Routica

Explorer II
Mobile Vehicle Gateway

USER GUIDE

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1. Introduction

1.1 Purpose of the Guide

This guide provides instructions to set up, configure, and use Explorer II cellular wireless router. It is designed to help both beginners and advanced users understand and operate the device effectively.

1.2 Overview of the Router

The Routica Explorer II is a high performance wireless cellular router incorporating a 5G cellular modem, Wi-Fi 6 dual band, dual independent radios for 2.4GHz and 5.8GHz, each radio with its dedicated 2x2 MIMO antennas. The Explorer II also supports multi-constellation GNSS for accurate location tracking. For wireline connectivity, the Explorer II provides four 10/100/1000 Mbps Ethernet LAN ports and one 10/100/1000 Mbps WAN port. A USB 2.0 port is also available for connection to external devices. The Explorer II has a M.2 interface allowing for connectivity using various M.2 cards such as 5G/LTE cellular modem cards. Dual SIM cards are also supported. Explorer II can be powered from a DC voltage source between 9VDC to 32VDC. Besides providing standard wireless router functionality, the Explorer II software has additional features designed for use in Recreational Vehicles and Marine craft.

1.3 Package Contents

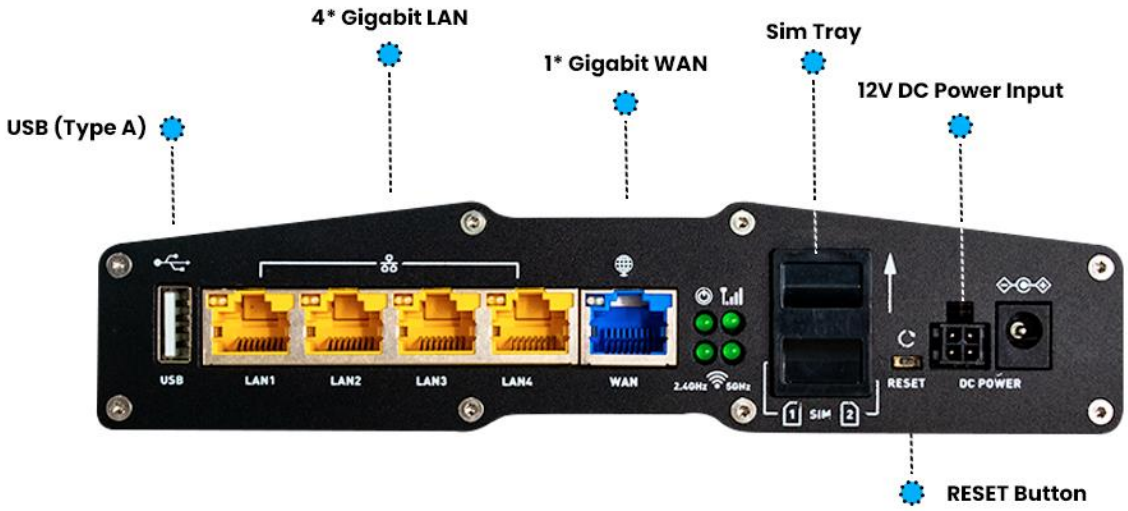
- Explorer II wireless cellular router (Qty 1)
- 12 VDC Power Adapter (Qty 1)
- Quick Start Guide (Qty 1)
- Wi-Fi and Cellular Antennas or a Combo Antenna
    - Qty 4 (if Rod Antennas) and
    - Qty 4 (if Peel-n-stick Antennas) or
    - Qty 1 (if Husky 9-in-1 Combo Antenna)
- Ethernet Cable (Qty 1)
- SIM Card Ejection Tool (Qty 1)

1.4 Safety Instructions

- Keep the router away from water and high temperatures.
- Do not disassemble the device. Doing so will void the warranty.
- Use only the provided power adapter.
- Do not configure the Explorer II while driving.

2. Getting Started

2.1 Explorer II - Front



- **USB 2.0 Port**

  Connect an external flash drive to access pre-recorded media (photos, music, videos) from any device connected to the Explorer II over Wi-Fi or Ethernet.

  Connect a smartphone (iOS or Android) to use its cellular modem to access the internet, instead of the built-in cellular modem of the Explorer

- **Ethernet LAN Ports (10/100/1000 Mbps)**

  Connect devices such as laptops, TVs, etc. using standard Ethernet cable to Explorer II and access the internet.

- **Ethernet WAN Port (10//100/1000 Mbps)**

  Connect the Explorer II to Internet using an Ethernet enabled Fiber or Cable Modem, or a StarLink Ethernet Adapter.

- **Status LEDs**

  Power:

  ON - Explorer II is powered up

  OFF- Explorer II does not have power

  Cellular

  ON - Explorer II is connected to the Internet over cellular

  Blinking - Data is being transmitted over the cellular connection

Wi-Fi 2.4GHz:

ON: 2.4GHz Wi-Fi is ready.

Blinking: Explorer II is transmitting/receiving data to/from client devices

Wi-Fi 5.8GHz:

ON: 5.8GHz Wi-Fi is ready

Blinking: Explorer II is transmitting/receiving data to/from client devices

- **SIM Slot Cover**

  Push the cover in the direction of the arrow to uncover the dual "Push-in, Push-out" SIM connectors. Only Nano size SIM cards(smallest size) can be used.

  Before inserting the SIM card, ensure the orientation is the same as printed SIM icon on the Explorer II. Insert the Nano SIM card into the top connector if only one SIM card is used. and push in until it clicks into the connector, To insert the second SIM card into the bottom SIM connector verify the orientation is the same as printed on the Explorer II before inserting into the connector. DO NOT FORCE the SIM card into the connector and verify that the SIM card is Nano size. If the SIM card does not lock verify the SIM card orientation. To remove the SIM card push-in and then release. The SIM card will pop out a bit. Use a tweezer if it is difficult to pull out the SIM card by hand after it has released from the connector. Push the cover down to cover the SIM connectors.

- **Reset Button**

  Press and hold the reset button for five seconds and then release to reset the Explorer II. The Cellular and Wi-Fi LEDs will turn off and then come on after the booting up process is complete and the Explorer II is ready**.** The Reset Button is recessed and requires a pin to press.

- **Power Connectors**

  There are two power connectors. Plug the 12VDC power adapter provided into the DC Jack. Always use a UL certified power adapter of the same rating as the one that came with the Explorer II.

  The 4-position locking connector is for use with the optional cable for connecting to the vehicle battery through a fuse. Contact sales for more information on this cable.

2.2 Explorer II – Rear

The Rear of the Explorer II can have eight or nine SMA type coaxial connectors for connecting Cellular, Wi-Fi, and if applicable, GPS Antennas.

Cellular and GPS antennas connectors are SMA (Jack) with a hole in the center. The mating connectors are SMA (Plug) with a pin in the center.

The Wi-Fi antenna connectors are RP-SMA (Jack) with a pin in the center. The mating connectors are RP-SMA (Plugs) with a hole in the center.

Note: Always ensure that the correct mating plug is screwed into the jack on the Explorer II. While it is not possible to screw in a Cellular Antenna into a Wi-Fi Jack on the Explorer II, it is possible to screw in a Wi-Fi plug into a Cellular or GPS Jack on the Explorer II. No damage will result, however cellular and GPS performance will be severely degraded or may result in no data transmission and reception over cellular.

There are three categories of antennas that can be connected to Explorer II.

1. Rod Antennas: These antennas plug directly into the corresponding connectors.
2. Peel-n-Stick Antennas: These antennas have 2.5-meter coaxial cable with a mating SMA connector.
3. Combo Antenna: This can be a 7-in-1 or a 9-in-1 antenna that contains the required antenna elements inside a plastic enclosure. Each of the antenna coaxial cable is three meters long. This type of antenna is intended for external mounting.
4. GNSS (GPS) Puck Antenna: Certain Explorer II models are equipped with a dedicated GPS SMA (Jack). In these models, the GPS puck antenna can be connected to the dedicated GPS SMA Jack.

2.3 Installation Requirements

- A SIM card with an active data plan.
    - *Supported cellular carriers includes:*
    - *USA: AT&T, Verizon, T-Mobile*
    - *Canada: Rogers, Bell, and Telus*
    - *Other third-party cellular carriers may also be used*.
- An AC power outlet for the router.
- Devices for configuration (e.g. smartphone, or tablet).
- Devices (smartphones, tablets, PC) as needed for connectivity testing.

2.4 Setting Up the Router

1. **Insert the SIM Card(s):**
    - Slide the SIM Slot cover upwards until the SIM card slots are visible
    - The SIM card(s) must be Nano size. Full or Micro size SIM cards are not supported.
    - Ensure correct orientation of the SIM card(s) as shown on the front panel.
    - First SIM card must be inserted into the top SIM card slot. Push the SIM card into the slot until it clicks into place. If the SIM card only goes in partially, do not force it in. Remove the SIM card and verify that the orientation is correct.
    - The second SIM card (if needed) should be inserted in the bottom SIM card slot. Ensure the orientation of the second SIM card matches the orientation shown on the front panel.
    - Leave the SIM slot cover up until you have verified cellular operation, then slide the cover down.
2. **Connect the Antennas:**
    - Screw in Cellular (Rod antennas) or the Cellular antenna cables (Peel-n-stick, and 9-in-1 Combo Antenna) to cellular antenna jacks on the back of the Explorer II.

      Note: For the 5G cellular models (RTC15924-5-xxxx), there is no GPS SMA Jack on the rear of Explorer II. The GPS signals are received over the cellular antennas. In case of 9-in-1 combo antenna, leave the cable labelled GPS unconnected.

    - Screw in Wi-Fi antennas (Rod antennas) or the Wi-Fi antenna cables (Peel-n-stick, and 9-in-1 Combo Antenna) to Wi-Fi antenna SMA RP-SMA jacks on the back of the Explorer II.

3. **Power On the Router:**
    - Plug the power adapter into a AC outlet and the DC plug into the DC Jack on the Explorer II. The POWER LED should turn ON.
    - Wait for the CELLULAR and Wi-Fi LEDS to turn ON solid GREEN,
4. **Connect to the Router:**
    - Scan QR code to the label attached to the Quick Start Guide to set up a connection from your Android/iOS mobile device to your Explorer II router.
    - The QR code will automatically enter your SSID and the default password.
    - Your Explorer II router's SSID's and password are also available on the back of your Explorer II router.
5. **Download the Routica Mobile Application**
    - The Explorer II router is set up using your mobile phone. Download the "Routica" application from the Google Play Store (Android) or App store (iPhone).
    - Scan the QR codes below to download the Routica Mobile App

Android **IOS**

6. **Verify your installation**
    - Once installation is complete, follow the instructions for registration and setup.
    - After set-up is complete verify that other devices (smartphones, tablets, etc.) can connect to Explorer II and can access the internet.
7. **Close the SIM Slot Cover**
    - Slide the SIM Slot Cover downward to close access to the SIM card slots. This helps to prevent the SIM card(s) from being accidentally dislodged.
8. **Mount your Explorer II router**
    - We suggest mounting your Explorer II router securely at an appropriate place to prevent damage caused by extreme movement.
    - It may be mounted in your chosen location with due consideration to the placement of your selected antenna set and access to a power outlet

3. Usage and Features

The Routica mobile App enables you to configure the Explorer II. Using the App, you can easily configure the Explorer II to meet your requirements. You can change the name of your Explorer II (SSID), select the appropriate security Wi-Fi protocols, and use the many advanced features.

3.1 Internet Connectivity

You can connect to the internet from your device which can be connected to the Explorer II either over a Wi-Fi connection or a wired Ethernet connection using one of the three WAN interfaces:

- over the cellular network using the built-in 5G cellular modem,
- over a Wi-Fi connection from the Explorer II to another router which has its own internet connection.
- over a wired Ethernet connection through a device such as a cable or a fiber modem that is connected to the Explorer II WAN ethernet port.

You can set up the priority of which WAN interface to use and under what conditions through the mobile App.

3.2 Wi-Fi Settings

Using the Routica Mobile App you can:

- Enable and manage devices such as smartphones, tablets, and laptops to connect to the Explorer II to access the internet.
- Optimize network performance using channel selection and bandwidth management.

3.3 Ethernet Connectivity

- Use Ethernet ports to connect wired devices such as PC, laptops or printers.
- Troubleshoot connectivity issues with LED indicators.

3.4 Advanced Features

- Configure VPN for secure remote access.
- Enable port forwarding for gaming or hosting servers.
- USB tethering enables using the cellular modem in your smart phone as a backup WAN device so all devices connected to the Explorer II can access the internet.
- Use the media server feature to access pre-stored media such as movies and photos on a USB flash drive.
- Create and share trips with your family and friends.
- Get alerts in the event of unauthorized movement of your vehicle with the Explorer II.

4. Specifications

4.1 Hardware Specifications

- **Processor:** Dual core ARM Cortex A-53
- **Memory:** 512 MB RAM, 512MB Flash
- **Ethernet:** 4 LAN 10/100/1000 Mbps (Gigabit) Auto MDI/MDIX
- **Ethernet:** 1WAN 10/100/1000 Mbps (Gigabit) Auto MDI/MDIX
- **USB:** 2.0 (Full/High Speed)

4.2 Wi-Fi Specifications

- Wi-Fi Standards: 802.11 a/b/g/n/ac/ax
- Frequency Bands: 2.4 GHz and 5.8 GHz
- Channel widths of 20,40,80, and 160 MHz
- Dedicated 2.4GHz Wi-Fi transmitter /receiver and 5.8GHz transmitter/receiver
- Independent 2x2 MIMO Antennas for 2.4GHz and 5.8GHz operation
- Max throughput of 300 Mbps over 2.4 GHz and 2402 Mbps over 5.8GHz
- Simultaneous Client (Explorer II can connect to another wireless Access Point) and Access Point (Wi-Fi devices connect to the Explorer II) operation.

4.3 Cellular Specifications

- Supported Networks: 5G, 4G LTE

5G NR SA: n1/n2/n3/n5/n7/n8/n12/n13/n14/n18/n20/n25/n26/n28/n29/n30/n38/n40/n41/n48/n66/n70/n71/n75/n76/n77/n78/n79
DL 4 × 4 MIMO: n1/n2/n3/n7/n25/n30/n38/n40/n41/n48/n66/n70/n77/n78/n79
UL 2 × 2 MIMO: n38/n41/n48/n77/n78/n79

- **5G NR NSA:** n1/n2/n3/n5/n7/n8/n12/n13/n14/n18/n20/n25/n26/n28/n29/n30/n38/n40/n41/n48/n66/n70/n71/n75/n76/n77/n78/n79
  DL 4 × 4 MIMO: n1/n2/n3/n7/n25/n30/n66/n38/n40/n41/n48/n70/n77/n78/n79

- **LTE** **FDD:** B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71
  TDD: B34/B38/B39/B40/B41/B42/B43/B46(LAA)/B48
  DL 4 × 4 MIMO: B1/B2/B3/B4/B7/B25/B30/B38/B40/B41/B42/B43/B48/B66

- **WCDMA** B1/B2/B4/B5/B8/B19

- **GNSS** GPS/GLONASS/BDS/Galileo/QZSS

4.4 Antenna Specifications

- Cellular: 4x SMA, 50 Ohm, Omnidirectional

- Wi-Fi 4x RP-SMA, 50 Ohm, Omnidirectional

4.4 Power Supply

	Test Conditions	Min	Typical	Max	Unit
Operating Voltage	TA = 25°C	9	12	32	V
Absolute Working Voltage	TA = 25°C	8		36	V
Working Current	VIN=12V，T A = 25°C	0.3	0.9	2	A

Use only the DC Adapter supplied when powering the Explorer II from n AC out. If powering the Explorer II directly from the 12V vehicle battery, an inline fuse with surge protector must be used. Contact Routica technical support for more details. connecting the Explorer II.

Note that if the Explorer II is directly connected to the vehicle battery, the Explorer II will be powered on and will be drawing current from the battery. This may lead to discharging the battery completely if the battery is not recharged frequently such as powering on the vehicle.

4.5 Environmental Conditions

Operating Temperature	-20°C to +60°C (-4°F to +140°F)
Storage Temperature	-40°C to +70°C (-40°F to +158°F)
Operating Humidity	10% to 90% (non-condensing)
Storage Humidity	5% to 90% (non-condensing)

4.6 Mechanical

Dimensions (W x D x H)	190 x 170 x 39 mm (7.5” x 6.7” x 1.5”)
Weight	780 gm (1.75 lbs)

5. Regulatory Information

5.1 Compliance and Certifications

FCC & ISED Regulatory Statement

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.
2. This device must accept any interference received, including interference that may cause undesired operation.

Class B Digital Device Notice:
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 or more 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 RF Exposure Statement:
This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

ISED Regulatory Statement

This device complies with Innovation, Science and Economic Development Canada's licence-exempt RSS standard(s).
Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Class B Digital Device Notice:
This Class B digital apparatus complies with Canadian ICES-003.

RF Exposure Statement:
This equipment complies with ISED RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.