Modern Robotics Hardware Troubleshooting Guide

This guide is intended for use when an Android-based robot cannot find or drops communication with Modern Robotics modules/controllers. This guide does not take into account user program errors, connecting the Android devices using Wi-Fi direct, the driver station, or nonoperational legacy components.

If you believe you have a defective or broken Modern Robotics sensor or Legacy component, test it using the Core Device Discovery utility from modernroboticsinc.com/coredevicediscovery. This PC application will remove variables to test just the sensor or component.

Directions: Read Q1 and select the most appropriate answer. Follow the instructions or explanation under that answer. If support is contacted, specify that the Modern Robotics Hardware Troubleshooting Guide from 1/10/17 was used.

Q1: When do you experience the problems you are having?

A1: While a program is running and the robot is moving.

> *USB connections are your culprit. If a connection wiggles in the port, a module will lose connection with the phone and an error will be thrown similar to "unable to find Modern Robotics USB Device…"*
>
> *The most common connector for this is the micro connection going into the phone. The mini connections also provide the same challenge. Using a zip tie 1-2 inches from the connection to ensure the connector does not move with respect to the device it is connected to often fixes the problem. Teams have also found success in replacing their USB cables after rigorous use and using 3D printed strain relievers which can be found at http://www.thingiverse.com/thing:1099628 curtesy of Dale Jordan of Oregon FTC.*

A2: Before the robot is initialized (before "INIT" is selected on the driver station.)

> *Continue to Q2.*

A3: After the robot has initialized but before the robot moves.

> *Check that your robot program and the configuration file have the motors, servos, sensors, and legacy controllers named the exact same and none of those items are missing from the robot configuration.*

Q2: How many LEDs are illuminated on your Power Distribution Module?
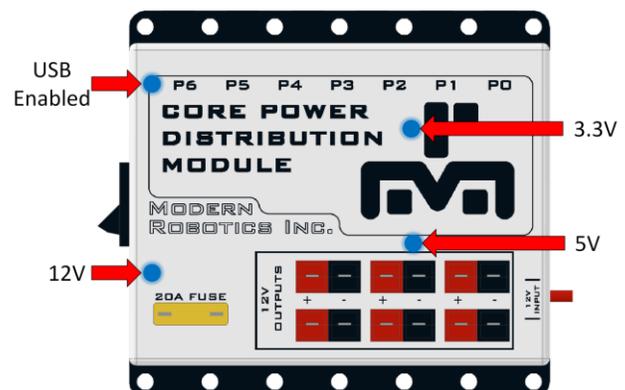
A1: 0 LEDs / Flickers

> *Continue to Q3.*

A2: 1 or 2 LEDs

> Use the Module Repair Service Form

A3: 3 LEDs

> *Continue to Q4.*

A4: 4 LEDs

> *Continue to Q5.*

Q3: Is your battery is charged, fuse(s) intact, and power switch(s) on? Be sure to check both the inline fuse on the battery and the fuse on the Power Distribution Module.

A1: No.

Charge battery, fix fuses, and turn on the robot.

A2: Yes.

Continue to QA.

QA: Is your Android device (phone) or computer on and connected to the Power Distribution module?

A1: No.

Connect the Power Module to a host Android device or computer.

A2: Yes.

Contact support@modernroboticsinc.com with Q4 A2.

Q4: Is your Android device (phone) or computer on and connected to the Power Distribution module?

A1: No.

Connect the Power Module to a host Android device or computer.

A2: Yes.

Contact support@modernroboticsinc.com with Q4 A2.

Q5: Do all connected Modern Robotics modules / controllers have LEDs illuminated?

A1: No.

Continue to Q6.

A2: Yes.

Continue to Q9.

Q6: Which module does not have any LEDs Illuminated?

A1: Servo Controller or Motor Controller.

Continue to Q7.

A2: Legacy Module or Device Interface.

Continue to Q8.

Q7: Do all motor and servo controllers have power provided from the Power Distribution Module through Anderson Power pole extension cables?

A1: No.

Provide power to your motor and servo controllers.

A2: Yes.

Continue to Q8.

Q8: Try switching the USB cable on the module without an LED illuminated with another cable that is working for another module. Now does the LED illuminate?

A1: Yes.

You have a broken USB cable which needs to be replaced.

A2: No.

Contact support@modernroboticsinc.com with Q8 A2.

Q9: Select the three dots in the top right of the robot controller and then select settings to create a new configuration file. Select scan. You may need to select scan two or three times. Do all the modules/controllers connected to your robot appear on the screen?

A1: Yes.

Finish configuring the file by entering the names for all sensors, servos, motors, and legacy equipment exactly as it is in your program.

A2: No.

Continue to Q10.

Q10: Go to modernroboticsinc.com/coredevicediscovery and follow the user guide through page four where it says to email the results of the test to Modern Robotics. Also say in that email that you have used this guide. How did it go?

A1: Some modules were discovered and we emailed results to support.

Modern Robotics will contact you.

A2: No devices appeared on our computer.

Be sure to notice the note about installing drivers on page 4.

A3: We do not have access to a computer which can run the Core Device Discovery.

We highly recommend using Core Device Discovery because it eliminates factors to create a controlled test. Modern Robotics may request this program before replacing modules.

Continue to Q11.

Q11: Identify which type(s) of controller is missing from the list. For example, if you have two motor controllers connected but only one appears on the screen, a motor controller is missing from the list. For the modules which are missing from the list, connect them directly to the phone one at a time using only the OTG cable. Continue to supply power to the servo and motor controllers through the Power Distribution Module and Anderson Powerpole extension cables. Can all modules be found when scanning for them on the driver station individually?

A1: Yes.

Contact support@modernroboticsinc.com with Q11 A1 and the serial number of your Power Distribution Module. Also tell support if you have replaced the Tamiya battery connector on the Power Distribution Module with Anderson Powerpoles or another connector.

A2: No.

Contact support@modernroboticsinc.com with Q11 A2 and the serial number of the module(s) which will not connect.