

VRC easyC Programming Guide

Using easyC for Autonomous Competition Robots

1. Install or Upgrade to easyC version 2.9.3.x or easyC PRO version 3.1.3.x (or higher)
2. Update VEX controller Master Code to Version 8 or newer
3. Open a competition project (see below)
4. Begin Programming

Purchasing easyC

easyC version 2 and easyC PRO are available for purchase from www.vexrobotics.com under “Programming”.

Downloading and Updating easyC

The latest version of easyC V2 and easyC PRO can be downloaded from:

easyC V2 - www.intelitekdownloads.com/easyCV2

easyC PRO - www.intelitekdownloads.com/easyCPRO

Using easyC

easyC has many features that will enhance your programming experience. All the features are outlined in the easyC help file. There are six basic and six advanced tutorials that are included in the Getting Started portion of the help file. These tutorials show step by step examples of how easyC can be used. If you complete the tutorials you will gain a basic understanding of:

- Programming Motors for Operator Control
- Programming Motors and Sensors for Autonomous
- Dead Reckoning
- Line Following
- User Functions
- Global Variables and Constants
- Libraries
- Competition Templates

There are also several sample projects included with easyC to demonstrate how some of the features can be used. Please refer to the help file for all your questions. If you need further assistance, please consult our official technical support forum at www.vexforum.com or email us your questions to support@intelitek.com.

Troubleshooting – Many users experience problems due to setting in the Vex Transmitter. Please verify that the “Drive” option in the transmitter is set to 23 mode whenever you are using an RX command in your easyC project!

VEX Robotics Competition

The VEX Robotics Competition has three different challenges. In addition to the head-to-head VEX Robotics Competition Tournament, there is also a Programming Skills Challenge and a Robot Skills Challenge. The timing of the match varies for each of these:

1. The Tournament has 20 seconds of autonomous followed by 2 minutes of operator control.
2. The Programming Skills Challenge is 60 seconds of autonomous *only*.
3. The Robot Skills Challenge is 60 seconds of operator control *only*.

easyC Competition Projects

A “Competition Project” provides a standardized platform for teams to use when competing in an event. The project has two sections (functions), one for your Autonomous program and one for your Operator Control program. The Competition Project controls the duration of each of these matches and allows the competition field to begin each match. The duration of each Competition Project is set by the user for each challenge of the Vex Robotics Competition:

1. VRC Tournament – Autonomous (20), Operator Control (254)
2. VRC Programming Skills Challenge – Autonomous (60), Operator Control (0)
3. VRC Robot Skills Challenge – Autonomous (0), Operator Control (60)

If your team is using VEXnet (WIFI), use the following competition project durations for all three Vex Robotics Competition challenges:

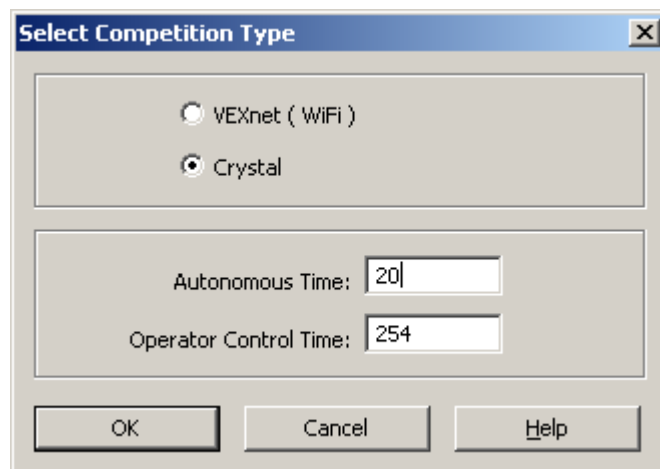
Wifi Field Control – Autonomous (0), Operator Control (0)

To Open a Competition Project:

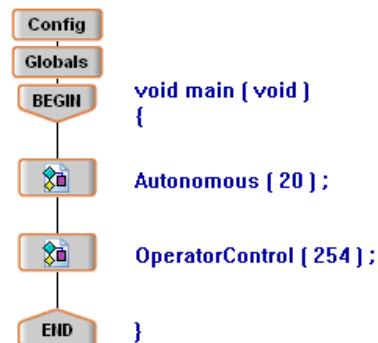
1. Select the File menu in easyC and Select New Competition Project.
2. Select VEXnet or Crystal and enter the appropriate durations for the challenge and select OK.

The Main Function will be displayed with two Function Blocks already defined. These Function Blocks refer to user functions that have been pre-defined for your use. The numbers in parentheses indicate the length of time of each period (in seconds).

Make sure you use the correct durations for the VRC challenge you are competing in!

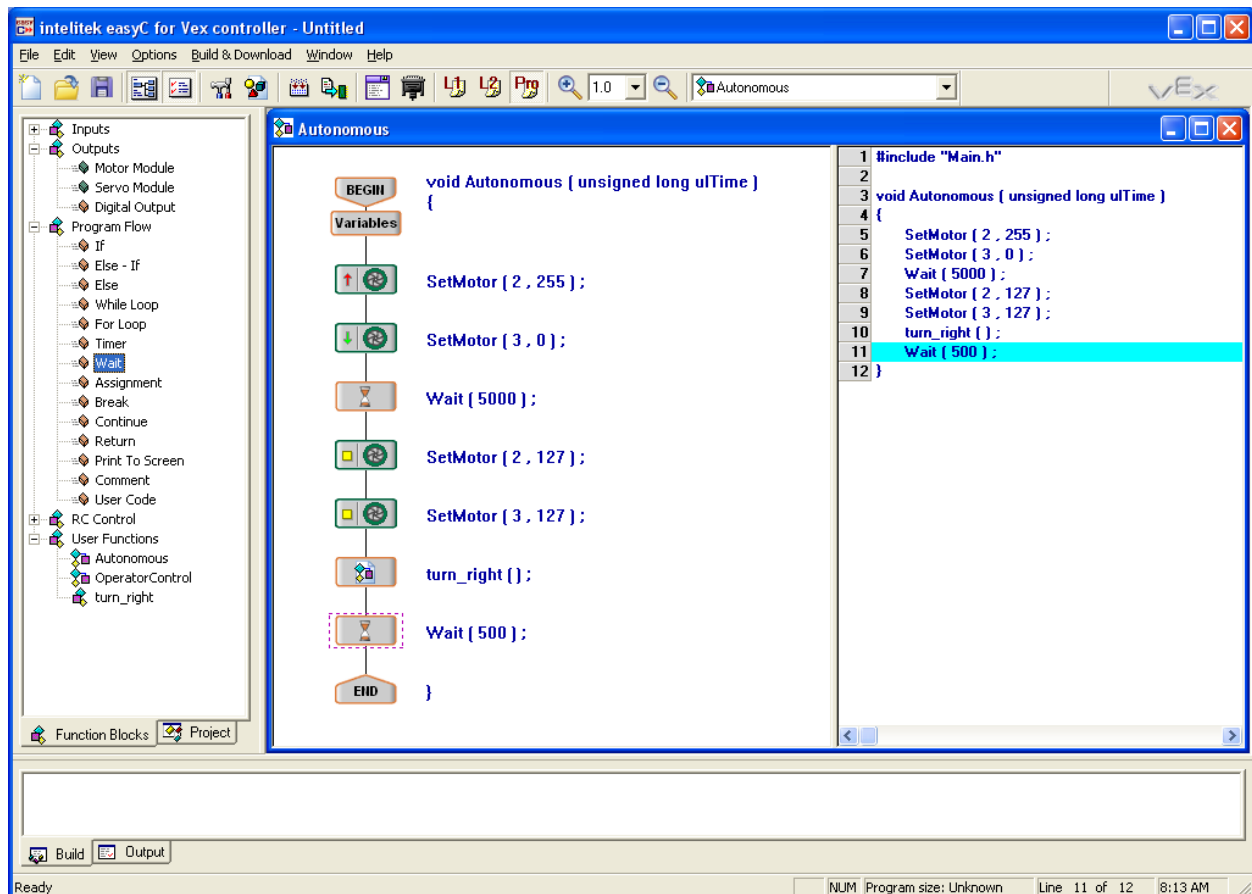


Note: The time of the Autonomous and Operator Control functions can be changed at any time. Click on “Select Competition Type” under the Options menu or double-click on the function name while viewing the Main function as shown.



Autonomous Mode

During the Autonomous Mode, the robot will move independently of operator controls for the defined length of time. The Autonomous period will begin when your robot receives a signal from your transmitter or the competition field. This is unlike a regular easyC project that would begin as soon as the robot's controller is turned on. Your robot will execute commands in the Autonomous section of your program until the time period elapses. During the autonomous portion of the competition project, any signals from the transmitters are ignored. This means that switching off your radio controller WILL NOT deactivate the Autonomous period or your robot. The orange eye on the controller will blink when the controller is in Autonomous Mode.

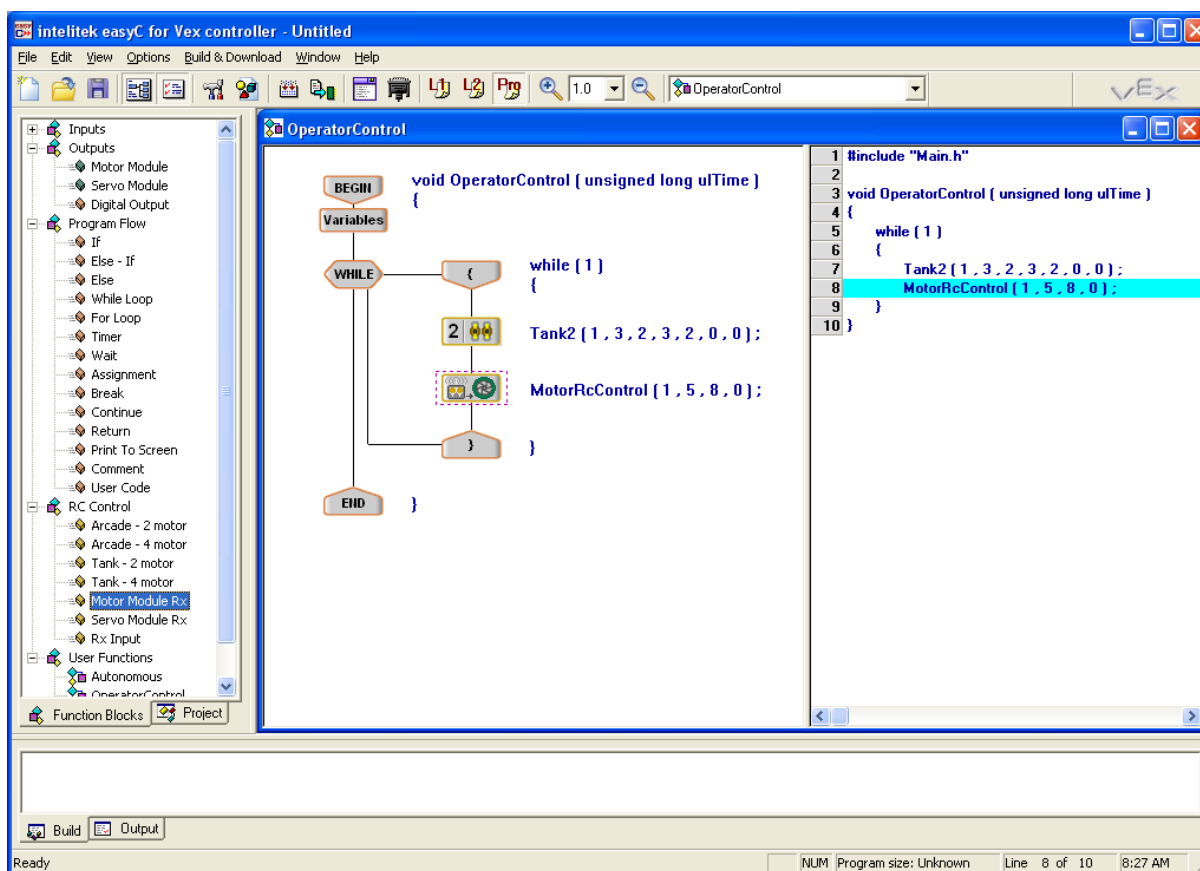


Note: When using the VRC Tournament Competition Project durations, a jumper clip must be placed in interrupt 5 to run ONLY the Autonomous portion of your program. NO jumper is required when you are using the VRC Programming Skills Challenge durations.

Operator Controlled Mode

Programming in the Operator Controlled Mode is very similar to programming in a normal project. Just like the Autonomous function, the OperatorControl function of the competition project does not contain any predefined instructions. However, you have the ability to communicate with your transmitter during the Operator Control period. You may add blocks from the RC Control group to control your robot. All of the RC Control function blocks are placed inside a While (1) loop in order to work properly.

Switching off your transmitter during the Operator Controlled period will stop your robot. If you turn your transmitter back on, your robot program will continue to execute until the allotted time expires. At the end of the allotted Operator Controlled period, your robot's program will stop automatically. The competition field control system will control the 2-minute duration of the Operator Control match.



Note: When using the VRC Tournament Competition durations, a jumper clip must be placed in interrupt 6 to run **ONLY** the Operator Control portion of your program. **NO** jumper is required when you are using the VRC Robot Skills durations.

On Field Robot Testing:

When you place your robot on the field for a VEX Robotics Competition Tournament match, you may be asked to verify your robot and transmitter are functioning properly. This is simply done by turning on your transmitter and moving your robot. Once this test is complete, your transmitter will be disabled until the start of the match.

You must turn off your robot controller and turn it back on to reinitialize the template before the start of the match.