TYCON Solar®

TS-RUT241-BUNDLE
Cellular Router Kit

- RemotePro® & UPSPro®
- Security & Surveillance
- Environmental Monitor
- Smart Grid Management
- Oil & Gas Management
- Agriculture / Livestock
- IoT Connectivity

Congratulations! on your purchase of the TS-RUT241-BUNDLE Cellular Router Kit. Please take a moment to review this User Guide before deploying the equipment.

Please take a moment to check that all accessories are included in the box with the RUT241:

Included Hardware:

RUT241 4G LTE Cellular / Wifi
Industrial Router

AC/DC Power Supply
120/240VAC 9V 1A

DC Power Cable 9-30VDC

Indoor Antennas
Cellular x2 + WiFi x1

Weatherproof Antenna
4G MIMO LTE + WiFi
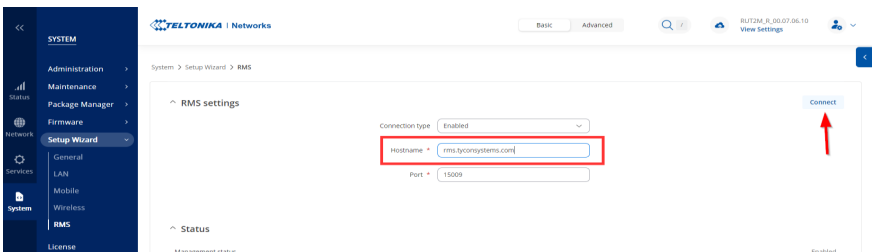
DIN Rail Mount Kit

SIM Adapter Kit

CAT5e 1.5m Patch Cable

Preliminary Notes

1. The router can work with an Internet connected Ethernet or WiFi or Cellular connection. For a Cellular connection, you'll need a cellular data plan from a carrier and a SIM card from that carrier to put in the router. The router supports 2G/3G/4G Cellular connections. It doesn't support 5G.

2. The router can be powered with 9-30VDC or 24V Passive PoE to the LAN port. There is an AC/DC Power supply and DC Cable included. Using the DC Cable you can connect to 12V or 24V battery systems.

3. Before setting up your router for a Cellular connection, it's important to check if you have a good cell signal at the location. You can do this by simply checking your phone's signal strength there. Make sure you see at least a couple of bars to ensure a reliable connection.

4. Set up the router in your office before taking it to the final location. This will give you a chance to learn how to use it and make any necessary changes before installing it in the field.

5. The TS-RUT241-BUNDLE comes with 1 year of Remote Management Service (RMS) and 150GB of RMS Data which should last about 5-10 years in typical use. The RMS Portal allows you to manage all your routers from a single portal. The RMS Data allows you to access connected devices via a VPN connection or using the RMS Connect feature.
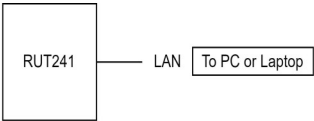
Start-up

1. Power-up the router with the AC/DC power supply, 9-30VDC source or 24V Passive PoE to the LAN port.

2. Open a browser. Default IP = 192.168.1.1 or via WiFi using the QR code on the bottom of the unit. Default UserName and Password are printed on the bottom of the unit.

3. Follow the setup wizard to perform initial setup of your RUT241.

4. At the RMS setup be sure to change the Hostname to: **rms.tyconsystems.com ,** click on **Connect.**

Note: If the router doesn't have internet connectivity at this stage the connect will fail. You can go back later and test connectivity after you have setup internet access via the SIM card or via a network connection to the WAN port or via a wireless network connection.
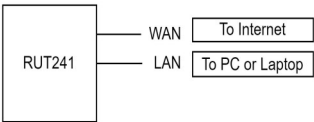
Advanced Setup

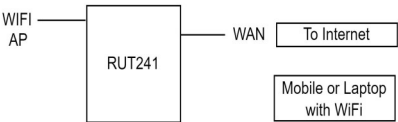The RUT241 has multiple operating modes. Below is a summary:

Wired Simple Setup

RUT241 — LAN — To PC or Laptop

No Internet, No Router Function, No SIM

Network to LAN Router

RUT241 — WAN — To Internet
RUT241 — LAN — To PC or Laptop
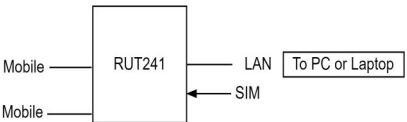
- WAN connected to wired network with Internet
- PC or Laptop Ethernet port connected to LAN via cable
- No SIM

Network to WiFi Router

WIFI AP — RUT241 — WAN — To Internet
Mobile or Laptop with WiFi
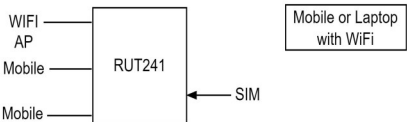
- WAN connected to wired network with Internet
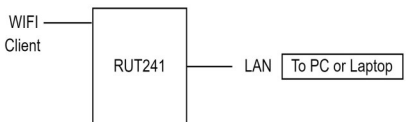- 2.4GHz WiFi AP connected to Mobile or Laptop wirelessly
- No SIM

Cellular to LAN Router

Mobile — RUT241 — LAN — To PC or Laptop
Mobile — SIM

- SIM connected to Cellular Data Network
- PC or Laptop Ethernet port connected to LAN via cable

Cellular to WiFi Router

WIFI AP — Mobile or Laptop with WiFi
Mobile — RUT241
Mobile — SIM

- SIM connected to Cellular Data Network
- 2.4GHz WiFi AP connected to Mobile or Laptop wirelessly

WiFi to LAN Router

WIFI Client — RUT241 — LAN — To PC or Laptop

- PC or Laptop Ethernet port connected to LAN via cable
- 2.4GHz WiFi Client connected to Network WiFi
- No SIM

Note: All modes are pretty straightforward to setup except for the last mode shown, the **WiFi to LAN Router** mode. We will detail the steps here:
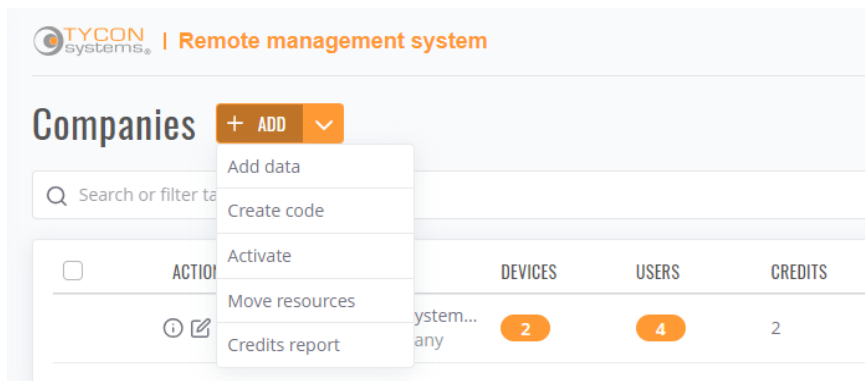
1. Start with Wired Simple Setup and the Startup section on Page 2 . Follow the Startup Wizard steps through the Finish.

2. Log into the unit.

3. Turn on Advanced Mode by clicking Advanced at the top of the screen.

4. Go to Network | LAN | Edit | General Settings| IPV4 Address and set the IP address to an address on a different subnet than your network WiFi IP address subnet. Save and Apply.

5. Login to the unit at the new IP address.

6. Go to Network | LAN | Edit | More | Physical Settings and turn OFF Bridge Interfaces. Save and Apply.

7. Go to Network | Wireless | Scan 2.4GHz and pick your Network WiFi AP and click Join Network and enter the security key. Save and Apply.

8. The unit will now be setup as a WiFi to LAN Router.

Tycon Remote Management System (RMS)

1. The TS-RUT241-BUNDLE comes with a 12 Months(1Year) RMS access package and a 150GB RMS data package. This will allow you to manage 1 remote unit for 12 months. The 150GB data package should last about 5-10 years.

2. You can manage all the units you have in the field from anywhere in the world using our cloud based Remote Management System (RMS)

3. Enter rms.tyconsystems.com into a browser to access the RMS system.

4. Register or Login

5. Goto Management | Devices and select +ADD to add a new device to the RMS. You will need to give the device a name and you will need to enter the device Serial Number, LAN MAC Address and the Device Password. These are printed on the bottom of the unit. You probably already changed the access password on the device so please enter the new password you used.

6. Your device will be added to the device list and if it is connected to the internet, it will show Online after a few moments.

Adding RMS Access Credits and Data

1. Goto Administration | Companies | Click on the Down Arrow and select Activate

2. Enter the code that was sent to you to add the credits and/or data package to your account.

3. Once the credits and data are added to your account you can use the resources in any way you want. The credits and data packages become shared resources.

4. You can set the devices to use the RMS Access Credits on your account automatically by going to Devices and clicking on Device Details. Select Device | Manage Services | Turn On Auto Extend

5. You can also allocate RMS Access Credits manually when they expire. You can set which devices are critical and need Auto Extend turned on and which devices are non-critical that you can allocate credits manually when you want to monitor them. Once a credit is allocated to a unit, you cannot recall or re-use the credit for a different device.

6. RMS Access credits are time based credits. Once allocated to a device the credit will be active for 30 days, even if you turn off monitoring on the device or remove the device.

7. Note: 150GB data packages expire after 10 years.

8. RMS Credits and Data Packages can be re-charged by going to rmscredits.tyconsystems.com

TECH CORNER

Additional Information you may find useful

1. A more detailed Quick Start Guide is available at teltonika-networks.com/QSG_RUT241

2. A Wiki page for the RUT241 can be found here: https://wiki.teltonika-networks.com/view/RUT241

3. Please visit faq.tyconsystems.com for more detailed information regarding the Cellular Routers and Remote Management System operation details.

4. **RESET BUTTON:** The units have a reset button located on the back panel between the WiFi and Mobile antennas. To reset the unit to factory defaults, press and hold the reset button for at least 12 seconds.

   Note: If unit is unresponsive and a reset to defaults doesn't fix the issue, download the latest firmware from **support.tyconsystems.com**. While holding down the reset button, power up the unit and continue to hold the reset button for at least 5 seconds. This will open a firmware upload page where you can try to reload the firmware. This often will fix any firmware corruption issues.

5. **SUBNETS:** For the router to work as a router, the WAN ports (WAN or Wi-Fi Client) must be on a different subnet than the LAN port. For instance if either of the WAN ports are on IP Address 192.168.1.xxx, the LAN port IP address must be set on a different subnet like 192.168.2.xxx or 10.1.10.xxx, etc. The subnet is defined by the three numbers starting from the left.

6. **Weatherproof Antenna**: The RUT241 comes with a weatherproof puck antenna for 4G cellular and WiFi wireless connectivity. Determine the best mounting location so antenna gets good wireless signal from the tower. Mount the antenna by drilling a 1/2" hole in your enclosure/vehicle and mounting the antenna through the hole. Be sure to clean the mounting area and remove the adhesive liner from the bottom of the antenna and stick the antenna to the enclosure/vehicle surface to create a weatherproof installation. Secure the antenna with the included nut.

7. **VPN:** The RUT241 supports OpenVPN for mobile and desktop applications. This allows you to access end devices such as cameras, wireless devices, controllers, sensors, etc.

- **VPN Data Usage / Consumption:** Following are some numbers to give you an idea regarding data usage:

SPECIFICATIONS

Cellular Compatibility	4G/LTE (Cat 4), 3G, 2G
Flash Memory and RAM	16 MB Flash ; 128 MB RAM
Ethernet Ports	Qty 2 10/100 Mbps Shielded RJ45 Ports (1x LAN and 1x WAN) *Note:* WAN port can be configured as LAN port in user interface
VPN	OpenVPN Compatible
WiFi Compatibility	IEEE 802.11b/g/n, Configurable as Access Point (AP) or Client (STA)
WiFi Security	WPA2-Enterprise-PEAP, WPA2-PSK,WEP,WPA-EAP,WPA-PSK,AES-CCMP,TKIP
Antennas	2x 4G Cellular Indoor Antenna, 1x WiFi 2.4GHz Indoor Antenna 1x Weatherproof 4G MIMO + WiFi Mobile Antenna
Antenna Connectors	2x SMA Cellular ; 1x RP-SMA WiFi
Status LEDs	1x Power LED, 2x Lan Status, 5x Signal Strength, 3x Connection Type
Power Options	9-30VDC via Power Connector or 24V Passive PoE to LAN Port
AC/DC power supply	Input:100-240VAC 50/60Hz, Output: 9VDC 1A
Power Connector Type	Molex 0430250400 4 pos miniature connector housing Molex 0430300009 connector socket for 20-24AWG wire
Power Consumption	<6.5W Max
Surge Protection	EN 61000-4-5:2006
Housing Construction	Aluminum Housing with plastic front and back panels
Operating Temperature	-40°C to +75°C (-40°F to 167°F)
Operating Humidity	10% - 95% Non-Condensing
Dimensions	3.3 x 1.0 x 2.9" (83 x 25 x 74mm)
Router Weight	4.4 oz (125g)
Shipping Weight	1.1lb (0.5kg)
Regulatory	CE, FCC, IC/ISED, EAC, RCM, PTCRB, RoHS, WEEE, WiFi Certified, CCC, Anatel, GCF, REACH, Thailand NBTC, Ukraine UCRF, SDPPI(POSTEL)
Carrier Certifications	Verizon, T-Mobile, AT&T
Device Management	Web Based User Interface, Tycon® RMS Management Portal
Warranty	2 Years

DATA CONSUMPTION TEST RESULTS:

- VPN Running but no clients accessing remote devices = 0.184MB/hr

- VPN running and clients running on 2 PC but no browser connections to remote devices = 0.329MB/hr

- VPN running and clients running on 2 PC with browser connections to remote devices = 21.5MB/hr

- VPN Running and SNMP Polling every 30 mins = 0.2MB/hr

To save data, turn off Open VPN client when not in use.

NOTES

Limited Warranty

The RUT241 products are supplied with a limited 24 month warranty which covers material and workmanship defects. This warranty does not cover the following:
▫ Parts requiring replacement due to improper installation, misuse, poor site conditions, faulty power, etc.
▫ Lightning or weather damage.
▫ Physical damage to the external & internal parts.
▫ Products that have been opened, altered, or defaced.
▫ Water damage for units that were not mounted according to user manual.
▫ Usage other than in accordance with instructions and the normal intended use.

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