check compass interference via the user interface. Read more about how to access the user interface on p. 13 in the user guide.

1. In the browsers' URL line type the IP address (192.168.X.1*) of the RouDem and press enter.
2. Sign in with username '**admin**' and password '**1234**'.
3. Go to the menu tab 'Compass & Map'.
4. Click on 'Calibrate'.
5. The task takes approx. 2 min. The value must be above 80. If the value is below 80, please reconsider placement and repeat the process. Please also read the installation considerations below.
6. Repeat this instruction for each antenna.

*Please see the specific IP address of the RouDem. It is stated on the label if it has not been manually changed.

STEP 4 – CABLE WIRING

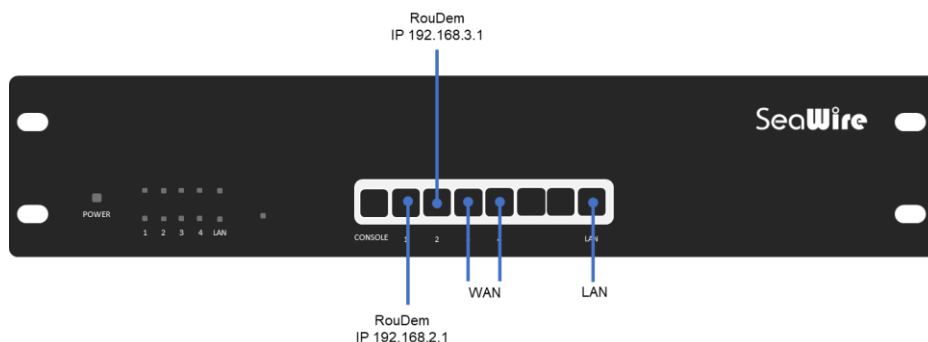
Cable wiring considerations:

- Where possible avoid routing the cables near other electrical equipment and cables.
- If possible, all cable routing must be done in a cable duct.
- Do not apply any load to the connectors.
- Cable specification:

Network cable type	S/FTP CAT7, UV- and water resistant, double shielded, grounded
Connector 1	RJ45 (male), CAT7 FTP, grounded
Connector 2	RJ45 (male), CAT7 FTP, grounded
Length	The length of the cables depends on the location for installation. In the System Configuration section, you will find an overview of the set up. Max. length is 100m.

STEP 5 – POWERING THE ROUDEMS

1. Install the BDU in a 19" rack cabinet, plug in the power cable and power with 100-240VDC.
2. Connect the ethernet cables from the RouDems to the dedicated ports in the BDU. If the RouDems are not already turned on or turn on automatically as they are powered, turn the RouDems on by pressing the on/off button in the bottom of the RouDem. If you do not have access to the on/off button, please read the restart/reboot part in the troubleshoot section.



3. Optional: connect to local LAN/network equipment via the LAN port in the BDU.

Battery feature:

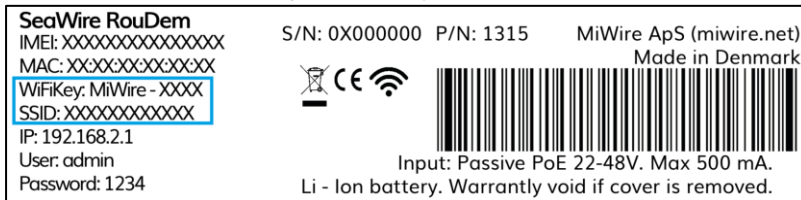
In the event of a power outage, the RouDem is battery-powered, providing a minimum of 1 hour of operation.

STEP 6 – CONFIGURATION OF INTERNET VIA SEAWIRE ROUDEM

Connect directly via RouDem's WiFi and/or connect with external network equipment.

WiFi

1. Select WiFi settings on a compatible device e.g., a computer, a smartphone, or tablet. The device will automatically search for available WiFi networks (make sure WiFi is on).
2. Choose the WiFi network with the name containing *MiWire*. The SSID (network name) and WiFi key. Find the information on the unit label, which is found under the RouDem, on the box or on the registration flyer.



PC and External network equipment

1. Connect the BDU to external network equipment e.g., a router, a switch or WiFi access points by using the LAN port.

MiWire user interface

After installation of the SeaWire Pro solution has been performed, the system is fully operational.

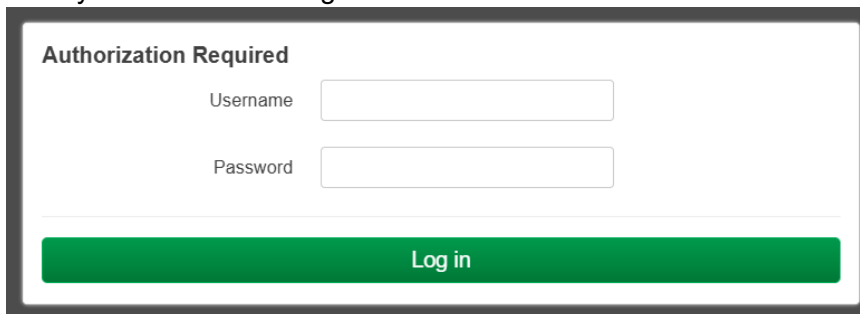
MiWire user interface presents an overall status of the RouDem and allows the user to configure network related settings, get an overview of SIM card information and perform device commands. You can only access the user interface if you are connected to a MiWire related network either by WiFi or cable.

1. Open MiWire user interface by entering 192.168.2.1 or 192.168.3.1 in a web browser. There is a web server for each RouDem. The user interface is optimized for Google Chrome.



The image shows two browser address bars. The first one contains the IP address 192.168.2.1 and the second one contains 192.168.3.1. Each address bar has a globe icon on the left and a search icon on the right.


2. Log in with Username: admin & Password: 1234 (**IMPORTANT:** for optimum security, we recommend changing the password). The system will always be delivered from the factory with this default log in.



The image shows a screenshot of the MiWire user interface login page. The page has a white background with a dark grey border. At the top, it says "Authorization Required". Below this, there are two input fields: "Username" and "Password". At the bottom, there is a green button with the text "Log in".

When you log in, you are presented with the Status Page. The Status Page provides a comprehensive overview of the RouDem unit's status and operational condition. For a complete description of all user interface features, please refer to the documentation available on our website at <https://miwire.net/seawire/> under the "Downloads" section.

Specifications

SeaWire RouDem 5G	
Dimensions	Ø335mm x (H1)80mm/(H2)160mm 
Weight With mounting bracket without mounting bracket	2.1 kg 1.8 kg
Networking Interface	10/100/1000 Mbps
Power Power method	AC/DC/POE 802.3af 100-240V max. 0.5A (powered via BDU)
Battery	Lithium ion, rechargeable Min. 30 min. operational time
Environmental conditions Degree of protection Temperature operational Temperature storage Relative humidity Robustness	IP66 -20°C ~ 80°C -40°C ~ 85°C 10%-100% (non-condensing) 0.5m/1.64ft drop on concrete
Mobile network Data network Region	5G, 4G LTE, 3G Global
Frequency bands & MIMO 5G	NSA: n1/ 2/ 3/ 5/ 7/ 8/ 12/ 13/ 14/ 18/ 20/ 25/ 26/ 28/ 29/ 30/ 38/ 40/ 41/ 48/ 66/ 70 DL 4 × 4 MIMO: n1/n2/n3/n7/n25/n30/n66/n38/ n40/n41/n48/n70 SA: n1/ 2/ 3/ 5/ 7/ 8/ 12/ 13/ 14/ 18/ 20/ 25/ 26/ 28/ 29/ 30/ 38/ 40/ 41/ 48/ 66/ 70 DL 4 × 4 MIMO: 1/n2/n3/n7/n25/n30/n38/n40/ n41/n48/n66/n70 UL 2 × 2 MIMO: n38/n41/n48
4G LTE	LTE-FDD: B1/ 2/ 3/ 4/ 5/ 7/ 8/ 12/ 13/ 14/ 17/ 18/ 19/ 20/ 25/ 26/ 28/ 29/ 30/ 32/ 66 LTE-TDD: B34/ 38/ 39/ 40/ 41/ 42/ 43/ 48 DL 4 × 4 MIMO: B1/B2/B3/B4/B7/B25/B30/B38 /B40/B41/B42/B43/B48/B66
UMTS	WCDMA: B1/ 2/ 4/ 5/ 8/ 19
Antenna Automatic mechanical pointing Directional antenna Omnidirectional antenna	Yes, rotary motor with infinite rotation 699 ~ 3700 MHz, gain 3.0-11.0 dBi 617 ~ 3800MHz, peak gain ≤ 3.6 dBi

GNSS GNSS technology	Fully integrated global navigation satellite system solution (GPS, GLONASS, BDS, Galileo and QZSS)
Bands	L1/L5
WiFi Standards Max. Coverage outdoors Max. Datarate	802.11 b/g/n, 2.4GHz 300m/984ft 300 Mbps
Interfaces <u>LAN interface</u> Connector type Data rate Max. cable length <u>SIM</u> SIM card type <u>WLAN access point</u> WiFi standard Frequency and max. data rate	1x RJ45 port 10/100/1000 Mbps 100 m (min. cat6 S-FTP, grounded) eSIM LPA* 1x Micro-SIM 3FF slot* 2.4 GHz, 400 Mbps 5 GHz, 866.7 Mbps

*It is not possible to use both the eSIM LPA and Micro-SIM simultaneously in the device.

Below Deck Unit (BDU)	
Dimensions	H 88mm (2U) x L 482mm x D 340mm
Weight	4.1 kg
Power Method	100-240VAC, 47-63Hz, 50W IEC 60320 C14 Inlet
Environmental conditions Temperature operational Relative humidity	0°C ~ +50°C Max. 90%
Interfaces Networking interfaces (std. config.) Networking interface (manual enabling) Management interface	4x WAN 10/100/1000 RJ45 ports (port 1, 2, 3 + 4) Port 1 + 2: SeaWire antennas Port 3: First failover (failover method: ping check) Port 4: Second failover (failover method: ping check) 1x LAN 10/100/1000 RJ45 ports (port LAN) Port 3 +4 can be configured from WAN to LAN Seamless failover method can be applied 1x RJ45 serial port (consol port)
Features Load balancing DHCP Firewall Users Configuration & management VLAN POE LED-indicators	Weight control, route test, failover Yes Port forwarding, Nat, firewall policies User role: admin/operator Web, SSH, serial connection, SCP Yes 2x 48V Active ~0.32A (port 1 + 2 standard) 2x 24V Passive 1A (port 3 + 4 manual enabling) Power, data ports

FAQ/Troubleshoot

Unable to Access the MiWire User Interface	<ul style="list-style-type: none"> - Verify connection: Ensure your device is connected to the SeaWire Pro system via Wi-Fi or Ethernet. - Check network configuration: Confirm the device is set to automatically retrieve an IP address and DNS server address. - Browser issues: Restart your browser or try a different one. - Try another device: If possible, attempt access using a different device.
Restart/Reboot the Device	<ul style="list-style-type: none"> - If the RouDem is accessible: Press the on/off button to turn it off, wait for the LED to stop flashing, and then turn it back on. - If the RouDem is Installed out of reach: Use the MiWire user interface (192.168.2.1 or 192.168.3.1) to press "Reboot" on the Admin page. Alternatively, disconnect and reconnect the RouDem cable from the BDU three times in a row. On the third disconnection, the device will reboot after the LED flashes.
Factory Reset	<ol style="list-style-type: none"> 1. Hold the button: Press and hold the button for 10-15 seconds. 2. LED indicators during the process: After 3 seconds, the LED blinks at 0.2-second intervals. Between 10-15 seconds, it blinks at 2-second intervals. 3. Release the button: Release during the 10-15 second window for a successful reset. Important: Holding the button for more than 15 seconds cancels the reset process.

Service & Repair

If the product for some reason does not work as described or is broken, contact your dealer or distributor. Your dealer/distributor will have experience and will assist with further technical support and troubleshooting.

Before contacting your dealer/distributor, please identify the product. Find the serial number and IMEI number on the unit label, which is found under the RouDem, on the box or on the registration flyer. Alternatively log on MiWire user interface and read out the serial number or IMEI number.

If RouDem is offline it is a great help for the support if a TeamViewer session can be established through a PC and another internet connection with a cable from the PC to the BDU.

The product does not require any scheduled maintenance or service. Once a month the product checks for new software. If a new software version is available, then the unit will upgrade. You can also check for new software manually on the MiWire user interface.