

Locomarine

YACHT ROUTER

MICRO
SERIES 5

The easiest way to stay online.



Installation Manual

version 1.0

Read carefully.

For better understanding check video tutorials on our website.

Register your product for software update notifications.



Thank you.

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RoHS COMPLIANT

All models in the Yacht Router series comply with the Restriction of Hazardous Materials (RoHS) Directive. This means that all components used to build Yacht Router are RoHS compliant. The RoHS Directive bans placing on the EU market new electrical and electronic equipment containing more than agreed levels of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) flame retardants.

INTRODUCING YACHT ROUTER SOLUTION

Yacht Router is a complete network infrastructure solution for yacht or boat of any size. Yacht Router devices will help you to easily install, setup and control Internet connection on your yacht. The most important part of Yacht Router solution is the software which controls complete system. It is designed by professionals specialized in yacht communication systems in collaboration with experienced yacht captains. The result is a system that is simple to operate, maintain and control. Underneath simple touch user interface, Yacht Router is a solution with an industry level of reliability, performance and unprecedented level of security.

DISCLAIMER AND WARNING

The contents of this manual are well prepared by Locomarine Networks d.o.o.

While we try to improve our equipment at all times, Locomarine Networks d.o.o. shall incur no liability based on contents, updates or modification of the contents, or the lack of contents in this manual.

Because of the nature of wireless communications, transmission and reception of data can never be guaranteed. Data may be delayed, corrupted (i.e. have errors) or be totally lost. Although significant delays or losses of data are rare when wireless devices such as the Yacht Router are used in a normal manner with a well-constructed network, the Yacht Router device should not be used in situations where failure to transmit or receive data could result in damage of any kind to the user or any other party, including but not limited to personal injury, death, or loss of property. Locomarine Networks d.o.o. and its affiliates accept no responsibility for damage of any kind resulting from delays or errors in data transmitted or received using the Yacht Router device, or for failure of the Yacht Router device to transmit or receive such data.

The equipment said in this manual must only be used for what it was designed.

Improper operation or installation may cause damage to the equipment or personal injury. Locomarine Networks d.o.o. will not incur any liability of equipment damage or personal injury due to improper use or installation of the equipment. It is strongly recommended to read this manual and the following safety instructions before proceeding to installation or operation.

SAFETY AND HAZARD

Do not operate your Yacht Router:

- In areas where blasting is in progress.
- Where explosive atmospheres may be present including refuelling points, fuel depots, and chemical plants.
- Near medical equipment, life support equipment, or any equipment which may be susceptible to any form of radio interference.

In such areas, the Yacht Router **MUST BE POWERED OFF**. Otherwise, the Yacht Router can transmit signals that could interfere with this equipment.

In an aircraft, the Yacht Router **MUST BE POWERED OFF**. Otherwise, the Yacht Router can transmit signals that could interfere with various on-board systems and may be dangerous to the operation of the aircraft or disrupt the cellular network. Use of cellular and WIFI equipment in an aircraft is illegal in some jurisdictions. Failure to observe this instruction may lead to suspension or denial of cellular services to the offender, or legal action or both.

Some airlines may permit the use of cellular phones while the aircraft is on the ground and the door is open. The Yacht Router may be used normally at this time.

IMPORTANT: It is solely on end-user to set transmitting power value for all Yacht Router WIFI components to comply with regulations of country where product will be used. Regulations and online WIFI power calculators (EIRP - Equivalent Isotropically Radiated Power) are widely available on the Internet. Locomarine Networks d.o.o. cannot be responsible by any means for improper setup. Transmission power is set and regulated via Yacht Router Control software.

IMPORTANT: Exposure to Radio Frequency Radiation.

63 cm minimum distance has to be maintained between the antenna and the occupational user and 142 cm to general public. Under such configuration, the FCC radiation exposure limits set forth for an population/uncontrolled environment can be satisfied.

List of approved antennas:

Omni Directional (pole), model Locomarine MOB 7

ANTENNA INSTALLATION: antennas from other products **MUST NOT BE CO-LOCATED** within 20 cm range to each other to satisfy FCC regulations.

WARNING: It is installer's responsibility to ensure that when using the authorized antennas in the United States (or where FCC rules apply); only those antennas certified with the product are used. The use of any antenna other than those certified with the product is expressly forbidden in accordance to FCC rules CFR47 part 15.204. The installer should configure the output power level of antennas, according to country regulations and per antenna type. Professional installation is required of equipment with connectors to ensure compliance with health and safety issues.

SAFETY INSTRUCTIONS

ELECTRICAL SHOCK HAZARD: Do not open enclosure of the equipment if you are not qualified to do it.

TURN OFF THE POWER IMMEDIATELY IF WATER LEAKS INTO THE EQUIPMENT OR AN OBJECT DROPS INTO THE EQUIPMENT:

Continue operating the equipment could cause electrical shock or fire. Contact your nearest distributor or dealer for service.

DO NOT DISASSEMBLE THE EQUIPMENT OR MODIFY THE EQUIPMENT: Improper disassemble or modification could cause electrical shock, fire, or personal injury.

AVOID OPERATING THE EQUIPMENT WITH WET HANDS: Electrical shocks could be resulted if operating with wet hands.

USE PROPER FUSE: Damage to the equipment or fire could be resulted if using improper fuse.

TURN OFF THE POWER IMMEDIATELY IF THE EQUIPMENT IS EMITTING SMOKE OR FIRE: Continue operating the equipment could cause electrical shock or fire. Contact your nearest distributor or dealer for service.

DO NOT PLACE ANY LIQUID-FILLED CONTAINER ON TOP OF THE EQUIPMENT.



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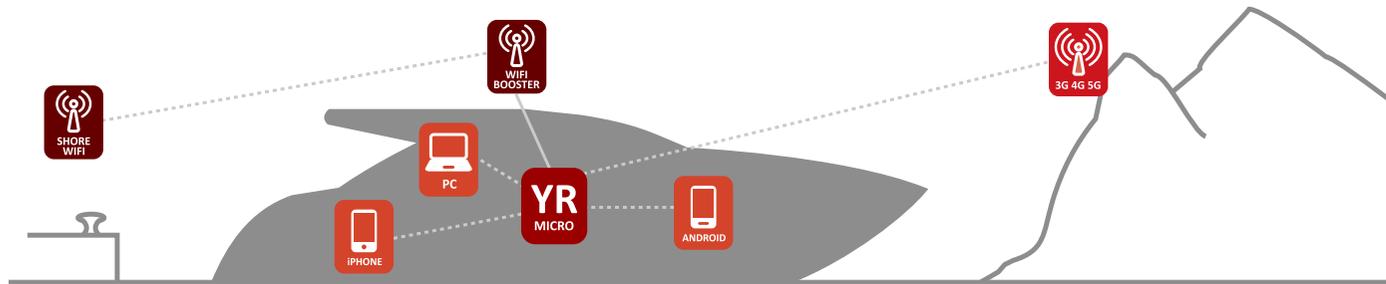
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1.1. ABOUT YACHT ROUTER MICRO

Yacht Router Micro is designed for installation on smaller vessels. You can establish single Vessel WIFI network that you can connect to mobile networks (4G/3G/2G). With dual SIM card slot, you can use two SIM cards from same or different mobile provider.



Schematic drawing of Yacht Router Micro capability and connectivity.

1.2. MODEL VERSIONS

Yacht Router Micro is available in two versions:

LYR-C05: version for Europe/Africa/Asia/Oceania market

LYR-C05-US: version for Americas (USA, Canada) market



1.3. FEATURES

- High power 2G/3G/4G module (30+ Nautical miles¹)
- Optional high power WIFI Booster for long distance WIFI connectivity (10+ NM²)
- 1x Vessel WIFI network
- 1x Backbone or Vessel Network LAN port
- Mobile Expander support
- LAN Expander support
- Online Remote support
- Free GPS tracking and anchor alarm
- Wide range DC power input (10-30 V)
- Compatible with Furuno, Simrad, Lowrance, B&G, Garmin, Maretron, Sonos, Apple Airplay and other IP based systems

¹ Achieved with 9dBi outdoor antenna. As actual range depends on many factors Locomarine Networks d.o.o. do not guarantee specified range of connectivity.

² Achieved with 9dBi outdoor antenna and VIP mobile provider. As actual range depends on many factors Locomarine Networks d.o.o. do not guarantee specified range of connectivity.

1.4. WHAT IS IN THE PACKAGE

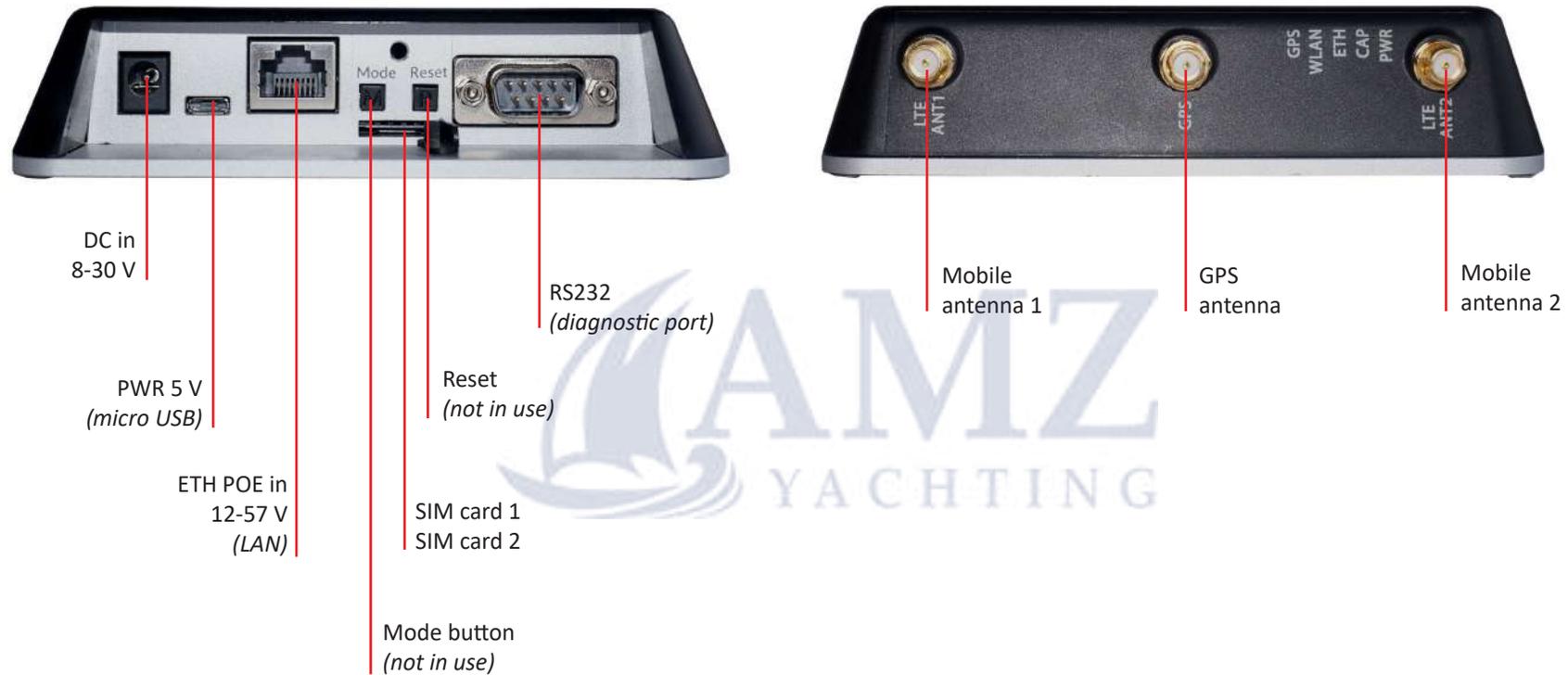
When shipped, all devices are wrapped in plastic bags that protect them from humidity. Devices are then placed into a cardboard box. A bag containing accessory items is placed inside the box too. List of all included components is enclosed in the package.



- 1** - Yacht Router Micro, LYR-C05 or LYR-C05-US, 1 pcs
- 2** - Locomarine MOB 7 antenna (2G/3G/4G, swivel, indoor), 4G-A-02, 2 pcs
- 3** - Locomarine GPS 3 antenna, GP-S-3, 1 pcs
- 4** - CAT5 cable (with connectors, 1m), CAT5-02, 1 pcs
- 5** - DC power cable with connector 2 m, PWC-01, 1 pcs
- 6** - AC/DC power supply 24V/0.8A, PSU-05, 1 pcs
- 7** - SIM card adaptors, SCA-01, 2 pcs
- 8** - Manuals & control software (on USB stick), QIG-00, 1 pcs
- 9** - Fixing screw, FSC-01, 2 pcs
- 10** - DC power cable splitter (1 male to 2 female), PSP-02, 1 pcs, (for WIFI Booster connection)
- 11** - PoE injector, CAT5P-04, 1 pcs, (for WIFI Booster connection)

1.5. PORTS AND CONNECTORS

Yacht Router Micro is equipped with following ports and connectors. To access connectors remote plastic protection cover on front side of Yacht Router.



1.6. INDICATORS

Yacht Router Micro is equipped with multiple LED indicators.



GPS - GPS indicator

WLAN - WIFI activity on Vessel Network 1

ETH - Ethernet (LAN) port activity

CAP - No special meaning

PWR - Power indicator

AMZ
YACHTING

2.1. CONNECTING POWER SUPPLY

There are four ways to power Yacht Router Micro:

- **DC in 8-30 V** connector directly from vessel battery (with supplied DC power cable with connector 2 m)
- **DC in 8-30 V** connector using supplied AC/DC power adaptor
- **PWR 5V** connector using standard mobile phone charger with micro USB connector (*not supplied*)
- **ETH POE IN 12-57 V** connector using POE (Power-Over-Ethernet) injector

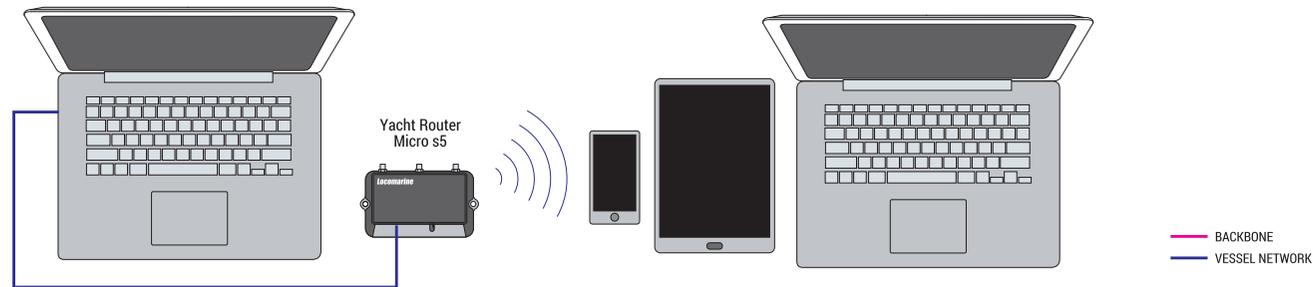
Most common way is to connect Yacht Router Micro directly to vessel battery using 2 m supplied DC power cable. Power cable consist of RED and BLACK wire. Connect RED wire to positive (+) and BLACK wire to negative (ground -) power source on your vessel power supply system (battery).



IMPORTANT Never connect more than one power source at the same time. Connecting multiple power supplies at the same time can damage Yacht Router and void a warranty.
Wrongly connected DC power cable can damage Yacht Router and void a warranty.
Voltage lower than 8 V and higher than 30 V can damage Yacht Router and void a warranty.

2.2. CONNECTING WIFI BOOSTER AND LAN EXPANDER

If you purchased Yacht Router Micro without WIFI Booster or LAN Expander, Ethernet LAN port on your Yacht Router Micro is set to be part of Vessel Network. You can connect computer directly using LAN cable or via WIFI.

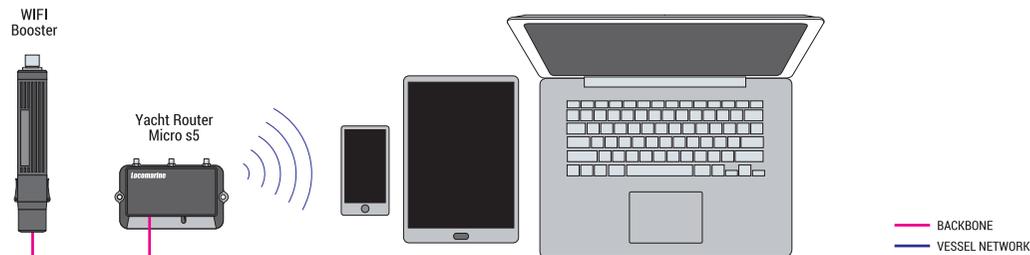


If you plan to upgrade your Yacht Router Micro with **WIFI Booster** you must reconfigure LAN port to become part of Backbone network. Backbone Network is dedicated propriety network for communication between various Yacht Router devices (e.g. WIFI Booster, WIFI Extender, LAN Expander etc). **Backbone Network does not have Internet access.** It means that any device connected to this port while it is Backbone mode will not have Internet access. You can always revert LAN port back to Vessel Network.

IMPORTANT

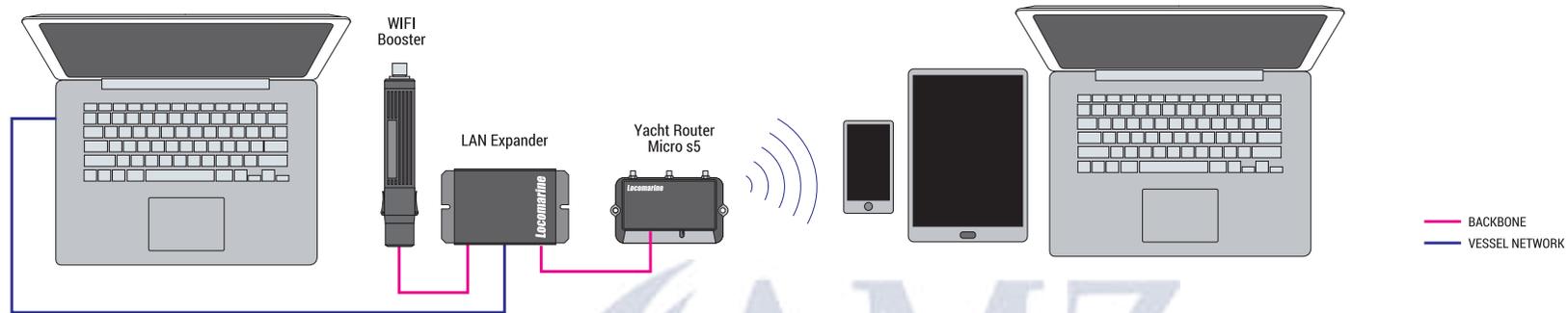
To reconfigure Ethernet LAN port from Backbone to Vessel Network port or oposite, you must connect router to Support Network and contact our Support team. They will do it remotely for you.

On a following example you can see how to connect computer to the Yacht Router Micro when WIFI Booster is used. As Ethernet LAN port is occupied with WIFI Booster you can only connect using WIFI.



If you want to connect multiple devices (e.g. computers) using Ethernet cable to your Yacht Route Micro you must add **LAN Expander** to the system.

LAN Expander is a device with multiple LAN ports where you can set each LAN port to be part of Vessel Network or Backbone Network. This is very useful solution if you want to connect WIFI Booster to the system while keeping few LAN ports free to connect computer or other IP based devices.



For more information check manual for WIFI Booster and LAN Expander on our website www.yachtroute.com



2.3. INSTALLING ANTENNAS

Yacht Router Micro is equipped with two mobile antennas and one GPS antenna.



GPS antenna

GPS antenna is equipped with 5 m cable. Antenna is waterproof so you can install it outdoor if necessary.

Mobile antennas

To achieve best performance both mobile antennas should be connected.

To significantly increase performance and maximum offshore connectivity distance we strongly suggest installation of outdoor antennas.

For more info about outdoor antennas please visit our website www.yachtrouter.com

2.4. INSERTING SIM CARDS

Yacht Router Micro is equipped with two SIM card slots for standard SIM card size (15x25 mm). Both SIM cards are on top of each other. Lower slot is number 1 and upper number 2.



Position SIM card lock into position as indicated on a photo. Gently insert SIM card into lower slot.



Rotate SIM lock to insert SIM card into slot.

IMPORTANT | Do not push SIM card more than indicated on a photo.



Rotate SIM card lock into position as indicated on above photo to lock SIM card.

If you want to insert second SIM card use upper slot.



Position SIM card lock into position as indicated on a photo. Gently insert SIM card into upper slot.



Rotate SIM lock to insert SIM card into slot.



IMPORTANT

Do not push SIM card more than indicated on a photo.



Rotate SIM card lock into position as indicated on above photo to lock both SIM cards.

2.5. SETUP

Once you finished hardware installation you need to install Yacht Router Control software to setup and control Yacht Router:



Once you install the software refer to USER MANUAL how to use it. It is available for download on our website www.yachtrouter.com

You can also check VIDEO TUTORIALS on our website www.yachtrouter.com



3.1. HARDWARE DETAILS

WAN, LAN, Backbone networks

Ethernet WAN ports: not available

Ethernet LAN/Backbone ports: 1

(when WIFI Booster is attached LAN port is dedicated to Backbone network)

Max. data rate on LAN/Backbone port: 100 Mbps

WIFI Booster, Extenders & Expanders support

WIFI Booster support: yes

WIFI Extender support: no

LAN Expander support: yes

Mobile Expander support: no

Vessel WIFI network

Max. number of networks: 1

Supported standard: 2.4 GHz (b/g/n)

Max. WIFI data rates: 300 Mbps

Max. WIFI transmit power: 22/160 dBm/mW

Sensitivity of integrated antenna: 2 dB

Mobile network

Integrated modems: 1

SIM card slots: 2

SIM card size: Mini SIM

Antenna connector type (on device): SMA female

Sensitivity of included antennas: 4 dB

Europe/Africa/Asia/Oceania modem:

2G category: Class12

3G category: R7 (21 Mbps downlink, 5.76 Mbps uplink)

4G category: 4 (150 Mbps downlink, 50 Mbps uplink)

2G bands: 2/3/5/8 (1900/1800/850/900)

3G bands: 1/2/5/8 (2100/1900/850/900)

4G bands: 1/2/3/7/8/9/20 (2100/1900/1800/2600/900/800)

USA modem:

3G category: R7 (21 Mbps downlink, 5.76 Mbps uplink)

4G category: 4 (150 Mbps downlink, 50 Mbps uplink)

3G bands: 2/5 (1900/850)

4G bands: 2/4/5/12 (1900/1700/850/700)

GPS receiver

Channels: 22 tracking / 66 acquisition

SBAS: WAAS/EGNOS/MSAS/GAGAN

Sensitivity: -165 dBm

Antenna connector: SMA male

Antenna IP rating: IP67

Antenna cable length: 5 m

Antenna dimension (WxDxH): 49 x 39 x 14 mm

Power, environment and dimensions

DC power supply input range: 10-30 V

Max. power consumption: 9 W

Operating temperature range for internal unit: -10 to +50 °C

Operating humidity range: 5-95 % non-condensing

IP Protection: IP50

Dimension (WxDxH, without antennas): 139 x 82 x 28.5 mm

3.2. NETWORK DETAILS

Yacht Router Micro has reserved IP ranges that cannot be used by other connected equipment:

Support network

10.10.10.0/24

Reserved range

10.80.0.0/12

Yacht Router Micro IP reservation details:

Backbone Network

10.80.0.0/16

Vessel Network

Gateway: 10.81.0.1

Free static range: 10.81.0.20 - 10.81.0.99

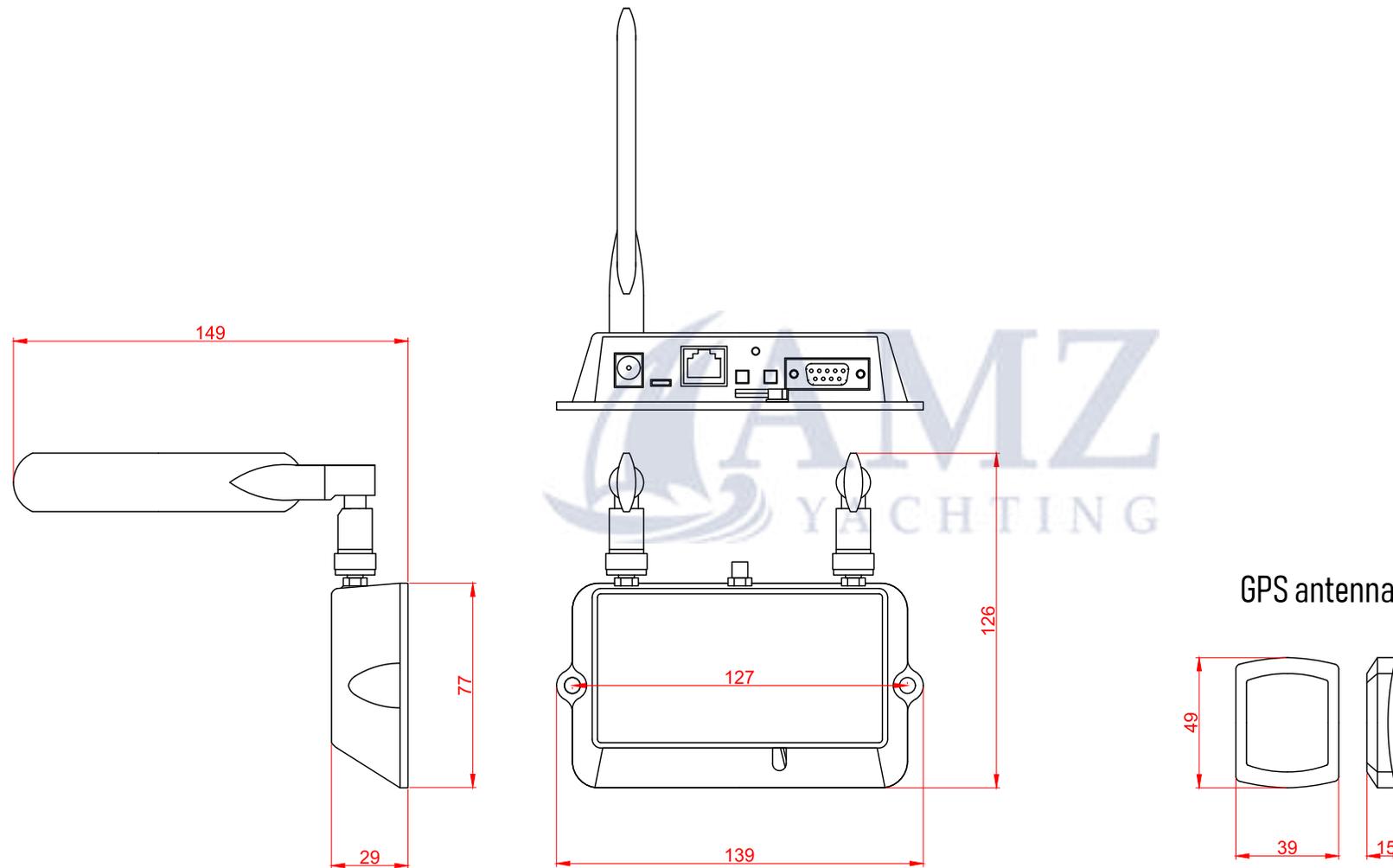
DHCP: 10.81.0.100 - 10.81.255.254

DNS: 10.81.0.1



3.3. OUTLINE DRAWINGS

All dimensions in mm.



LOCOMARINE NETWORKS d.o.o. LIMITED FACTORY WARRANTY

Locomarine Networks d.o.o. manufactures marine electronic products which are marketed and supported worldwide via the Locomarine Networks d.o.o. distributor, dealer and partner network. Each and every Locomarine Networks d.o.o. distributor, dealer and partner is committed to service and support the products in accordance with the market's needs and requirements. In addition, the Locomarine Networks d.o.o. distributor, dealer and partner networks are obliged to support the products irrespective of who sold and installed the product. Locomarine Networks d.o.o. Limited Factory Warranty for Yacht Router products can be downloaded from www.yachtrouter.com under Support/Download section.

DECLARATION OF CONFORMITY

Hereby, Locomarine Networks d.o.o. declares that this Yacht Router product is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EC. Declaration of Conformity is available for download on www.yachtrouter.com.

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FCC INTERFERENCE STATEMENT

This FCC statement is related to Yacht Router Micro model LYR-C05-US for USA/Canada market.

This device contains FCC ID: TV7RB912R-2NDLTM, TV7R11ELTE This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device and its antennas must not be co-located or operated in conjunction with any other antenna or transmitter.

IMPORTANT: Exposure to Radio Frequency Radiation.

63 cm minimum distance has to be maintained between the antenna and the occupational user and 142 cm to general public. Under such configuration, the FCC radiation exposure limits set forth for a population/uncontrolled environment can be satisfied.

List of approved antennas:

Omni Directional (pole), model Locomarine MOB 7

ANTENNA INSTALLATION: antennas from other products **MUST NOT BE CO-LOCATED** within 20 cm range to each other to satisfy FCC regulations.

Antenna Installation. **WARNING:** It is installer's responsibility to ensure that when using the authorized antennas in the United States (or where FCC rules apply); only those antennas certified with the product are used. The use of any antenna other than those certified with the product is expressly forbidden in accordance to FCC rules CFR47 part 15.204. The installer should configure the output power level of antennas, according to country regulations and per antenna type. Professional installation is required of equipment with connectors to ensure compliance with health and safety issues.

INDUSTRY CANADA NOTICE TO USERS

Notice: To satisfy IC RF exposure requirements for mobile and base station transmission devices, a separation distance of 63 cm or more should be maintained between the antenna of this device and persons during operation. To ensure compliance, operation at closer than this distance is not recommended. The antenna(s) used for this transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

Avis: Pour répondre à la IC d'exposition pour les besoins de base et mobiles dispositifs de transmission de la station, sur une distance de séparation de 63 cm ou plus doit être maintenue entre l'antenne de cet appareil et les personnes en cours de fonctionnement. Pour assurer le respect, l'exploitation de plus près à cette distance n'est pas recommandée. L'antenne (s) utilisé pour cet émetteur ne doit pas être co-localisés ou fonctionner conjointement avec une autre antenne ou transmetteur.

