

# oXigen blue dongle O204b

E104-BT5040U

## Introduction

Slot.it oXigen operates on a 2.4 GHz communication network utilizing a proprietary protocol developed by Galileo Engineering, the parent company of Slot.it and Policar. Firmware version 4.x marks a significant milestone as it alters the speed at which data is transmitted via the 2.4GHz link.

Why change something that has functioned effectively for over a decade? The necessity arises from the need to ensure compatibility with the current generation of integrated circuits manufactured by Nordic Semiconductors, which no longer support the previous transmission speed. Thus, to ensure the ongoing compatibility of oXigen, a change is necessary.

For the technically minded, versions prior to 4.00 (i.e., 3.1x and earlier) were compiled for a RF bitrate of 250kbps, whereas versions 4.00 and later utilize a RF bitrate of 1Mbps. The current and forthcoming generations of Nordic RF ICs no longer support the 250 kbps bitrate.

Besides, we needed a new dongle, as the 'old faithful' O204a is showing its limits. Hence, we introduce its successor O204b, based on an off-the-shelf dongle the E104-T5040U.



It's crucial to note that the O204b dongle exclusively operates at the 1Mbps bitrate and cannot function at 250kbps. Therefore, it cannot be utilized to upgrade older oXigen devices to version 4.xx. However, for users operating the oXigen system in its 4.xx version, the O204b dongle is the recommended choice.

### What you can do with O204b dongle:

- Manage oXigen races using the Chrono RMS program with release 4.x.
- Handle oXigen device features with the Slot.it PC Bootloader application (hereinafter referred to as the Bootloader application) with release 4.x.
- Update the firmware of legacy oXigen devices (SCP2 oXigen cartridge, B1 type car chip) within the 4.x releases.
- Utilize it with oXigen devices exclusively updated to oXigen version 4.x.

### What you cannot do with O204b dongle:

- Use it with Chrono RMS and Bootloader application with release 3.x.
- Update the firmware of legacy oXigen devices (oXigen SCP2 cartridge, Type B1 car chip) within the 3.x releases.
- Migrate the firmware of legacy oXigen devices (oXigen SCP2 cartridge, Type B1 car chip) from versions 3.x to 4.x and vice versa.

In summary, utilize the old dongle to upgrade your legacy devices (B1 chips, SCP cartridges, and CRI) to the new oXigen 4.0. Afterward, we strongly recommend using the new dongle to operate oXigen 4.0, and frankly, we also advise forgetting your B1 chips and old SCP cartridges.

Dongle Code	Model	Migration from 3.1x (or earlier) to 4.00 (or later) and vice-versa	Working with 3.1x (or earlier)	Working With 4.00 (or later)	Note
O204a		suitable for migration	allowed	allowed	suitable but not recommended for use with 4.00 or later
O204b		not suitable for migration	not allowed	allowed	strongly recommended for use with 4.00 or later

Both dongles can interface with the Bootloader application, ensuring communication with all oXigen devices that have been updated to version 4.xx (i.e., devices running at 1Mbps).

There are currently two available Chrono RMS applications:

- oXigen Chrono by Slot.it
- ChronO2, developed in collaboration with the RCS Team

Below is a table that illustrates which dongles are compatible with the two Chrono RMS applications:

Chrono application	Release	Note	O204a Dongle (old type)	O204b Dongle (new type)
oXigen Chrono Slot.it	4.01	no longer maintained	working	working
	4.10 and later	maintained	not working	working
ChronO2	4.01 and later	maintained	not working	working

In detail:

- oXigen Chrono by Slot.it is available in two versions. For both, the operation mode is the same as for versions 3.xx and earlier, as described in the general oXigen manual.
  - Version 4.01 is the only one that can be used with the old O204a dongle. This version of Chrono will no longer be maintained.
  - Versions 4.10 and later can only be used with the O204b dongle.

ChronO2, in versions 4.01 and later, can only be used with the O204b dongle. For the operating mode, please refer to the relative manual which can be downloaded from the Slot.it website.

## Purchase of the dongle and license key

The O204b dongle requires a unique, non-transferable license based on its ID, referred to as MAC (Media Access Control). The license code is exclusively bound to the dongle's MAC value and cannot be applied to other devices.

The O204b dongle can be purchased ready to use for oXigen 4. In this scenario, the dongle is actively sold and licensed, and the license code is included in the sales package. It's essential to store your license code in a secure location for future reference. We strongly recommend updating the dongle firmware to the latest version available through Bootloader application.

However, there is an alternative to the traditional purchase of the dongle.

## Initialization and license key purchasing

The E104-T5040U is a general-purpose, inexpensive, off-the-shelf dongle available for purchase online or in physical stores. Once connected to the PC, the Bootloader application will program the dongle with the appropriate firmware to make it compatible with the oXigen 4 system, as outlined below. However, a separate license must be obtained online as a standalone item.

The following procedure will walk you through programming the appropriate firmware for the oXigen system in the O204b dongle and obtaining a license for it. This procedure should only be carried out the first time you use the E104-T5040U and only if you have not purchased an already activated dongle; in the latter case, you can skip the contents of this paragraph.

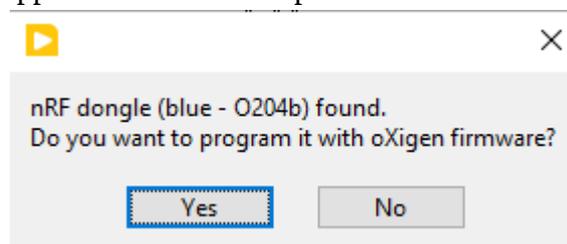
The steps are broken down into:

- Installation of the oXigen system firmware in the dongle
- Activation of the dongle (i.e. installing a licence)
- Updating the dongle to the latest firmware version available

## Installation of the oXigen system firmware in the dongle

You have a new, unprogrammed dongle in your hands. What should you do?

1. Insert the dongle into an available USB port.
2. Launch the Bootloader application.
3. A prompt message will appear. Click "Yes" to proceed.



4. The dongle will be loaded with the starting firmware, preparing it for the oXigen system. Relevant images/icons will be displayed:

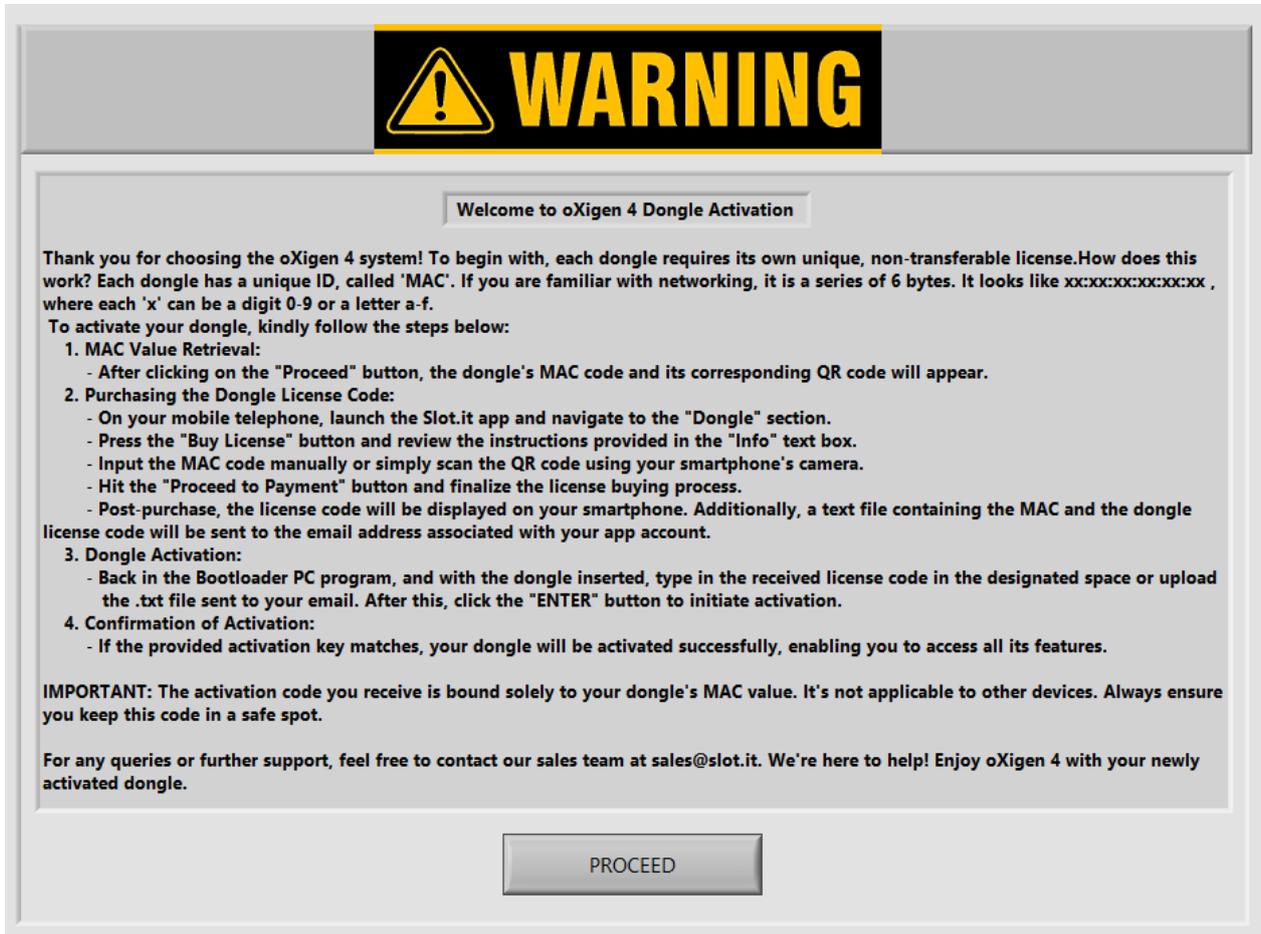


5. Allow the process to complete. Do not disconnect the dongle from the USB port during this time.

If you have reached this point, the dongle is loaded with a 4.x oXigen firmware.

## Activation of the dongle (i.e. installing a licence)

Upon completing the initialization, you'll encounter a warning message. Please read its content carefully. For details on purchasing the dongle license code, refer to the upcoming section in this document that guides you through the Slot.it app process. Once you're ready, click the "Proceed" button to continue.



The dongle activation box is now displayed. Please read the text of the dongle activation box carefully.

The MAC code of the dongle and its QR code are shown in the center.

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### **Important**

The MAC value FF:FF:FF:FF:FF:FF is not valid. If it appears, it likely means that the PC is not recognizing the O204b dongle with the correct driver.

Driver installation is typically performed automatically during dongle firmware programming, but for various reasons, it may not be successful. If this occurs, follow the driver installation procedure outlined in the following paragraphs, then remove and reinsert the dongle and relaunch the Bootloader application.

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The license code can be purchased on the Slot.it eBay store or via the Slot.it app. Details for purchasing via the app are provided in the following paragraphs. Once the purchase is complete, you will receive a file containing the license key. To activate the dongle, you must enter the license key into the provided box or upload the license file you received.

### Dongle activation

The dongle you're using needs to be activated by entering its license key.

1. Open the Slot.it App: Navigate to Dongle and then Buy Licence.
2. Enter the MAC Code: Either type in the MAC code provided below or simply scan the accompanying QR code with your smartphone. Proceed to purchase the license code.
3. Input the License Key: Paste the provided license key into the specified box. Alternatively, you can upload the Licence-xx:xx:xx:xx:xx.txt file that will arrive in your email.
4. Activation Confirmation: Once you've entered the correct code, the dongle will activate, giving you access to all its features.

#### MAC



XX:XX:XX:XX:XX:XX

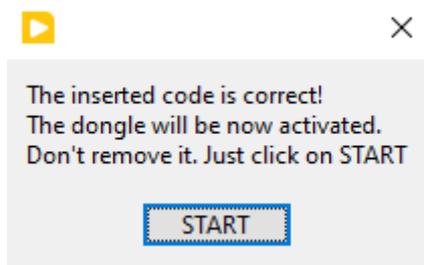
#### LICENCE KEY

LOAD LICENCE FILE

ENTER

EXIT

If the licence code you've entered matches the expected licence a confirmation message will pop up:



Click "START". This will activate your dongle and unlock all its features.

Once the Bootloader application redirects to its homepage, select "Connect" to access the dongle.

The Bootloader application provides a LICENSE button allowing you to view the MAC and License Key values. Additionally, it's possible to clear the license code, though it will prompt for re-entry upon the next dongle connection. As anticipated, it's advisable to keep the license key stored securely for easy retrieval.

## Updating the dongle to the latest firmware version available

It's highly recommended to update the dongle to the latest firmware version available through the Bootloader application. Follow these steps:

1. If not already connected to the Bootloader application:
  - Plug the dongle into a USB port.
  - Start the Bootloader application.
  - Click on Connect.
2. Verify the latest firmware version availability by clicking on the "Download latest FIRMWARE" button.
3. Click on UPDATE FIRMWARE and select the firmware version.
4. Wait for the update to complete.
5. Click on Disconnect.
6. Use the dongle to communicate with other oXigen devices (updated to version 4.xx) in the Bootloader application or to manage the race in the Chrono RMS.

## Purchase of the dongle license key on the Slot.it app

Assuming the Slot.it app is already installed on your smartphone, follow these steps:

1. If not installed:
  - Head to the App Store and search for "oXigen."
  - Download and install the Slot.it APP, compatible with Android devices (Android 7.0 and above) and iOS. Ensure your device's location is activated.
2. Register using your email:
  - Open the app and enter your email address.
  - Tap on 'Request Access Code' and input the confirmation code received via email.
  - Once registered, tap on 'User Login.'
3. Open the app and go to the home page.

- Select the "Dongle" button.
- Here, view purchased dongles or buy a new license by tapping on "Buy License."
- Follow the instructions provided in the "Info" text box for the purchasing process details.

## **Installing the dongle driver**

The dongle driver, applicable for both O204a and O204b models, and installation instructions can be downloaded from the following links:

- [Dongle Driver Download](#)
- [Driver Installation Guide](#)

If, after installation, the dongle does not appear as an oXigen dongle in the Windows Device Manager:

- Right-click on the recognized device's name.
- Select "Update Driver Software."
- Choose "Browse my computer for drivers" and then "Let me pick from a list of available drivers on my computer."
- Select "oXigen Driver version 1.2.0.0 [21/09/2022]" from the list.
- Click "Next" to complete the driver update.