KNOT Embedded LTE4 EC25-EU&KNe

KNOT Embedded LTE4 is a tiny but powerful industrial LTE gateway designed for integrators, automation specialists, and IoT system builders. It fits into tight spaces, mounts directly on a DIN rail, and delivers reliable LTE Cat4 connectivity with Bluetooth and GNSS support. See the KNOT Embedded LTE4 EC25-EU&KNe product page for full specifications and brochures.

RouterOS Documentation

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Use it as a primary gateway, a backup link, or an IoT data collection node – everything is powered by RouterOS for maximum flexibility.

Quickstart

- Insert a SIM card into the slot as indicated on the device;
- Connect the device to the included power adapter;
- Connect the device to the computer using Ethernet cable;
- Configure your device using a web browser through **WebFig** or the **WinBox** tool at https://mt.lv/winbox. **Multiple configuration methods are available to ensure accessibility;**
- Access **WebFig** by opening `192.168.188.1`, and for **WinBox**, download the tool, navigate to the **Neighbors** tab, and click on the MAC address. The username is "**admin**" with no password (or, for some models, check user and wireless passwords on the sticker);
- Enter the PIN code, if required by your mobile network operator;

- Click the “Check for updates” button and update RouterOS to the latest version. Must have a valid SIM card inserted and active Internet connection;
- For a manual update of the device, visit mikrotik.com, select your model, and locate the required packages in the “Downloads” section;
- Upload downloaded packages to the WebFig or WinBox “Files” menu and reboot the device;
- By upgrading your RouterOS software to the latest version, you can ensure optimal performance, stability, and security updates;
- Set up your router password.

Specifications

Parameters	Description
Product Code	EC25-EU&KNe
CPU	ARM Cortex-A7, 1 core, 800 MHz
RAM / Storage	256 MB DDR, 512 MB NAND
OS	RouterOS v7, License Level 3
Mobile: 2G	Class 12 – Bands: 3 (1800 MHz), 8 (900 MHz)
Mobile: 3G	R8 (42.2 Mbps ↓ / 5.76 Mbps ↑) – Bands: 1 (2100 MHz), 8 (900 MHz)
Mobile: LTE	Category 4 (150 Mbps ↓ / 50 Mbps ↑)
MIMO	DL 2×2, UL 1×1
LTE FDD Bands	1 (2100 MHz), 3 (1800 MHz), 7 (2600 MHz), 8 (900 MHz), 20 (800 MHz), 28A (700 MHz)
LTE TDD Bands	38 (2600 MHz), 40 (2300 MHz), 41 (2500 MHz)
TAC	86554604
GNSS	GPS, GLONASS, BeiDou, Galileo (SMA-female)
Bluetooth	5.4 (BLE)
Ethernet	1 × 1 GbE RJ45 (PoE-in 802.3af/at, 12-57 V)
SIM	Nano-SIM & eSIM
GPIO	6-pin header (24 V-tolerant, analog & digital I/O)
Power	PoE-in (12-57 V) or USB-C 5 V / 0.8 A, max 7 W
Dimensions	90 × 70 × 22 mm
Operating Temp.	–40 °C … +70 °C
MTBF	≈ 100 000 h @ 25 °C

Mounting

- The device can be mounted using the provided K-91 fastening set either on the back or on the side of the device using the DIN rail mount set. It is designed to fit standard 35 mm × 7.5 mm DIN rails. Attach the mount to the device using the two provided screws, then attach the device to the DIN rail. The DIN rail is not included in the package.
- Alternatively, it is possible to attach the device to a wall, using the provided screw holes on the back of the unit. The device should be mounted in a way that the cable openings are pointing downward as shown in the picture. Warning! This equipment should be installed and operated with a minimum distance of 20 cm between the device and your body. The operation of this equipment in the residential environment could cause radio interference. Mounting and configuration of this device should be done by a qualified person.

Powering

- USB-C input Voltage: 5 V, 0.8 A.
- Ethernet port accepts 802.3af/at Power over Ethernet 12-57 V DC. The maximum power consumption can reach up to 7 W.

Connecting to a PoE Adapter:

- Connect an Ethernet cable from the device to the **PoE + DATA** port of the PoE adapter.
- Connect an Ethernet cable from your local network (LAN) to the **DATA** port of the PoE adapter.
- Connect the power cord to the adapter, then plug it into a power outlet.

Antenna Connections

Port	Function	Role in Connectivity	Notes
MAIN	Primary cellular transmit & receive antenna	Required for all data transmission and reception	Must be connected for the modem to operate
DIV (Diversity)	Secondary cellular receive-only antenna	Improves signal quality and reliability by receiving the signal from a different spatial path	Optional, but recommended in weak-signal or mobile environments
GNSS	GNSS (GPS) receive antenna	Enables satellite positioning (GPS/ GNSS) functionality	Required only if GNSS/ location services are used

How They Work Together

The **MAIN** antenna handles both transmission (TX) and reception (RX) and is mandatory for operation.The **DIV** antenna provides receive diversity, allowing the modem to select the better of two received signals, improving stability and potential throughput.

This configuration forms the device’s 2×2 MIMO implementation for cellular connectivity.

The **GNSS** antenna is independent of cellular operation and is used only for satellite positioning.

Practical Considerations

- If only one cellular antenna is used, it must be connected to the **MAIN** port.
- Adding a **DIV** antenna is strongly recommended in weak-signal environments.
- For best performance, position MAIN and DIV antennas with some physical separation or different orientation.
- Install the **GNSS** antenna with clear sky visibility for accurate positioning.

Extension Slots & Ports

Port	Type	Function
1 × 1 GbE RJ45	PoE-in / data	Ethernet + power
1 × USB-C	Power only	5 V input
1 × SIM slot	Nano-SIM / eSIM	Cellular
3 × SMA	DIV / GNSS / MAIN	LTE & GNSS antennas
1 × Bluetooth antenna (internal)	2.4 GHz, 2 dBi gain	BLE
1 × GPIO header	6-pin	Digital I/O, analog input
1 × microUSB 2.0 (for certain KNOT models)	Power / peripherals	–

Cellular modem configuration

Sub-menu: /interface lteFor band selection, roaming, or advanced options, please refer to the LTE Guide.

GNSS configuration

More details are available in the guide here.

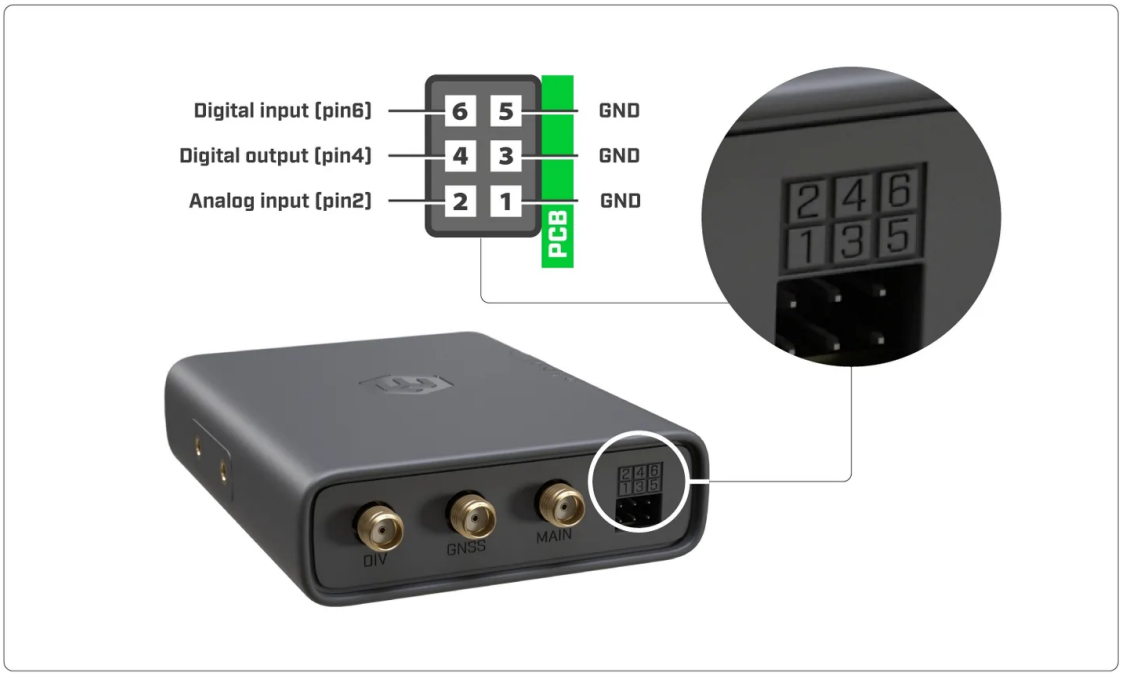
Buttons and jumpers

Reset button

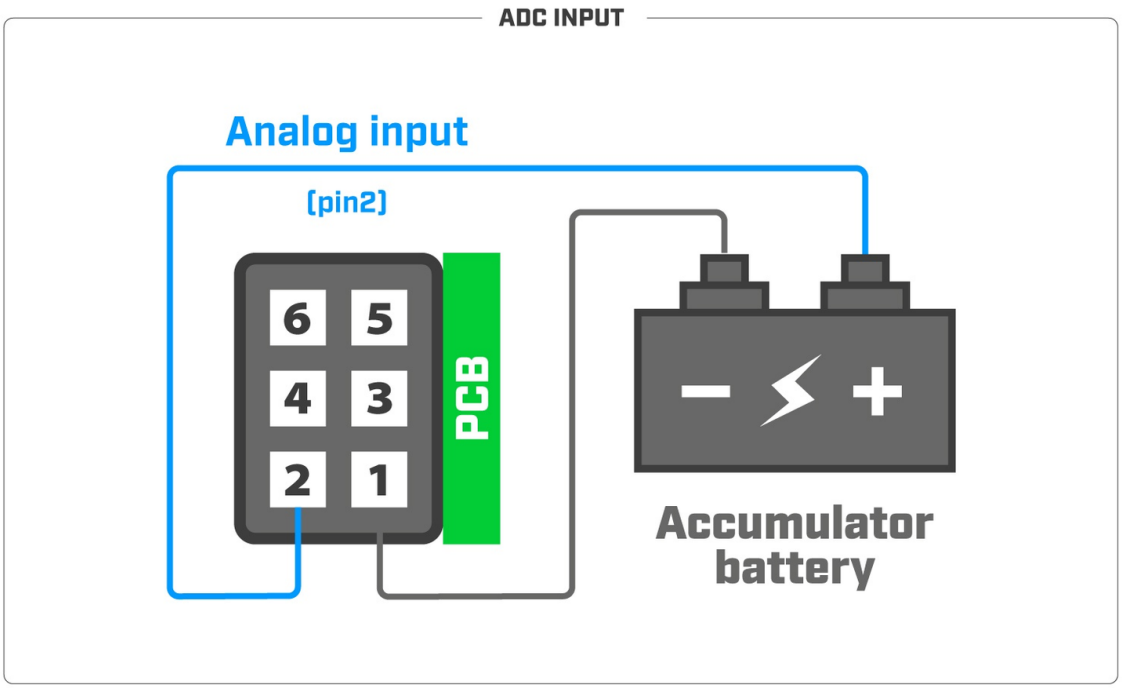
- Hold this button during boot time until the LED light starts flashing, release the button to reset RouterOS configuration (total 5 seconds).
- Keep holding for 5 more seconds, LED turns solid, release now to turn on CAP mode. The device will now look for a CAPsMAN server (total 10 seconds).
- Or keep holding the button for 5 more seconds until LED turns off, then release it to make the RouterBOARD look for Netinstall servers (total 15 seconds). Regardless of the above option used, the system will load the backup RouterBOOT loader if the button is pressed before power is applied to the device. Useful for RouterBOOT debugging and recovery.

GPIO pinout

GPIO pins are located on the board under the case as shown in the picture:

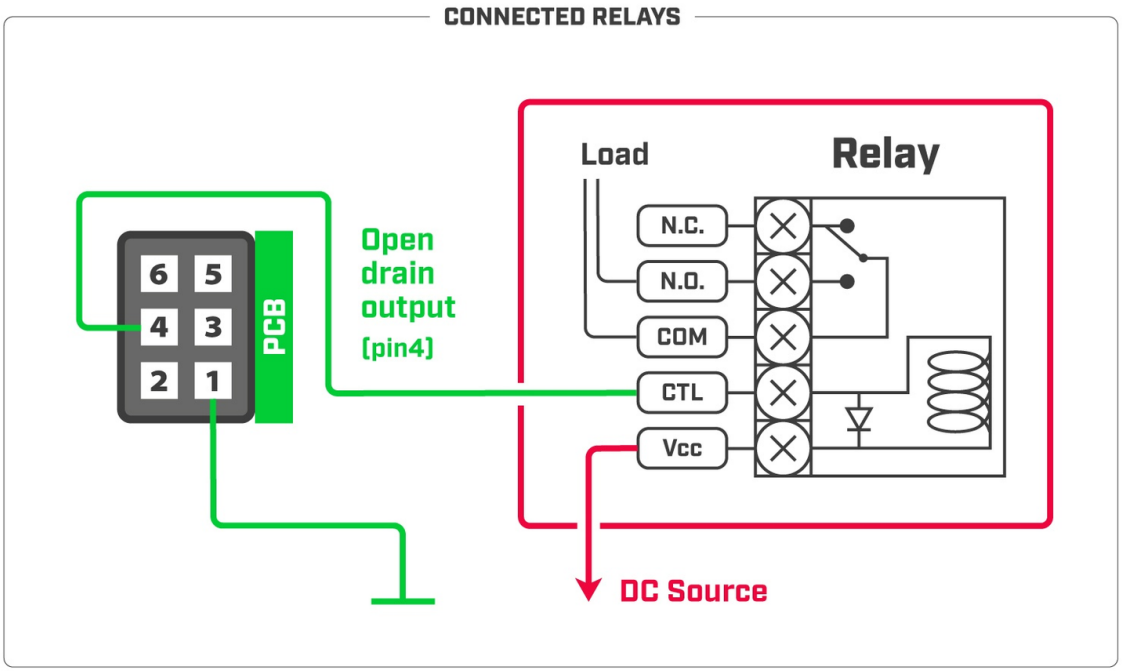


ADC input/analog input (pin2)

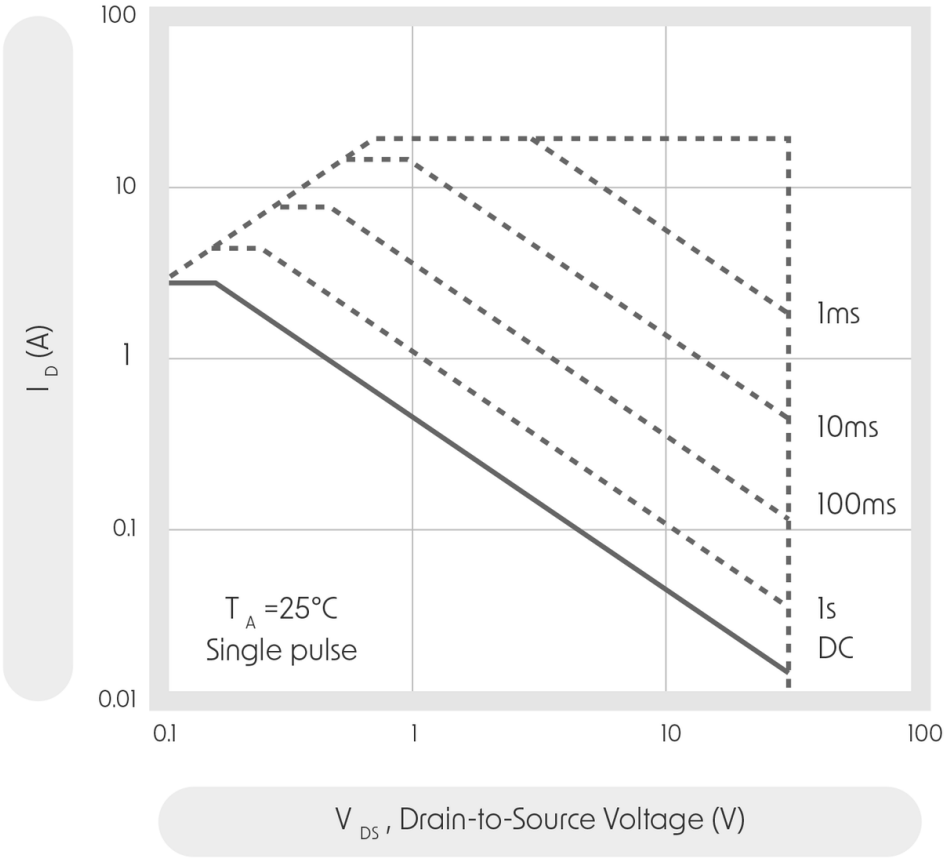


note: Analog input voltage is 0-24 V. Theoretical resolution is 1.5 mV (14bit ADC). Analog input impedance is approximately 72K Ohm.

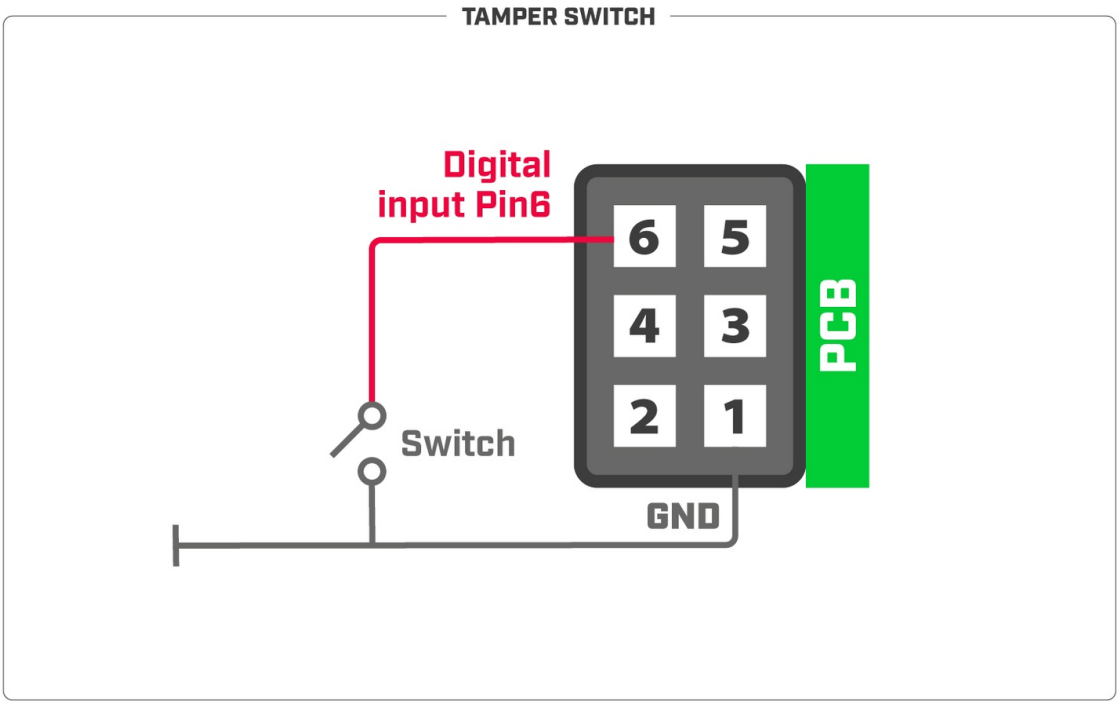
Connected relays (pin4)



note: The maximum power dissipation (for digital output open drain transistor) is 0.48 W.It is recommended not to exceed 24V or 0.5A during continuous operation. Absolute maximum drain-source voltage is 30V , and the maximum amperage is 2.8A .*



Tamper switch (pin6)



note: Digital input voltage is 0-24 V max.

Tamper switch: Input is equipped with internal Pull-up resistor. To receive a logical “0” on the pin, the voltage should be between 0-1.2 V;

To receive a logical “1” on the pin, the voltage should be between 1.2-24V.

Accessories

The package includes the following accessories that come with the device:

K-91 Fastening set

5 V 0.8 A power adapter

Antennas can be purchased separately

HGO-LTE-W	ACGPSA

Operating system support

The
device supports RouterOS v7 and above. The specific factory-installed version is listed in `/system resource`. Other operating systems have not been tested.