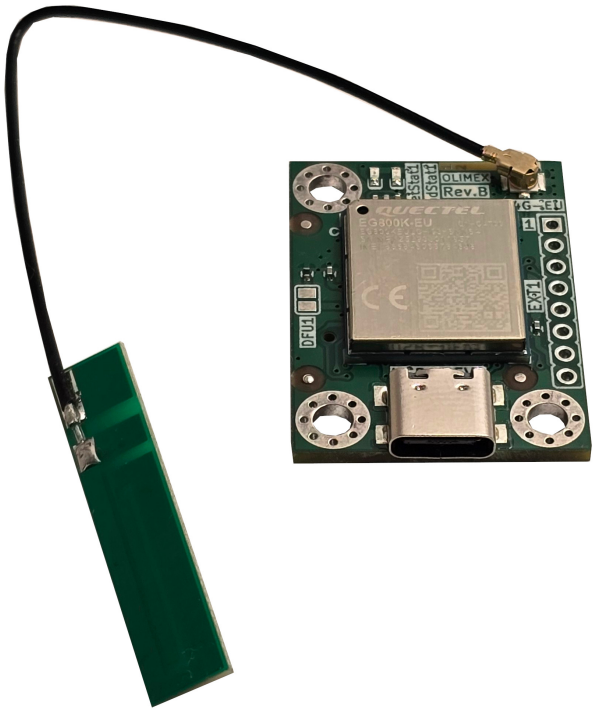


USB-LTE4G-EU

User Manual

Document 2.1 June 2026 **www.OLIMEX.com**

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1. Introduction

1.1. What is USB-LTE4G-EU

USB-LTE4G-EU is a small and reliable 4G LTE USB modem board with Quectel EG800K-EU module. It delivers reliable, cost-effective, and energy-efficient cellular connectivity for IoT, M2M, industrial automation, telemetry, POS terminals, remote monitoring, and embedded systems.

The LTE speed is 10Mbps downlink and 5Mbps uplink, but is backward-compatible with existing EDGE and GSM/GPRS networks. This allows USB-LTE4G-EU to connect to any existing 2G, 3G and 4G network.

The board has USB type C connector for powering and data connection. It has nano SIM connector at the bottom. The design also has EXT1 header which can be used for powering or data access when embedding in own products or testing.

USB-LTE4G-EU will work with Olimex OSHW Linux computers, Beaglebone and Raspberry Pi and any other PC running Windows, Linux, or Android.

1.2. Board features

- Quectel EG800K-EU LTE module with the following features:
  - LTE Cat 1 bis technology
  - Download speeds up to 10 Mbps
  - Upload speeds up to 5 Mbps
  - Frequency bands EU: B1/B3/B5/B7/B8/B20/B28
  - AT commands: Complies with 3GPP TS 27.007 and 3GPP TS 27.005
  - Supports 3GPP Rel-13 Cat 1 bis FDD
  - Supports UL QPSK and 16QAM modulations
  - Supports DL QPSK, 16QAM and 64QAM modulations
  - Supports 1.4/3/5/10/15/20 MHz RF bandwidths
- USB-C connector with USB 2.0 interface for power and serial communication
- Nano SIM holder
- Automatic module turn on circuit upon power up
- EXT1 header for external power supply input, 1.8V main UART with RX, TX, and DTR, module reset pin, module turn on-off pin, power out
- Two status LEDs
- U.FL connector for GSM antenna
- Three grounded metallized mounting holes
- Current consumption: 20µA @Power off, 3mA @Sleep, 22mA @Idle, 50-350mA when active, up to 2A burst consumption
- Operating temperature range: -35+75C
- Industrial-grade reliability
- Support for Windows, Linux, and Android platforms
- Dimensions: (34 x 25 x 6)mm

1.3. USB-LTE4G-EU ordering options

It is recommended to start with the USB-LTE4G-EU-ANT version.

USB-LTE4G-EU can be ordered with our without antenna:

- USB-LTE4G-EU-ANT the module with GSM multiband antenna
- USB-LTE4G-EU just the module without u.FL GSM antenna

We can manufacture NA version upon request but the NA version of the module is significantly more expensive.

There is a custom 3D printed plastic box available for the module. It can be purchased separately:

- BOX-USB-LTE4G – keeps the antenna and the module safe, only USB type C connector exposed.

Cables and extras:

- USB-CABLE-A-TO-C-15CM – short USB type C to type A connector to reduce chances for high capacitance; 4G modules have up to 2A burst current consumption
- USB-CAP - USB supply filtering to enable the operation of current-hungry devices with weak USB hosts
- USB-SERIAL-L – this is a USB-serial converter compatible with 1.8V UART levels if you decide to use the EXT1 header for the majn UART, requires connecting VREF to VDD_EXT

1.4. License information

USB-LTE4G-EU and USB-LTE4G-EU-ANT are original, propriety designs. They are NOT considered OSHW (Open-source HardWare) and design files and schematics will NOT be shared.

This document is considered OSHW and it is made with LibreOffice, the source file is available at GitHub. you are free to edit it to your liking for personal use as long as you respect the copyright of our trademarks. Publishing your edited version is not recommended, if you wish to contribute, submit a PR at Olimex GitHub.

2. Quick start up

2.1. Hardware connection

The minimum hardware connection is pretty simple:

- Attach the antenna to the USB-LTE4G-EU’s u.FL connector, make sure it clicks and stays firmly attached, you can rotate it the way you like;

- Insert nano SIM card at the back of the board, pay attention to the direction and use thin pointer or similar tool to make sure it is inserted in place; for absolute beginners it is recommended to remove the PIN code from the SIM card using regular GSM device first;

- (Optional) If you also purchased the BOX-LTE4G, now is good time to also put the board in the box, refer to chapter 2.3. below for details

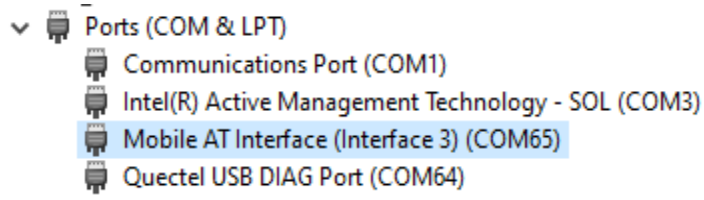
- Attach use USB type C connector to attach an USB cable between the board and a computer.

2.2. USB-LTE4G-EU software installation

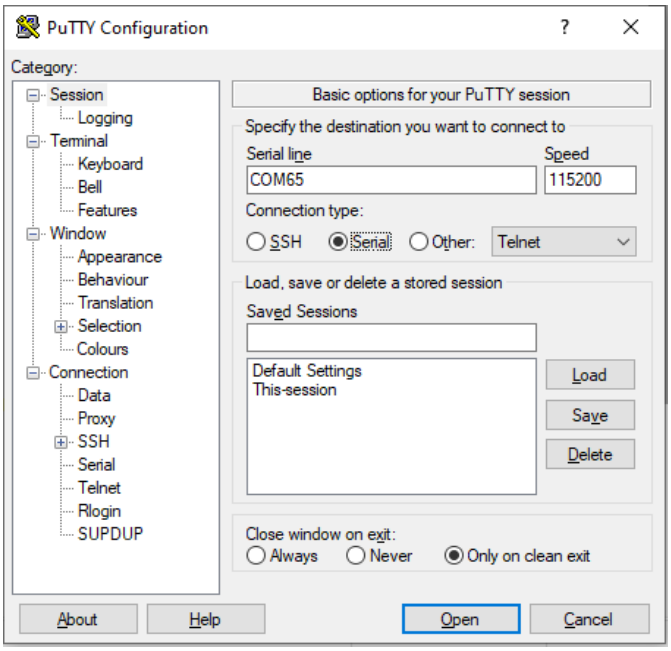
The board comes with AT commands firmware. You just need a terminal software to access the serial port it creates. You can find the available commands here: AT commands manual and list of simple test commands and replies in this text file.

2.2.1. Windows installation

After connecting the board to the PC via USB cable, the Windows should list a few entries in the "Windows Device Manager". The interface you are interested in the most is the one where you can send AT commands, it is the "Mobile AT Interface (Interface 3)". This is how the AT interfaces should look under Windows:



After identifying the port, start serial terminal on it at 115200 baud. Here below I use PuTTY:



Now you should be able to send AT commands and receive replies. Type "AT" without the quotes and see if you get reply "OK".
If you don't see it properly or there are errors, try to install serial drivers with an open source tool like Zadig. Make sure to go to Options → List All Devices, select the AT interface and install the USB Serial (CDC) driver.

2.2.2. Linux installation

Connect the USB-LTE4G-EU to the PC via USB cable and there should be new serial devices listed, identify the exact name of the AT command interface by checking with command “dmesg”, if unsure disconnect the board use “dmesg -w” and plug it back, you’d get something like:

```
usb 2-1.3: new high-speed USB device number 18 using ehci-pci
usb 2-1.3: New USB device found, idVendor=2ecc, idProduct=3004, bcdDevice= 0.00
usb 2-1.3: New USB device strings: Mfr=1, Product=2, SerialNumber=3
usb 2-1.3: Product: Arom Usb Boot Port
usb 2-1.3: Manufacturer: ASR Microelectornics
usb 2-1.3: SerialNumber: arom0123456789
cdc_acm 2-1.3:1.0: ttyACM0: USB ACM device
usb 2-1.3: USB disconnect, device number 18
usb 2-1.3: new high-speed USB device number 19 using ehci-pci
usb 2-1.3: New USB device found, idVendor=2c7c, idProduct=6002, bcdDevice= 3.18
usb 2-1.3: New USB device strings: Mfr=1, Product=2, SerialNumber=3
usb 2-1.3: Product: EG800K-EU
usb 2-1.3: Manufacturer: Quectel
usb 2-1.3: SerialNumber: 0000
cdc_ether 2-1.3:1.0 usb0: register 'cdc_ether' at usb-0000:00:1d.0-1.3, CDC
Ethernet Device, ae:0c:29:a3:9b:6d
option 2-1.3:1.2: GSM modem (1-port) converter detected
usb 2-1.3: GSM modem (1-port) converter now attached to ttyUSB0
option 2-1.3:1.3: GSM modem (1-port) converter detected
usb 2-1.3: GSM modem (1-port) converter now attached to ttyUSB1
option 2-1.3:1.4: GSM modem (1-port) converter detected
usb 2-1.3: GSM modem (1-port) converter now attached to ttyUSB2
cdc_ether 2-1.3:1.0 enxae0c29a39b6d: renamed from usb0
```

Open your favorite terminal software on ttyUSB1 and you can send AT commands. I use picocom:

```
picocom -b 115200 /dev/ttyUSB1
picocom v3.1
```

```
port is : /dev/ttyUSB1
flowcontrol : none
baudrate is : 115200
parity is : none
databits are : 8
stopbits are : 1
escape is : C-a
local echo is : no
noinit is : no
noreset is : no
hangup is : no
nolock is : no
send_cmd is : sz -vv
receive_cmd is : rz -vv -E
imap is :
omap is :
emap is : crcrlf,delbs,
logfile is : none
initstring : none
exit_after is : not set
exit is : no

Type [C-a] [C-h] to see available commands
Terminal ready
at
OK
ati
Quectel
EG800K
Revision: EG800KEULCR07A07M04

OK
```

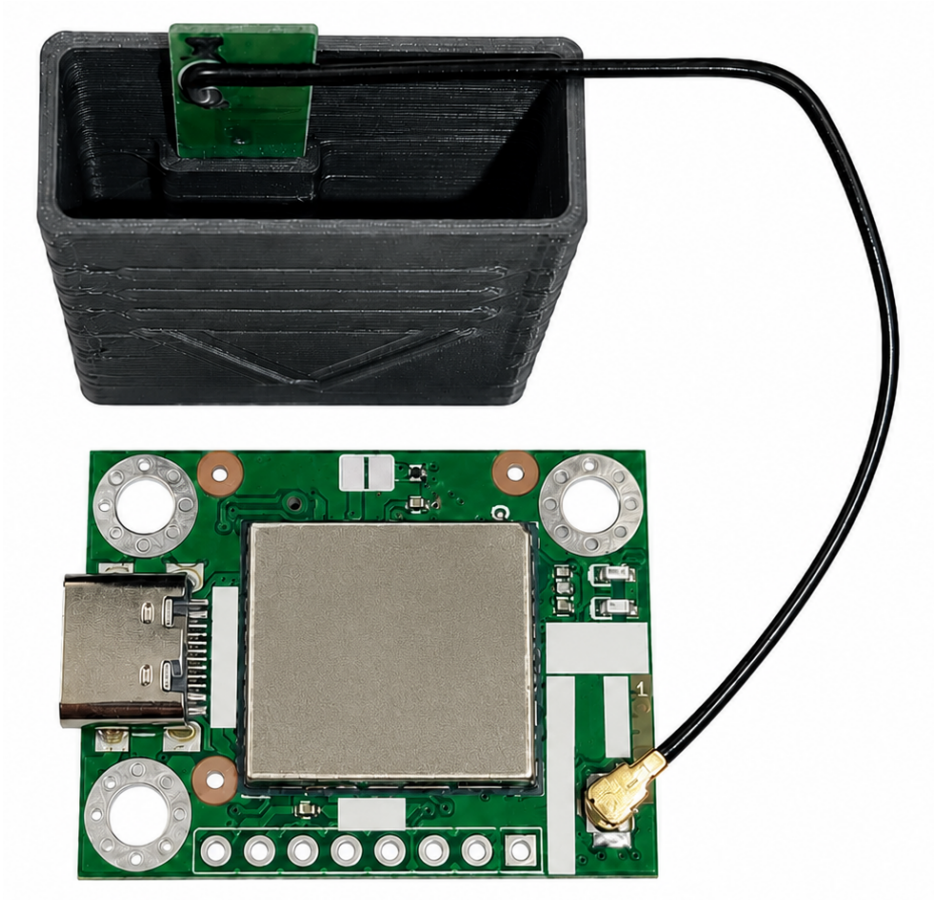
2.3. BOX-LTE4G assembly

The USB-LTE4G-EU-EA fits fully inside BOX-LTE4G. There are few steps to follow:

i. Insert your nano SIM inside the USB-LTE4G-EU-EA and connect the antenna to the u.FL connector;

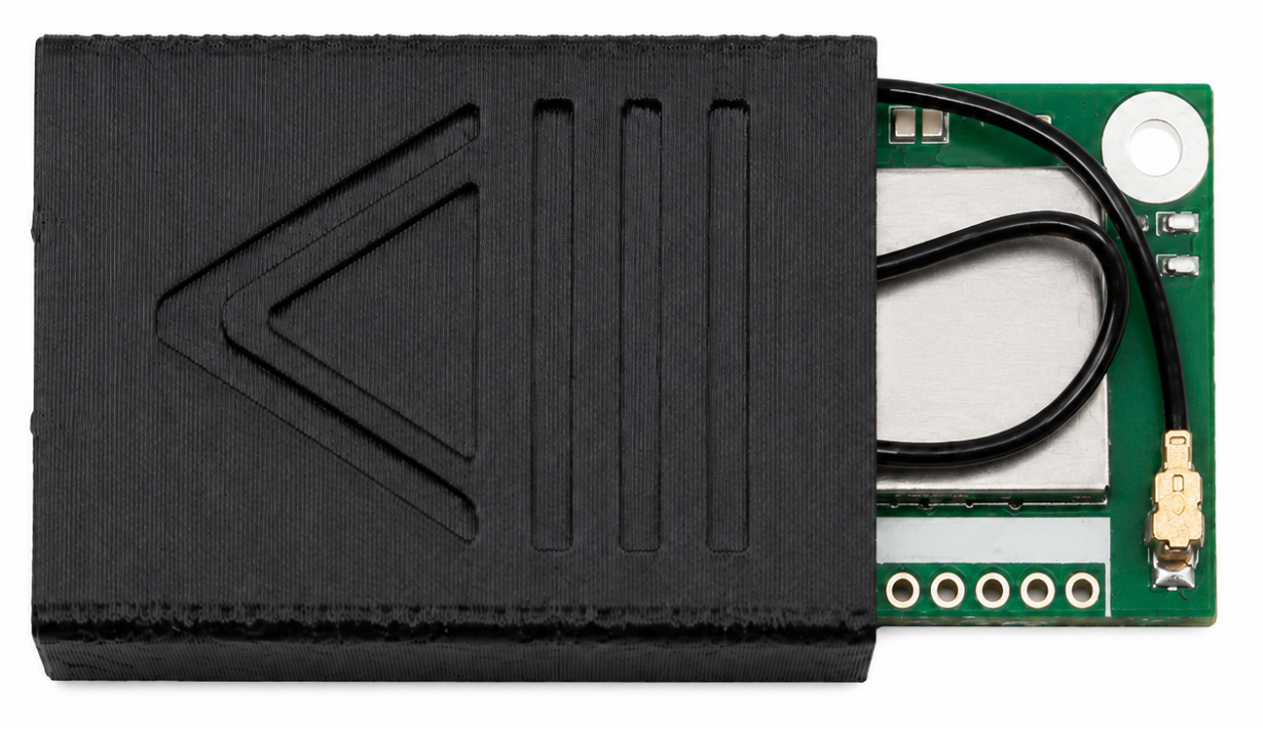
ii. Open the BOX-LTE4G box, it consists of two parts – main body and removable plastic lid. If you struggle separating them, best use an object to push the lid from the USB opening.

iii. Inspect the box. Check inside – there is a fitting for the antenna. Insert the antenna inside this antenna holder – the solder point of the antenna must point down, towards the inside of the box (the flat side of the antenna slides next to the plastic wall). Refer to the picture below:



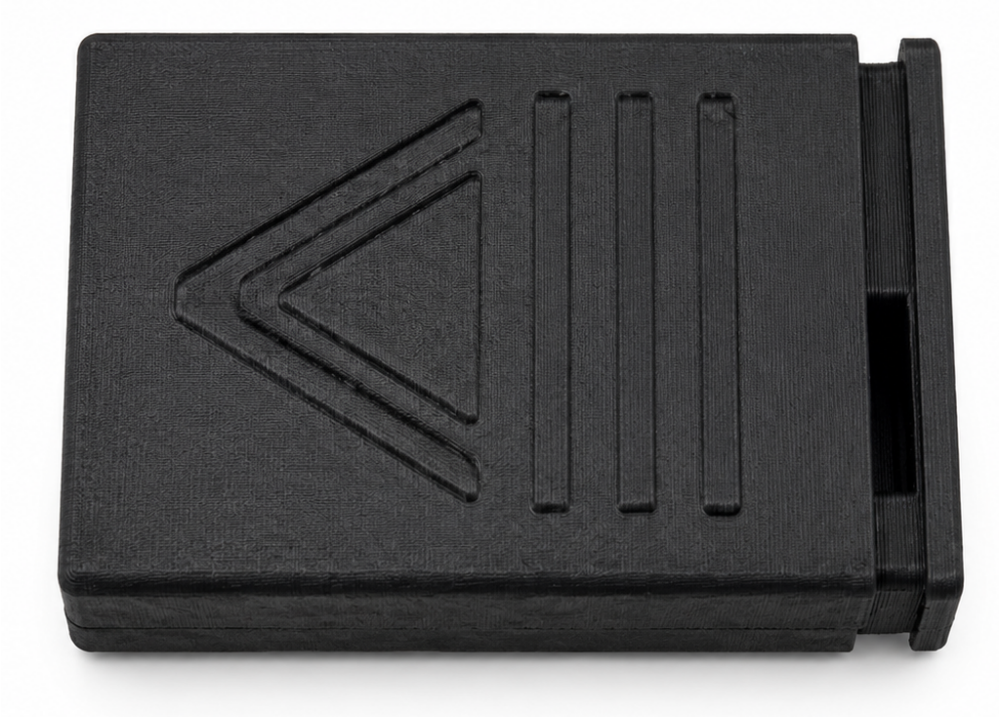
iv. Make a circle of the antenna cable so that it can fit inside the box – make sure not to bend the antenna at 90 degrees, this might break it.

v. Insert the USB-LTE4G-EU-EA below the antenna with the USB side going first. Refer to the picture on the next page:



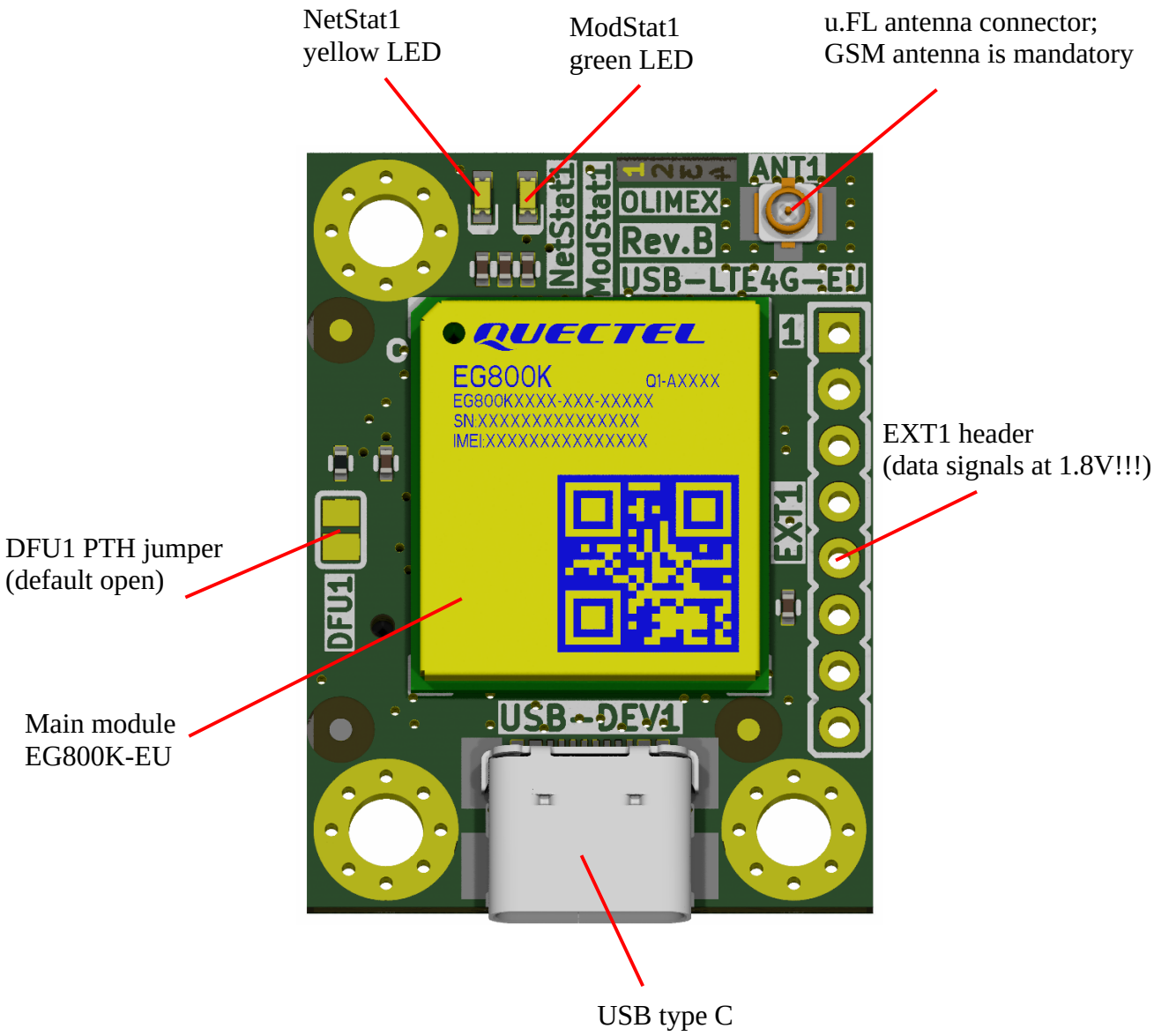
vi. Check the other of the box and ensure the USB fits in the opening. Make sure the whole antenna is inside.

vii. Inspect the lid cover before placing it – you would notice it has a cut on one side. This cut is there to facilitate the antenna! Make sure the cut is at the same side as the antenna. Place the lid and close the box. Refer to the picture below:



3. Hardware

3.1. USB-LTE4G-EU top layout

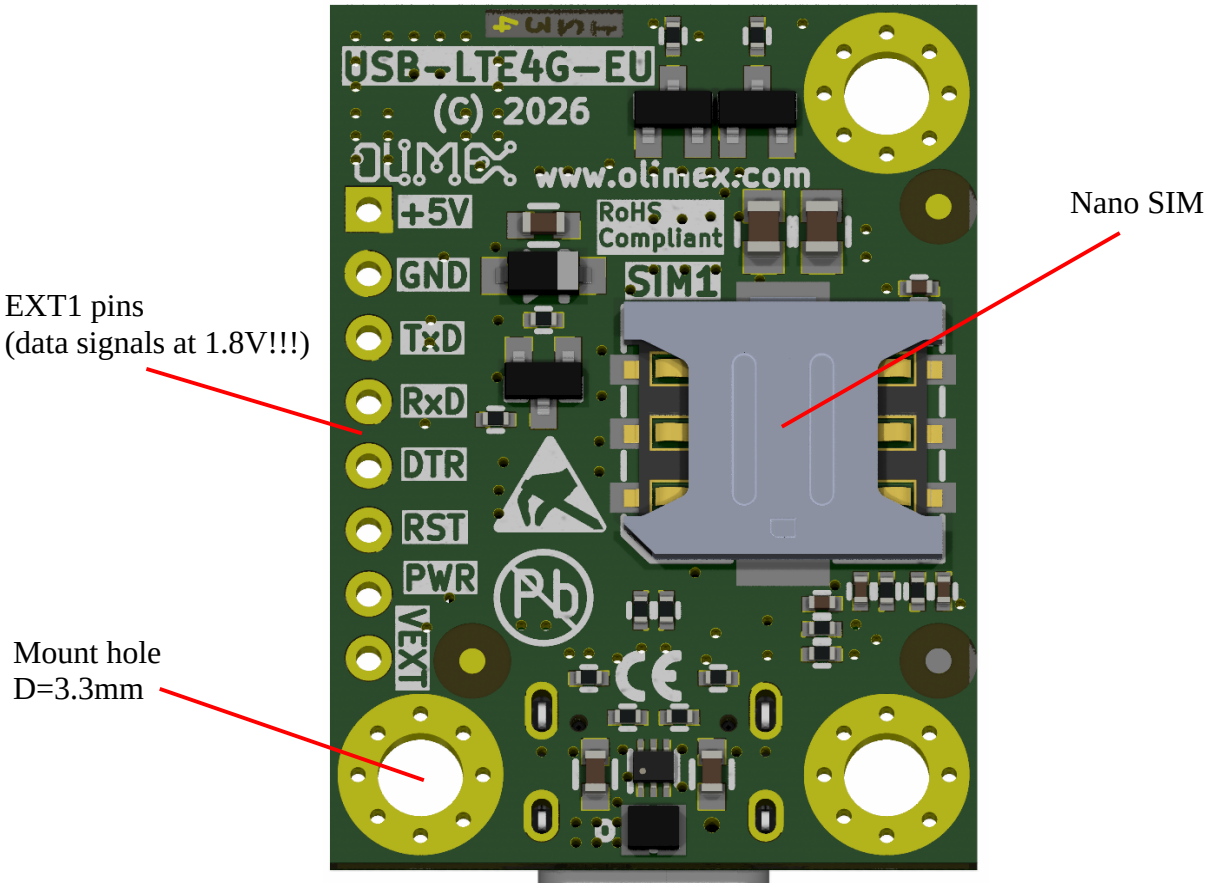


Yellow LED NetStat1:
- Blink slowly (200ms High/1800ms Low) - search network
- Blink slowly (1800ms High/200ms Low) – idle
- Blink quickly (125ms High/125ms Low) – data transfer

Green LED ModStat1:
- On – module is turned on

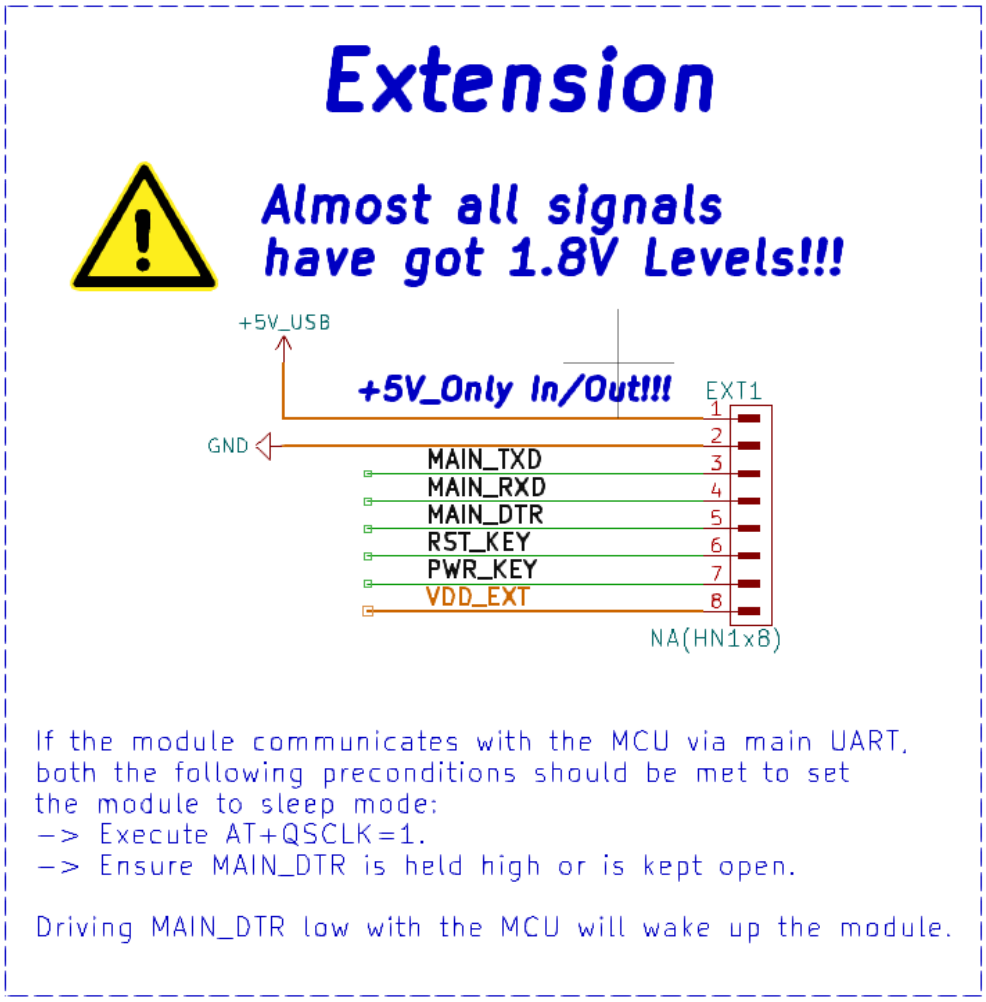
3.2. USB-LTE4G-EU bottom layout

Notice that EXT1 header has the signal names printed near the pads. Always double check the white print to avoid problems!



3.3. EXT1 header

The name of the signal of each pin of the header is printed next to it at the bottom of the board. You can find power in/out, GND, main UART, reset and power pins of the module and VDD_EXT that is 1.8V output (50mA max) or 1.8V VREF.



Never apply external power supply at EXT1 header and USB at the same time! This will lead to immediate short-circuit and hardware damage!

Notice the board has no voltage level shifters on the data lines! Make sure your serial connection works at 1.8V (usually data lines of the serial are at 3.3V or 5V and this will lead to hardware damage!). This means you can't directly connect most of the boards that have serial at 3.3V!

Consider using Olimex USB-SERIAL-L, remember to first connect Vref to VDD_EXT at EXT1 of USB-LTE4G so that USB-SERIAL-L buffers get set to 1.8V.

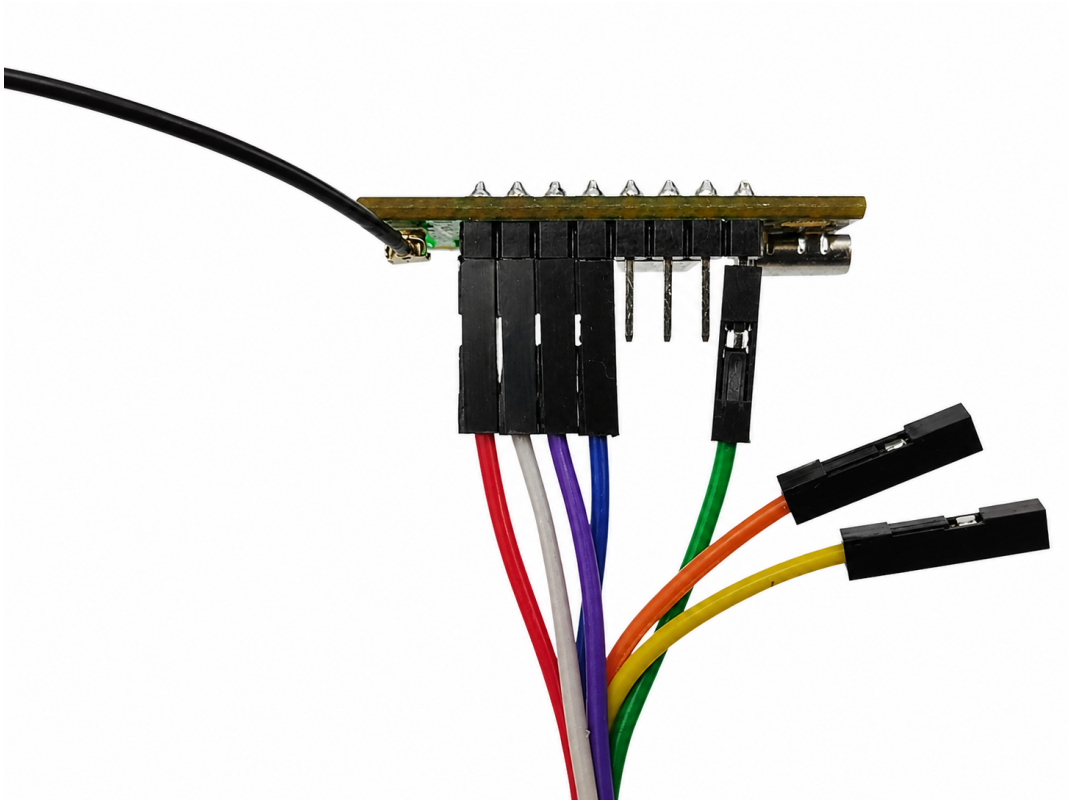
3.3.1. How to connect USB-SERIAL-L to EXT1 header

The easiest way to test the main UART at the EXT1 header of USB-LTE4GB is by using USB-SERIAL-L.

The connection can be seen in the table bellow:

EXT1 pin	USB-SERIAL-L cable color
5V	RED
GND	GREY
TXD	PURPLE
RXD	BLUE
DTR	NOT CONNECTED
RST	NOT CONNECTED
PWR	NOT CONNECTED
VEXT	GREEN

Refer to the picture below:



After the hardware connection are installed, find the serial port assigned to USB-SERIAL-L, but if you can’t find it, install the CP2102N drivers. Open terminal software on the port and type AT to test.

3.4. LEDs

The board has two status LEDs:

- NetStat1 – yellow color – shows the network status:

- Blink slowly (200ms High/1800ms Low) - search network
- Blink slowly (1800ms High/200ms Low) – idle
- Blink quickly (125ms High/125ms Low) – data transfer

- ModStat1 – green color – shows the EG800K-EU module status when it is on – the module is turned on normally.

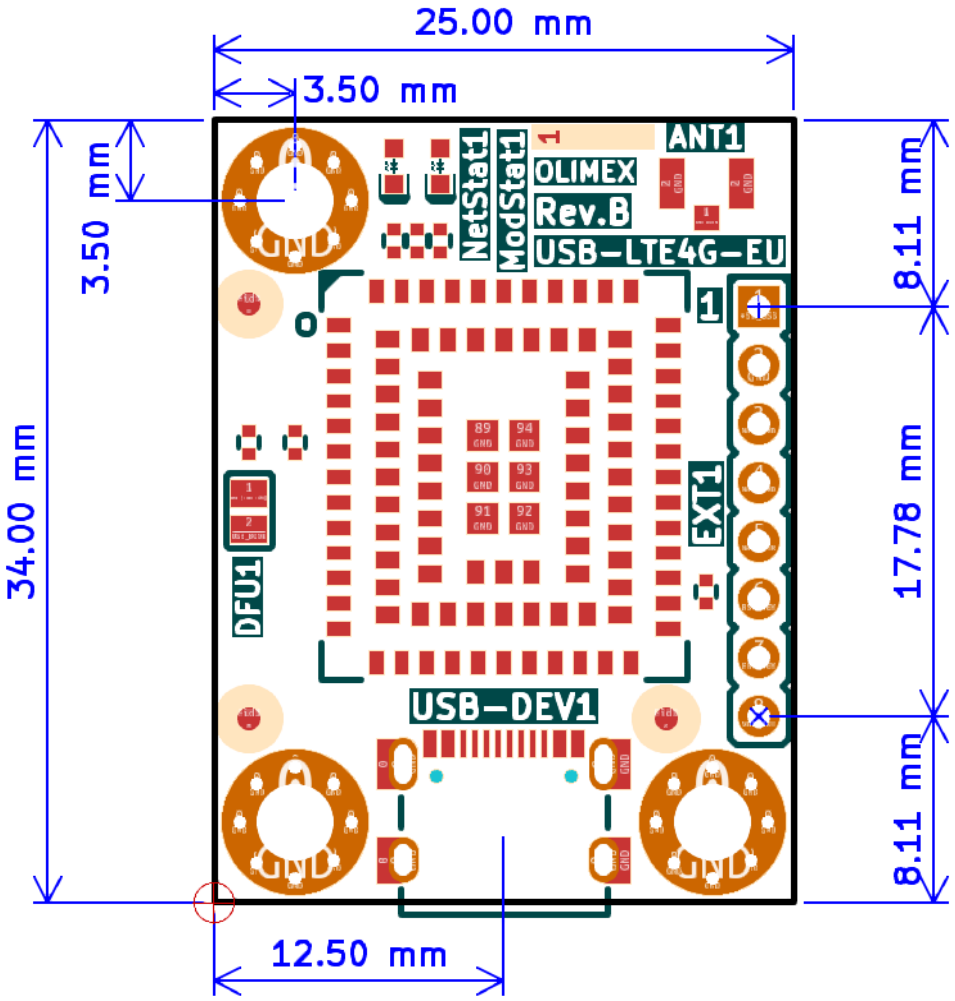
3.5. DFU1 PTH jumper

This jumper is open by default. Close the jumper (e.g. solder the pads together) to enter firmware upgrade mode.

Pulling down USB_BOOT to GND before turning on the module, and then the module will enter forced download mode. In this mode, the module supports firmware upgrade over USB 2.0 interface.

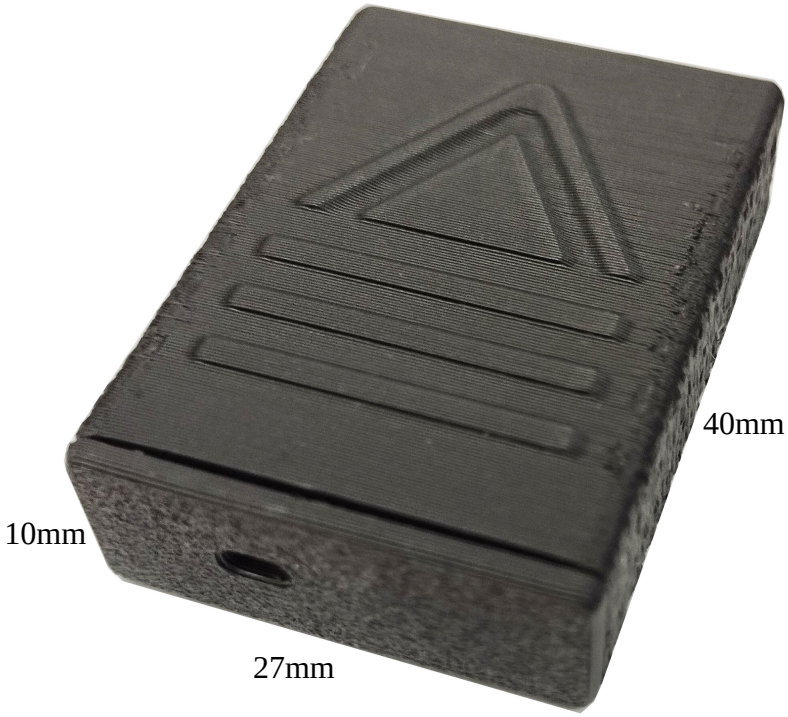
Remember to disconnect (unsolder) the jumper after a firmware upgrade to return to normal operation.

3.6. USB-LTE4G-EU board dimensions



3.7. BOX-LTE4G dimensions

The box size in millimeters is 27x40x10(WxLxH).



3.8. USB-LTE4G-EU power consumption

Warning! The 4G modem, like most modems has up to 2A transmission burst current consumption!

Make sure that your USB port and cable can handle it. Consider using shorter USB-cable and maybe USB-CAP. If it is still shaky during some commands – consider external power supply (**but never connect external power supply and USB at the same time!**)

- 0.2A @ Active operation
- 22mA @ Idle
- 3mA @ Sleep
- 20uA @ Power off

4. Software

We tested some basic software operation, you can find our tests at GitHub, links below:

- Simple AT commands test: Simple-AT-commands-test at GitHub

- PPP modem shell script and test: WIFI-modem-ppp-interface at GitHub

Usually drivers are not needed but if you have trouble check the archive below:

- Linux drivers: Quectel_LTE5G_Linux_USB_Driver_V1.0-5 at GitHub

5. Additional documents

- EG800K series specification: Quectel_EG800K_Series_LTE_Standard_Specification_V1.3 at GitHub

- AT commands manual: AT_Commands_Manual_V1.4 at GitHub

6. FAQ

Some frequently asked questions:

- What is the firmware version of the modules?

At the time of writing this document command ATI returns the following info:

ATI

Quectel

EG800K

Revision: EG800KEULCR07A07M04

- Can I connect an ESP32 board to the serial pins at EXT1 header?

Not directly due to voltage difference! You need voltage converter or translator between the boards. Other Olimex boards usually have data signals at 3.3V but USB-LTE4G-EU signals are at 1.8V levels. Connecting USB-LTE4G to 3.3V UART will damage the board!

7. Warranty and returns

For product support, hardware information and error reports mail at: support@olimex.com
All document or hardware feedback is welcome. Note that we are primarily a hardware company and our software support is limited. Please consider reading the paragraph below about the warranty of Olimex products.

All goods are checked before they are sent out. In the unlikely event that goods are faulty, they must be returned, to OLIMEX at the address listed on your order invoice.

OLIMEX will not accept goods that have clearly been used more than the amount needed to evaluate their functionality.

If the goods are found to be in working condition, and the lack of functionality is a result of lack of knowledge on the customers part, no refund will be made, but the goods will be returned to the user at their expense.

All returns must be authorized by an RMA Number. Email support@olimex.com for authorization number before shipping back any merchandise. Please include your name, phone number and order number in your email request.

Returns for any unaffected development board, programmer, tools, and cables permitted within 7 days from the date of receipt of merchandise. After such time, all sales are considered final.

Returns of incorrect ordered items are allowed subject to a 10% restocking fee. What is unaffected? If you hooked it to power, you affected it. To be clear, this includes items that have been soldered to, or have had their firmware changed. Because of the nature of the products we deal with (prototyping electronic tools) we cannot allow returns of items that have been programmed, powered up, or otherwise changed post shipment from our warehouse.

All returned merchandise must be in its original mint and clean condition. Returns on damaged, scratched, programmed, burnt, or otherwise 'played with' merchandise will not be accepted.

All returns must include all the factory accessories which come with the item. This includes any In-Circuit-Serial-Programming cables, anti-static packing, boxes, etc.

With your return, enclose your PO#. Also include a brief letter of explanation of why the merchandise is being returned and state your request for either a refund or an exchange. Include the authorization number on this letter, and on the outside of the shipping box.

Please note: It is your responsibility to ensure that returned goods reach us. Please use a reliable form of shipping. If we do not receive your package we will not be held liable.

Shipping and handling charges are not refundable. We are not responsible for any shipping charges of merchandise being returned to us or returning working items to you.

The full text might be found at https://www.olimex.com/wiki/GTC#Warranty for future reference.

8. Document revision history

Revision 2.1 June 2026

- added additional warnings about 1.8V voltage level filled empty sections and added more info

- added connection info about USB-SERIAL-L

Revision 2.0 June 2026

- filled empty sections and added more info

Revision 1.0 June 2026

- initial release