

Quick Start Guide: QCar 2

STEP 1 Check Components and Details

Make sure you have the following items ready before you begin:



Ensure your QCar 2 box includes the following components:

1. QCar 2
2. 2x 3s 3300 mAh LiPo Batteries
3. EV-Peak LiPo Charger
4. Power Supply
5. XT-60 Adapter PCB

Ensure your local computer has the following software:

1. Windows 10/11 operating system
2. Python 3.11.4 + or Matlab R2023a + (not required for this)
3. QUARC 2024 SP1/Quanser SDK 2024, or later installed

***Note:** If bought as lab, the provided PC will have all the necessary requirements installed

STEP 2 Set up the Hardware

The steps below outline the instructions to setup the QCar 2 for testing:

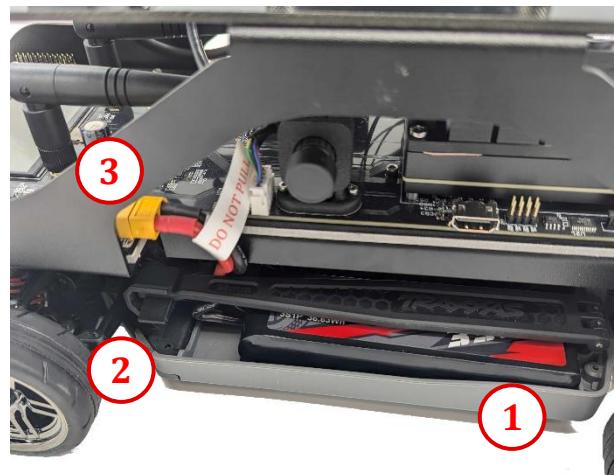
A

Charge the batteries using the provided charger to 100% as indicated.



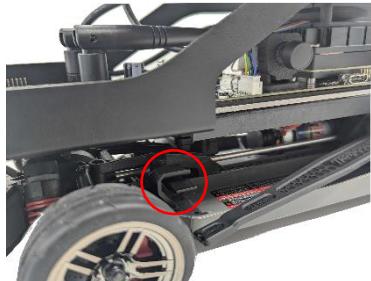
C

Place a charged battery in the QCar 2 battery compartment (1). Clip the lock back in place to secure the battery (2) and then connect the XT60 battery connector to the QCar 2 PCB connector (3).



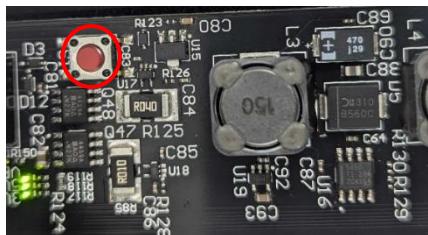
B

Press the tab gently to release the lock and access the battery compartment.



D

Turn ON the QCar 2 by pressing the Power button once. Wait until you see the start up screen on the LCD screen briefly.



STEP 3 Running the Quick Start Application

The steps below outline the instructions to operate the Quick Start Application on the QCar 2:

A

The Quick Start Application automatically runs on the QCar 2 approximately 20-30 seconds after boot up. You will need to use the push buttons (S2, S3, S4) on the PCB to cycle through the functionalities included.

**B**

The LCD will display 3 options, (1) Stop Model, (2) Test Wheels/Lights, (3) Cycle Cameras/LIDAR. Stop Model button functions as an emergency stop as well.

**C**

***Note:** Ensure that the four CSI cameras caps are removed and that the sticker on the RealSense camera is peeled off.

**D**

Press the Cameras/Lidar button to test the camera functionality. Press it multiple times to cycle through the four CSI cameras (right, front, left, back), RealSense RGB camera, and LiDAR scan. Check all camera and Lidar feeds.

Press the button one more time after the Lidar scan to return to the main screen.

E

Before testing the wheels and lights, return to the main screen and place the car on a stand or jack so that the wheels are off the ground.

Press the Wheels/Lights button to test the wheels and lights. The LED strip will light up in a rainbow pattern. The next screen will prompt you to confirm that the QCar2 is off the ground. Once verified, the wheels will rotate and steer for approximately 10 seconds.



F

After completing both the camera and wheels/lights tests, press the S4 button to exit the hardware test.

After a few seconds, the LCD screen will display the battery level and the car's IP address.

STEP 4 Managing the Quick Start Application

The steps below outline the instructions to remove the Quick Start Application from running on QCar 2 on boot:

A

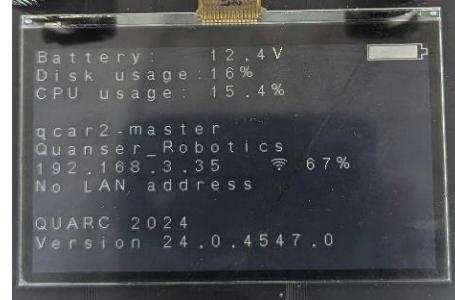
Ensure that both your local machine and the QCar 2 are connected to the same network.

See the *Connectivity User Manual* for setting up your own Wi-Fi network.

Proceed with the following steps once your Wi-Fi network is configured.

B

Check the battery level and IP address of the QCar 2 on the LCD.



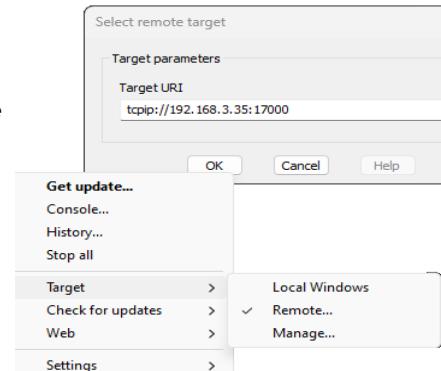
C

On your Windows system, search for the 'Monitor' application and click to open it. A new monitor icon will appear in the system tray at the bottom right of your screen.



D

Right-click on the monitor tray icon, then select **Target > Remote**. Update the Localhost to match the IP Address displayed on the QCar 2. Leave the port number unchanged at 17000. Click OK to continue.



E

Once the Monitor is connected to the target, right-click on the monitor icon again. Select **Target > Manage** to open the QUARC Target Configuration window. In the 'Models configured to load at boot' section, select the model **QCar 2_Quick_Start_Demo**. Click on **Do not load on boot**, then save and close the window. To verify this change, restart the QCar 2 using the power button and ensure that no model runs on boot.

Get update...

Console...

History...

Stop all

Target >

Check for updates >

Web >

Settings >

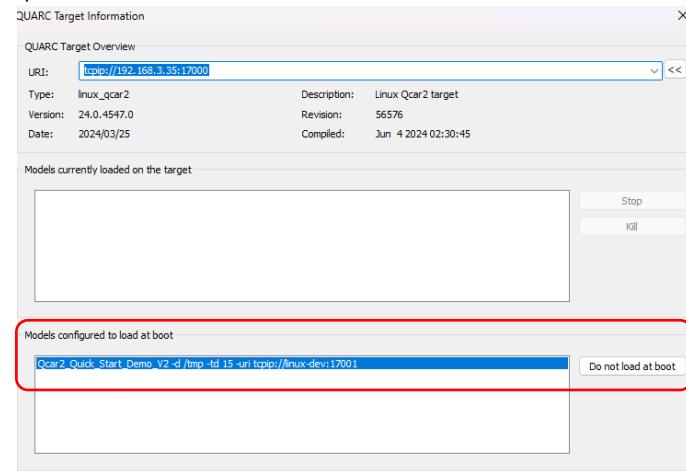
About...

Exit

Local Windows

✓ Remote...

Manage...



TROUBLESHOOTING

Common issues and possible solutions

The QCar 2 **does not** turn on at all.

Ensure that the QCar 2 **batteries** have been **charged** before use. The EV-Peak charger should show all **4 blue LEDs consistently on** and not flashing on and off.



The QCar 2 LCD shows a **LOW BATTERY** message

Ensure that the QCar 2 **batteries** have been **charged** before use. The EV-Peak charger should show all **4 blue LEDs consistently on** and not flashing on and off.



The QCar 2 LCD does **not** show an **IP address**.

Ensure that the QCar 2 **network** has been **configured**. If using the provided router, ensure that it is turned ON. For your own network configuration, see the Connectivity User Manual.



The QCar 2 **LiDAR still spinning** after stopping the model

Press the power button to **turn off the car** and wait for a few seconds. If the LiDAR is still spinning, then **long press the power button for 4 seconds** to turn off the car.



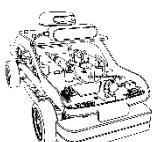
The local computer **cannot find** the QCar 2.

Ensure that the QCar 2 and local computer are on the **same network**, the QCar 2 **has an IP**, and that a **ping test passes**. If issues persist, consider **rebooting** the QCar 2.



The QCar 2 Quick Start Application **does not load** on boot.

Check the **QUARC Target Configuration** menu from the **Monitor** (see Step 4) to see if the Quick Start App is set to run on boot. If not, please contact Quanser Tech Support at tech@quanser.com



LEARN MORE

To browse and download the latest Quanser resources visit www.quanser.com/courseware or call +1-905-940-3575

STILL NEED HELP

For further assistance from a Quanser engineer, contact us at tech@quanser.com

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