DONYX

donyx.com

User's guide

Router Donyx
RS42 LTE CAT.6



Table of contents

1. Specifications Sheet **03**
2. General Information **04**
2.1. Cellular Standards 04
2.2. Hardware Specifications 05
2.3. Physical Specifications 05
2.4. Environmental Operating Ranges 05
2.5. Electrical Specifications 06
2.6. Precautions 06
2.7. Functional Diagram of the Device 07
3. Device Exterior **08**
3.1. External Interfaces and Ports 08
3.2. Label 010
3.3. Power Input Connector 011
3.4. Ethernet Network Ports 012
3.5. Antenna Information 013
3.6. Reset button 013
3.7. Indicator Logic and Behavior 014
4. Preparation and Connection **015**
4.1. Connection 015
4.2. SIM Card Installation 016
5. How to use **017**
5.1. Using General Purpose Inputs 017
5.2. Initial Configuration 019
6. Customer Support **020**

1. Specifications Sheet

This document applies to Router Donyx RS42 LTE CAT.6.

Document revision 17.12.2025.

2. General Information

This compact industrial router designed for reliable data transmission over cellular networks using LTE, HSPA+, UMTS technologies.
Equipped with an LTE CAT.6 module, the router provides data transfer speeds of up to 300 Mbps (downlink) and 50 Mbps (uplink), making it suitable for bandwidth-intensive applications.

The device features industrial-grade interfaces, including GPI/GPO, PoE IN, and PoE OUT, to support a wide range of connectivity requirements in industrial environments. Additionally, it includes an integrated Wi-Fi access point supporting IEEE 802.11b/g/n standards, enabling wireless network deployment.

The hardware platform is built on a high-performance processor, ensuring reliable operation and efficient handling of networking tasks.

The router runs on an dnxOS operating system, supporting modern encryption, tunneling protocols like OpenVPN and IPsec to ensure secure data transmission. It provides advanced features such as custom VPN configurations, diagnostics tools, and flexible scripting capabilities, tailored for industrial and enterprise use.
Data transmission is secured with robust encryption protocols, ensuring the safety and integrity of transmitted information.

This adaptability allows the equipment to meet diverse application needs, from simple connectivity to advanced network configurations.
Designed for both wireless and wired connectivity, the router is ideal for use cases such as:

- Payment terminals and ATMs
- Industrial equipment nodes
- Mobile offices
- Security and video surveillance systems
- Monitoring and control systems
- Other applications requiring fast, reliable Internet access

2.1. Cellular Standards

Table 1. Router Donyx RS42 LTE CAT.6 Cellular Standards

Cellular Module	UMTS	HSDPA/ HSUPA	HSPA+	LTE	GPS
LTE CAT. 6	Yes	Yes	Yes	Yes	NO

Specifications may change without prior notice!

2.2. Hardware Specifications

Number of Cellular Modules	1 x LTE CAT.6
Processor	MIPS 24KEc 580 MHz
Dynamic RAM	128 MB
Flash Memory Capacity	32 MB
Wi-Fi	2.4 GHz 802.11b/g/n
Ethernet Connector	2 x 10/100 Mbps
SIM Card Slots	2 x Mini SIM
Microfit4 Connector	Power, GPI, GPO
RST Button	Reset Button

2.3. Physical Specifications

- Maximum dimensions (including connectors): 130 × 95 × 35 mm
- Maximum weight: 240 g

2.4. Environmental Operating Ranges

- Enclosure Material: Aluminum
- Enclosure Protection Rating: IP30
- Operating Temperature Range: from -40°C to +65°C
- Storage Temperature Range: from -40 to 50°C
- Operating Humidity: from 10 to 80% noncondensing

2.5. Electrical Specifications

Power Supply Operating Characteristics:

- Supported Power Supply Voltage: 9–54 V DC
- Current consumption, maximum:
  - At power supply voltage +12 V – 800 mA
  - At power supply voltage +24 V – 400 mA

General Purpose Output (GPO):

- Output type: Open Drain

General Purpose Input (GPI):

- Voltage range for "High" level: 1.6 V to Vin
- Maximum input voltage: 30 V

2.6. Precautions

Restrictions on Router Usage Near Other Electronic Devices

- Power off the router in hospitals or in close proximity to medical devices (such as pacemakers, hearing aids, etc.). The router may cause interference with the operation of such equipment.
- Power off the router near gas stations, chemical plants, and blasting sites. The router may cause interference with the operation of equipment in these locations.
- Power off the router on aircraft and take measures to prevent accidental activation.
- At close range, the router may cause interference with the operation of televisions, radios, and other devices.

Environmental Protection

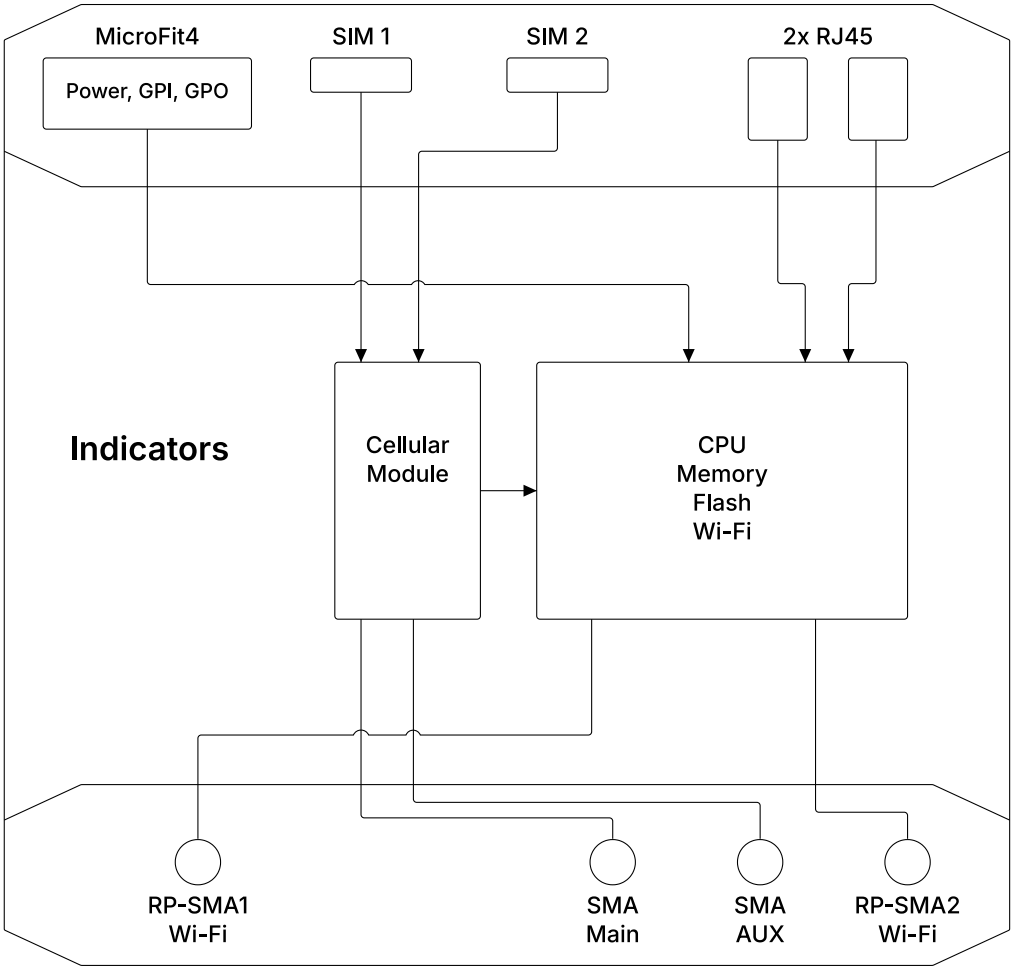
- Protect the router from dust and moisture.

Operational Considerations

- Adhere to permissible power supply and vibration standards at the device installation location.

2.7. Functional Diagram of the Device

The following diagram illustrates the main functional blocks of the router.



3. Device Exterior

3.1. External Interfaces and Ports

The following figures display the front,back and plan views of the variants.

The rear views display powersupply, ports, and LEDs.



Figure 1. Front View

- **PORTS 1** - Ethernet Network Port, PoE IN
- **PORTS 2** - Ethernet Network Port, PoE OUT
- **SIM 1 - SIM 2** - SIM Card Trays
- **PWR** - Power Input Connector

The backviews display antenna connectors, and Reset Button.



Figure 2. Back View

- **Wi-Fi** - RP-SMA Connectors for Wi-Fi Antenna
- **AUX** - Mobile **AUX** Antenna Connector (Additional, Receive Only)
- **MAIN** - Mobile **Main** Antenna Connector (Primary, Transmit and Receive)
- **RST** - Reset Button

The planviews display LEDs.



Figure 3. Plan View

- Power/Boot Indicator
- SIM 1 Status Indicator
- SIM 2 Status Indicator
- Cellular Network Indicator (2G/3G/4G)
- Signal Strength Indicator (CSQ)

3.2. Label

The label is located on the bottom panel of the router. It contains basic device information and the details required for initial operation.

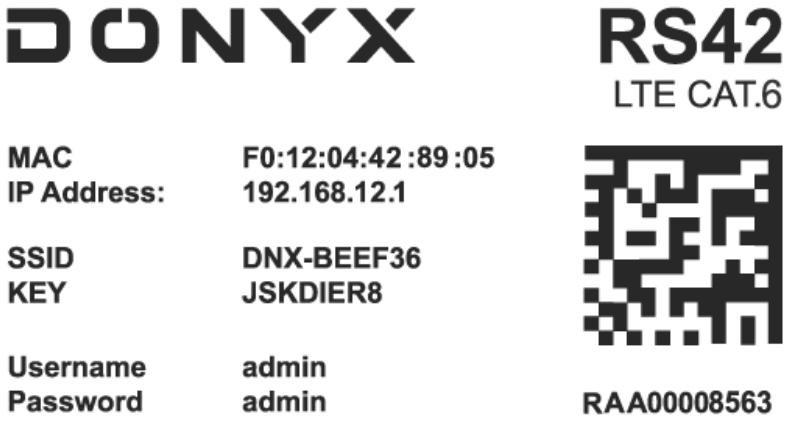


Table 2. Label Information

Basic Information	Model name, service Data Matrix code, device serial number
MAC	MAC address used for device identification
IP Address	IP address for accessing the device
SSID	Wireless network identifier
KEY	Wireless network security key
Username	Username
Password	Password

3.3. Power Input Connector

The Microfit4 power connector is used to connect the router to a power source.

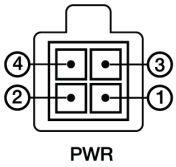


Figure 4. Power Connector

Table 3. Power Connector Pinout

Pin	Signal	Description
1	GPO	GPO_1 pin
2	GPI	GPI_1 pin
3	GND	Ground (Negative)
4	U+	Power (Positive)

3.4. Ethernet Network Ports

The Ethernet ports are used to connect local network devices and support speeds of 10/100/1000 Mbps.

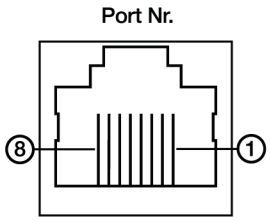


Figure 5. Ethernet Connector

Table 4. Ethernet Connector Pinout

Pin	Signal	Description
1	TX+	Transmit Positive
2	TX-	Transmit Negative
3	RX+	Receive Positive
4	VCC	Power Positive (Input or Output)
5	VCC	Power Positive (Input or Output)
6	RX-	Receive Negative
7	GND	Power Return (Input or Output)
8	GND	Power Return (Input or Output)

Port 1 supports Passive PoE-IN.

Port 2 supports Passive PoE-OUT.

3.5. Antenna Information

The router features the following antenna connectors:

Connector Type	Image	Purpose
1 x SMA Connectors		For cellular (Main) antennas
1 x SMA Connectors		For cellular (AUX) antennas
2 x RP-SMA Connectors		For Wi-Fi antennas

The **Main** antenna is the primary antenna and is used for both transmitting and receiving signals.

The **AUX** antenna is an auxiliary antenna and is used for receiving signals only.

The auxiliary antenna is recommended for use in environments with multipath propagation (e.g., dense urban areas) or in areas with high levels of signal noise. Using diversity reception with two antennas can improve signal quality and link stability in these challenging RF environments.

It is strongly recommended to use an antenna identical to the main antenna for the auxiliary port. Using dissimilar antennas for Main and AUX can degrade reception performance.

For installations deep within a building, in a basement or sub-basement, it is best to use an external antenna connected to the Main port. To minimize signal loss, the antenna cable length should not exceed 10 meters.

3.6. Reset button

The reset button can be used to reboot the router or restore it to factory default settings if access to the web interface or command-line interface is lost.

To reboot the device, press and hold the reset button for 3-8 seconds.

To restore factory default settings, press and hold the reset button for longer than 8 seconds.

Interrupting power to the router during a firmware upgrade or factory reset could render the device inoperable. Ensure that power is maintained throughout these processes.

3.7. Indicator Logic and Behavior

The router's indicators are located on the plan panel.

PWR Power/Status Indicator	
✳ Blinking Green	Firmware update in progress
● Solid Green	Normal operation
○ Off	No power
SIM Card 1/2 Activity Indicators	
○ Off	SIM card is not in use
● Solid Green	SIM card is in use
Cellular Network Indicator	
● Solid Green	4G (LTE) connection established
✳ Blinking Green	3G connection established
● Solid Red	2G connection established (if supported)
✳ Blinking Red	Connecting to the network
○ Off	No connection established
Signal Strength Indicator	
● Solid Green	High signal strength (70-100%)
✳ Blinking Green	Medium signal strength (35-70%)
● Solid Red	Low signal strength (0-35%)
○ Off	No connection established
LINK Port 1-2 LAN Port Status Indicator	
● Solid Green	Cable connected
✳ Blinking Green	Data transmission in progress
○ Off	No cable connected

4. Preparation and Connection

4.1. Connection

1. Connect the required antennas to their respective connectors. For proper operation, the M (Main) antennas must be connected.
2. Insert SIM cards into the designated SIM card trays.
3. Connect an Ethernet cable to the Ethernet ports (Port 1 … Port N, depending on the router model).
4. Connect the power adapter to the PWR connector.

   Allow the router sufficient time to boot. After 1-2 minutes, the PWR indicator will stop flashing, indicating that the router's operating system has successfully loaded. You can then connect to the router via its web interface.
5. Ensure that the IP address 192.168.1.1 is not in use on the local network and that the host computer is either configured to obtain an IP address automatically via DHCP, or has a static IP address assigned within the 192.168.1.0/24 subnet.
6. Open a web browser and enter http://192.168.1.1 in the address bar.
7. Log in using the default credentials: username root and password root.

4.2. SIM Card Installation

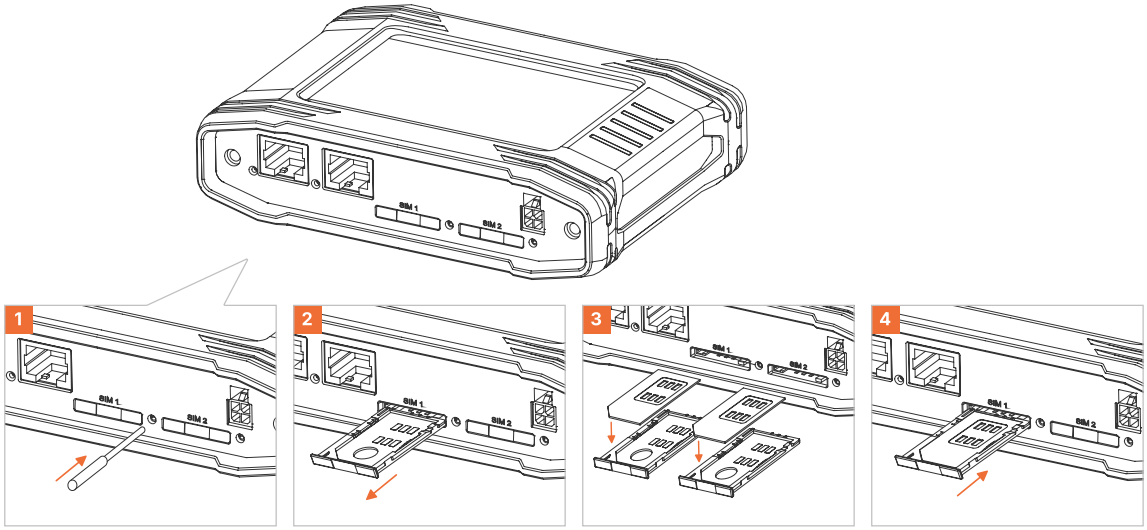


Figure 6. SIM Card Placement

1. Using a thin object, press the SIM tray eject button. The button is located to the right of the tray.
2. Remove the SIM tray.
3. Place the SIM card in the tray as shown in the diagram.
4. Insert the SIM tray into the router, ensuring it is properly aligned with the SIM holder guides.

SIM trays are inserted with the SIM card facing UP.

5. If the SIM tray is difficult to insert, it is likely misaligned with the guides. Carefully remove the tray and try again.

5. How to use

5.1. Using General Purpose Inputs

Router RS42 LTE CAT.6 provides General Purpose Input/Output (GPI/GPO) accessible through a 4-pin MicroFit connector. The router provides one GPO pin and one GPI pin.

GPO Operation

To control power loads (such as powering external devices, interfaces, or sensors), configure the GPO output settings in the router's web interface.

Table 5. GPO Electrical Characteristics

Pin	Type	Maximum Current (mA)
GPO	Open Collector	150

Exceeding the maximum current will trip the fuse.

The GPO output switches the ground (GND) connection.

An example connection diagram is shown below:

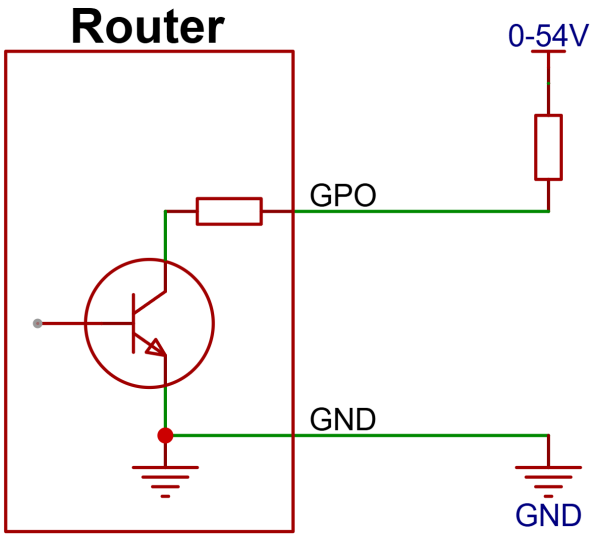


Figure 7. Connection Diagram for GPO

GPI Operation

To control external devices and read their status, configure the GPI input settings in the router's web interface.

The GPI input can be high (logic 1) or low (logic 0).

Table 6. GPI Electrical Characteristics

Pin	Logic Level	Maximum Input Voltage (V)
GPI	1	3-54
	0	0-0.5

Do not apply a voltage to the GPI input that exceeds the router's supply voltage of 54V.

An example connection diagram is shown below:

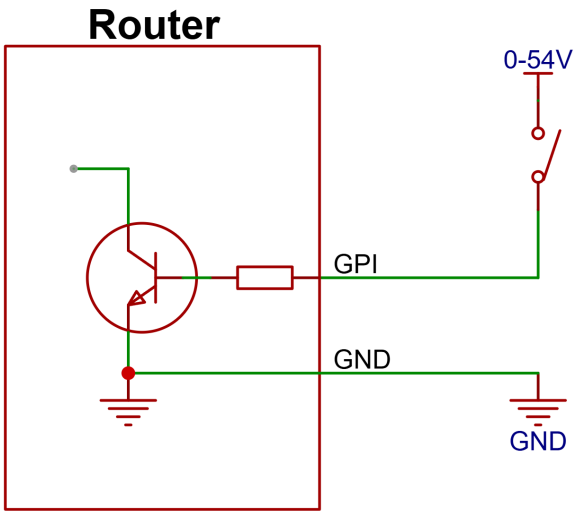


Figure 8. Connection Diagram for GPO

5.2. Initial Configuration

For instructions on initial setup and accessing the operating system, please refer to the ***OS Quick Start Guide***.

6. Customer Support

Website	donyx.com
Support center 24/7	+86 0769-21665185
E-mail	support@donyx.com