

Ready to play

Ready to play

Being ready to go early is a huge advantage, you get access to the practice field and practice matches. Here are some tips to help you breeze through the control system part of the inspection and make your robot easy to repair. This document was provided by CSA Laura Rhodes, FRC Team 100.

Follow robot rules carefully

- use correct wire sizes and colors
- power wiring should exactly match FRC supplied schematic
- one motor per speed controller (other than exceptions listed in R54/Table 4-4)
- motor circuits on the appropriately sized breakers
- one wire per Wago connector
- Robot radio powered through supplied regulator, connected to regulated 12V supply on the narrow end of the Power Distribution Board)
- Make sure lights that need to be visible are indeed visible (even after decorating robot)
- Make sure main breaker and manual pneumatic vent valves are easily accessible
- Hook up the Robot Signal Light and verify operation
- Mount cRIO and Axis 206 camera on non-conductive material

Robot electronics

- Verify that robot electronics are isolated from the frame (measure resistance between frame and each terminal of the robot side of the battery connector with the main breaker in the on position)
- Have a well-documented and up-to-date robot I/O list identifying the signal connections of all actuators and sensors. Bring a hardcopy of the documentation with you - ideally laminated and hung up in a prominent spot in the pits.
- Label EVERYTHING! - both ends of every signal cable, speed controllers and their function, motors with their functions, and use color-coded connectors and/or different colors of electrical tape to make wire reconnection following repairs quick and accurate

Be familiar with the control system components

Know how to:

- reconfigure the wired and wireless Ethernet ports on your laptop(s).
- re-image the cRIO, the wireless bridge and the Jaguars (if using CAN)

Ready to play

- download robot program to the cRIO (using the development environment of your chosen language).
- bring up the Driver's Station and understand the various tabs
- use the C:\Program Files\FRC Driver Station\Driver Station Log File Viewer.exe program

Have correct radio for competition

Have correct version radio (DAP1522 RevB).

To avoid any potential problems with WiFi interference make sure all computers that have ever been used for Driver's Station or robot programming that your team brings to competition have their WiFi ports turned off (even those still asleep in their cases).

Ask for help

Every FRC Competition has a Control System Advisor whose job it is to make sure that each team has electronics support. Many teams have experienced students and mentors who love the challenge of helping to track down what gremlins are playing havoc with your robot. Ask early to ensure your robot has the opportunity to get out to at least one of its practice rounds.

Be sure to use practice day

On regional events Thursday the FTA is willing to bend over backwards to make sure your robot connects to and works with the Field Management System. By Friday, his/her priority is to keep the competition running. The schedule might be different for district events, be aware of the schedule and be sure to make good use of the time at the event.

Have up to date software

- Stay up-to-date on Driver Station, WPILib, and cRIO firmware Image versions. Be ready to update the cRIO if required upon unbagging of the robot in the pits
- Use source code control to keep track of your robot application code changes. Commit often!! Make multiple backups in possession of more than one person.
- Keep a simplified version of the code and/or have a special test mode in your code to test for proper actuator and sensor connections.