

电机的进阶控制



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PRAT ONE

认识顺序结构

认识顺序结构

顺序结构

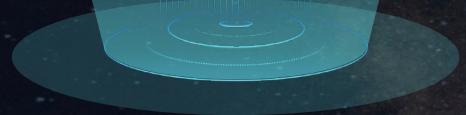
按从上到下，从前到后顺序执行，直到所有程序运行完毕为止。

顺序结构常用于自动中，按编写顺序执行。



顺序结构

PRAT TWO



控制机器人运动

控制机器人运动

The screenshot shows the VEXcode Pro V5 interface for a project named "motor". The left sidebar displays the project structure:

- include:
 - robot-config.h
 - vex.h
- src:
 - main.cpp
 - robot-config.cpp

The main editor window shows the content of `main.cpp`:

```
23 Motor1.spin(fwd, 100, pct);
24 wait(1000, msec);
25
26 Motor1.spin(fwd, -100, rpm);
27 wait(1000, msec);
28
29 Motor1.spin(fwd, 12.8, volt);
30 wait(1000, msec);
31
32 Motor1.stop(hold);
33 wait(1000, msec);
34
35 Motor1.setVelocity(100, pct);
36 Motor1.spinFor(fwd, 1000, deg);
37
38 Motor1.stop(coast);
39
40 }
41 }
```

The bottom panel contains an "Output" tab showing build logs:

```
119 [info]: download completed!
120 [info]: Saving Project ...
121 [info]: Project saved!
122 windows build for platform vexv5
123 "CXX src/main.cpp"
124 "LINK build/motor.elf"
125     text    data    bss    dec    hex filename
126     6948   1084 1063764 1071788 105aac build/motor.elf
127 [info]: build completed!
128 [info]: download
129 [info]: download completed!
130
```

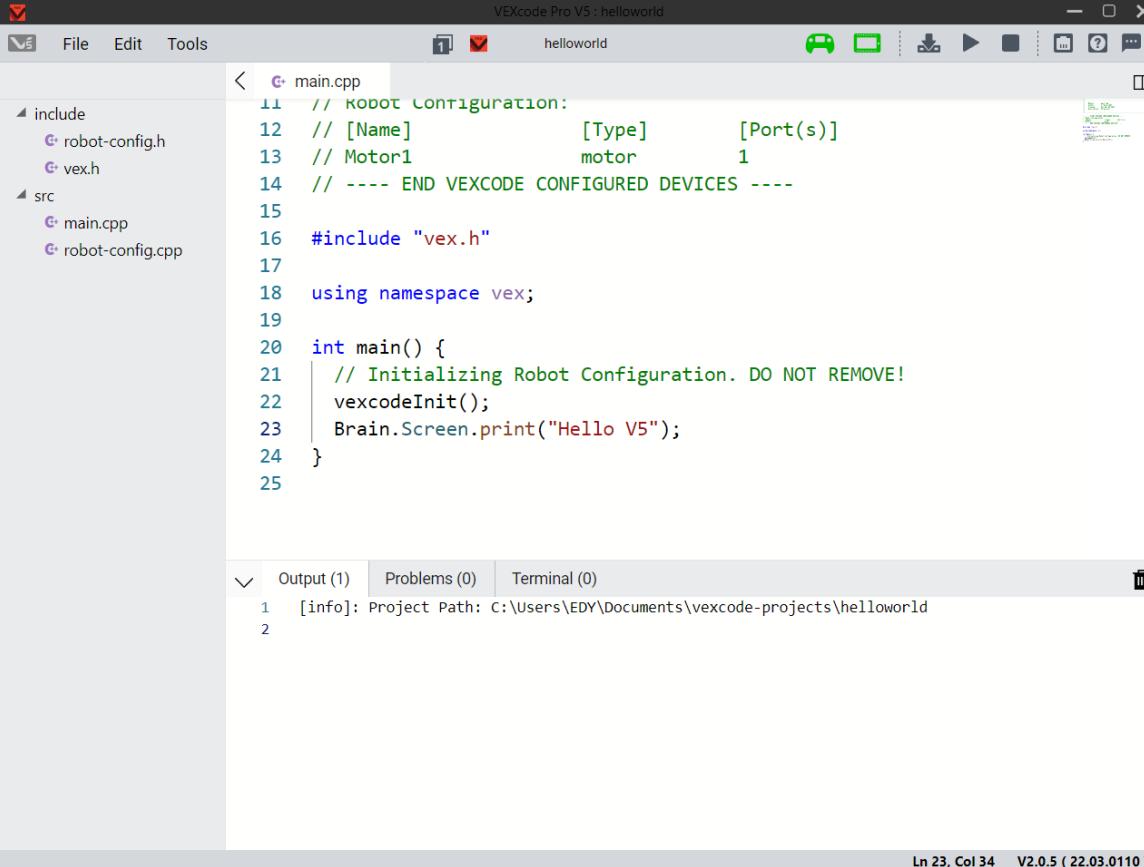
At the bottom right, the status bar indicates "Ln 35, Col 3" and "V2.0.5 (22.03.0110)".

电机运动程序

PRAT THREE

电机内置传感器
及主控屏幕显示

电机内置传感器及主控屏幕显示



VEXcode Pro V5 - helloworld

File Edit Tools helloworld

main.cpp

```
11 // ROBOT CONFIGURATION:  
12 // [Name]          [Type]      [Port(s)]  
13 // Motor1           motor       1  
14 // ---- END VEXCODE CONFIGURED DEVICES ----  
15  
16 #include "vex.h"  
17  
18 using namespace vex;  
19  
20 int main() {  
21     // Initializing Robot Configuration. DO NOT REMOVE!  
22     vexcodeInit();  
23     Brain.Screen.print("Hello V5");  
24 }  
25
```

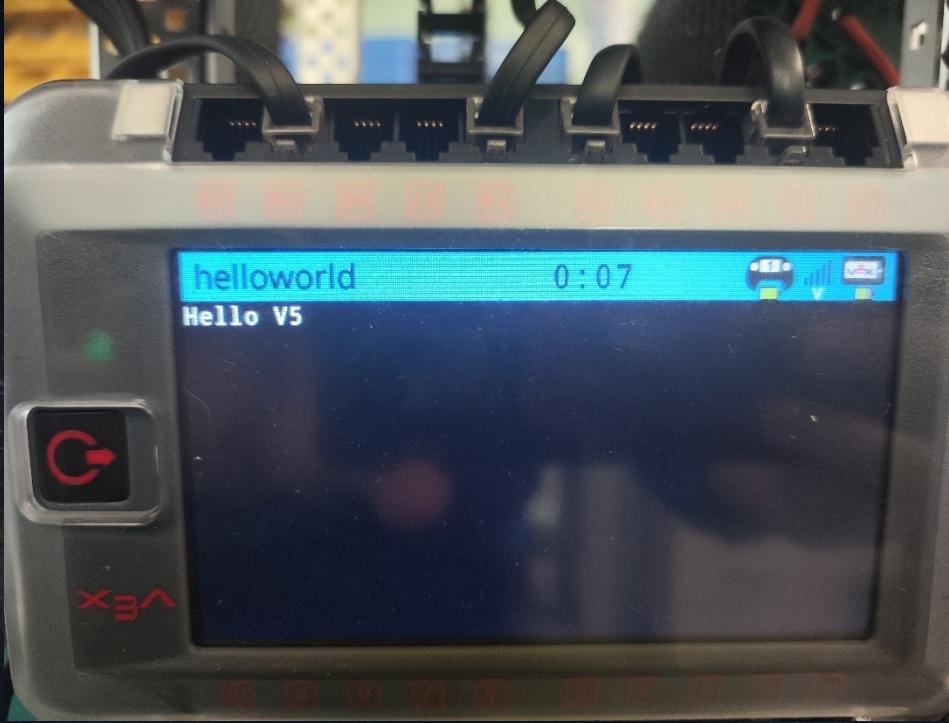
Output (1) Problems (0) Terminal (0)

[info]: Project Path: C:\Users\EDY\Documents\vexcode-projects\helloworld

Ln 23, Col 34 V2.0.5 (22.03.0110)

屏幕显示程序

电机内置传感器及主控屏幕显示



屏幕显示效果

电机内置传感器及主控屏幕显示

The screenshot shows the VEXcode Pro V5 IDE interface. The left sidebar displays project files under 'include' (robot-config.h, vex.h) and 'src' (main.cpp, robot-config.cpp). The main code editor window shows the following C++ code:

```
File Edit Tools
VEXcode Pro V5 : helloworld
main.cpp
11 // ROBOT CONFIGURATION:
12 // [Name]           [Type]      [Port(s)]
13 // Motor1           motor       1
14 // ---- END VEXCODE CONFIGURED DEVICES -----
15
16 #include "vex.h"
17
18 using namespace vex;
19
20 int main() {
21     // Initializing Robot Configuration. DO NOT REMOVE!
22     vexcodeInit();
23     Brain.Screen.printAt(100,100,"Hello V5");
24 }
25
```

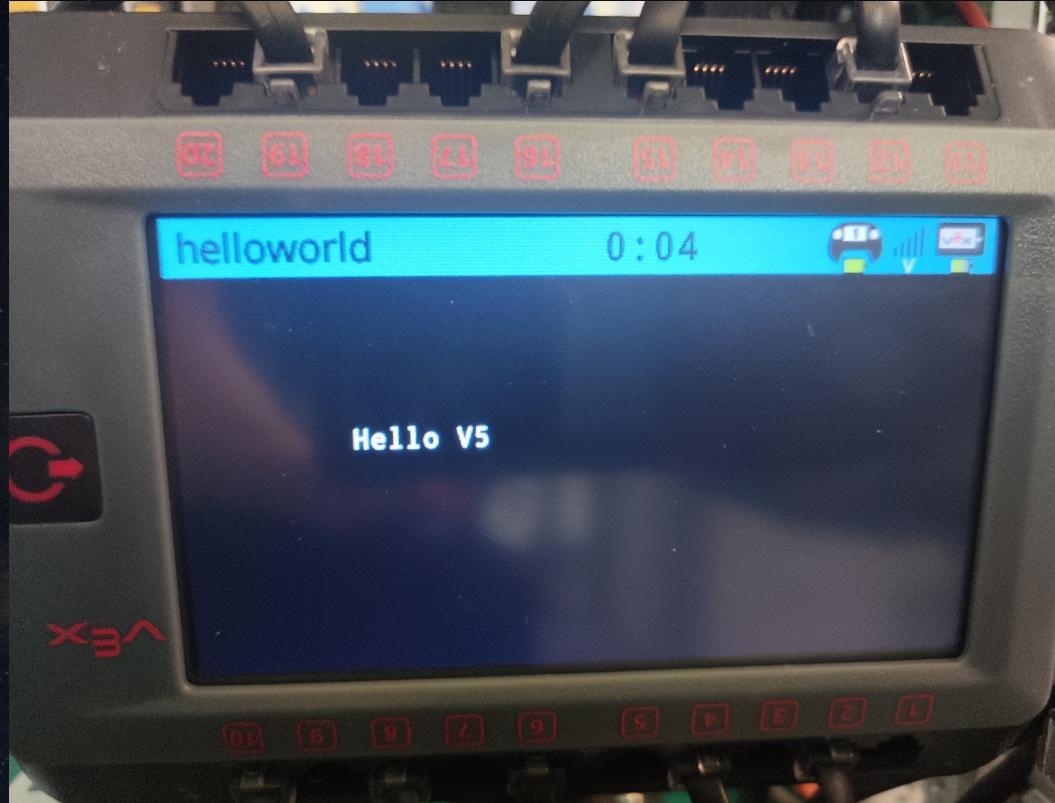
The bottom output panel shows build logs:

```
Output (20) Problems (0) Terminal (0)
10 [info]: download completed!
11 [info]: Saving Project ...
12 [info]: Project saved!
13 windows build for platform vexv5
14 "CXX src/main.cpp"
15 "LINK build/helloworld.elf"
16   text    data    bss    dec    hex filename
17   5236    1092  1063764 1070092  10540c build/helloworld.elf
18 [info]: build completed!
19 [info]: download
20 [info]: download completed!
```

Bottom status bar: Ln 23, Col 44 V2.0.5 (22.03.0110)

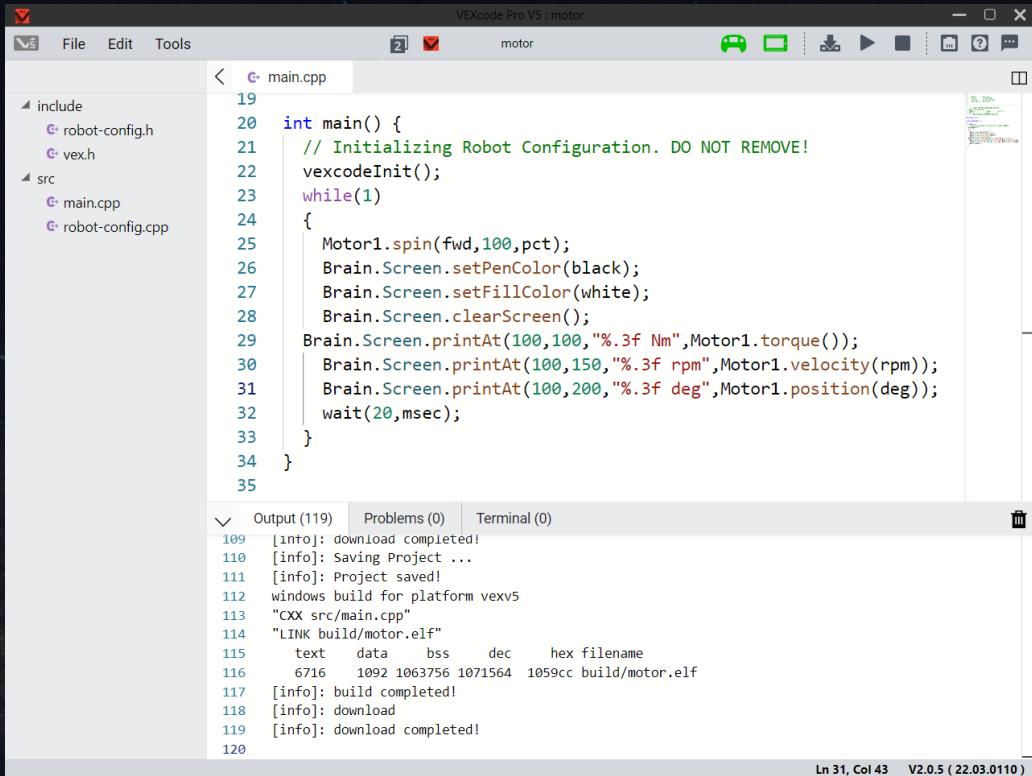
指定位置显示程序

电机内置传感器及主控屏幕显示



指定位置显示效果

电机内置传感器及主控屏幕显示



The screenshot shows the VEXcode Pro V5 software interface. The main window title is "VEXcode Pro V5 : motor". The left sidebar shows project files: include (robot-config.h, vex.h), src (main.cpp, robot-config.cpp). The central code editor displays "main.cpp" with the following content:

```
19
20 int main() {
21     // Initializing Robot Configuration. DO NOT REMOVE!
22     vexcodeInit();
23     while(1)
24     {
25         Motor1.spin(fwd,100,pct);
26         Brain.Screen.setPenColor(black);
27         Brain.Screen.setFillColor(white);
28         Brain.Screen.clearScreen();
29         Brain.Screen.printAt(100,100,"%3f Nm",Motor1.torque());
30         Brain.Screen.printAt(100,150,"%3f rpm",Motor1.velocity(rpm));
31         Brain.Screen.printAt(100,200,"%3f deg",Motor1.position(deg));
32         wait(20,msec);
33     }
34 }
```

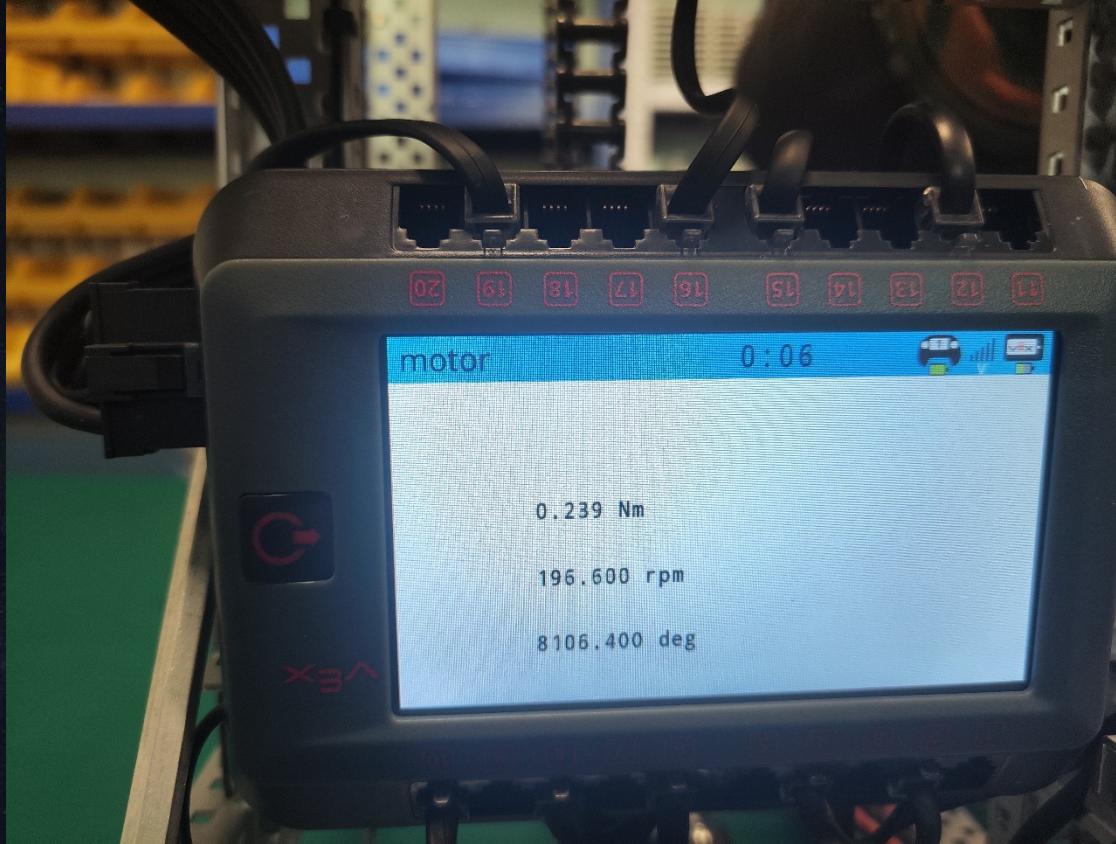
The bottom panel shows the "Output" tab with the following log entries:

```
109 [info]: download completed!
110 [info]: Saving Project ...
111 [info]: Project saved!
112 windows build for platform vexv5
113 "CXX src/main.cpp"
114 "LINK build/motor.elf"
115   text    data    bss    dec    hex filename
116   6716    1092  1063756  1071564  1059cc build/motor.elf
117 [info]: build completed!
118 [info]: download
119 [info]: download completed!
```

At the bottom right, the status bar displays "Ln 31, Col 43 V2.0.5 (22.03.0110)".

电机传感器显示程序

电机内置传感器及主控屏幕显示

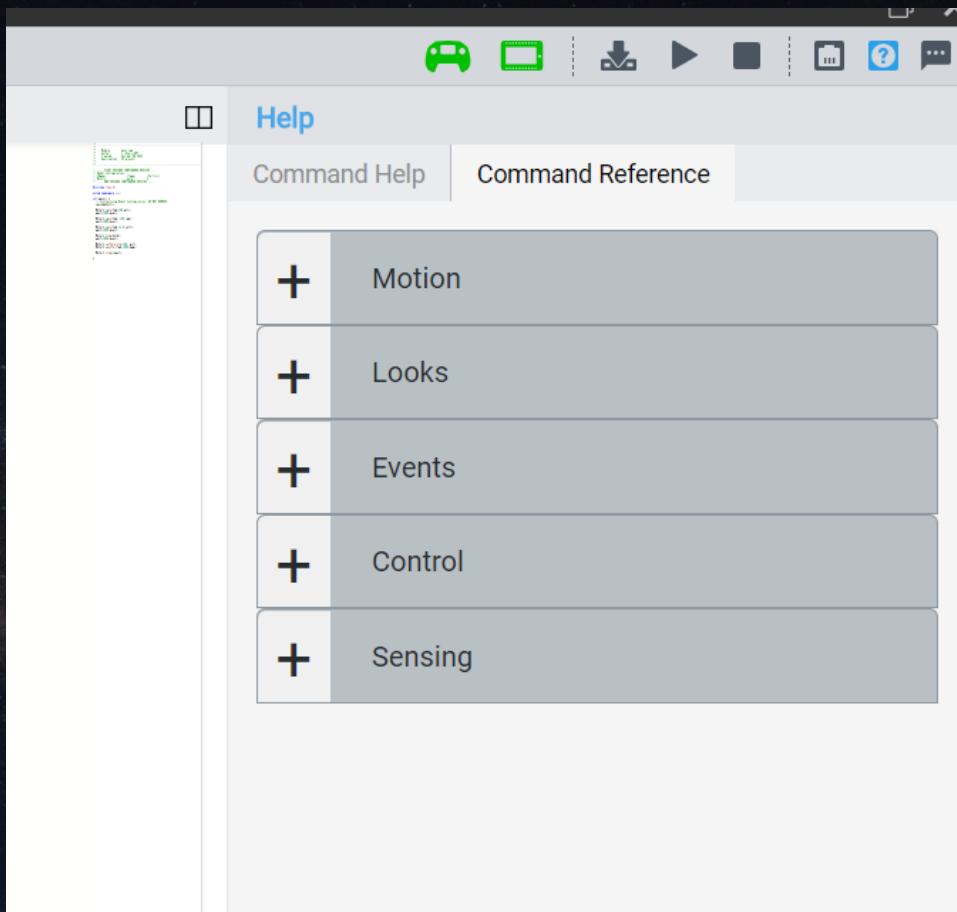


电机传感器显示效果

PRAT FOUR

软件进阶

软件进阶



代码参考界面

软件进阶

The screenshot shows the VEXcode Pro V5 interface with the project 'motor-2023-04-09T06-54-09'. The main window displays the 'main.cpp' file:

```
24 Motor1.spin(fwd,100,pct);
25 wait(1000,msec);
26
27 Motor1.spin(fwd,-100,rpm);
28 wait(1000,msec);
29
30 Motor1.spin(fwd,12.8,volt);
31 wait(1000,msec);
32
33 Motor1.stop(hold);
34 wait(1000,msec);
35
36 Motor1.setVelocity(100, pct);
37 Motor1.spinFor(fwd,1000,deg);
38
39 Motor1.stop(coast);
40
41 }
42
```

The code editor has syntax highlighting for C++ and VEXcode-specific commands. A search dialog is open in the top right corner, showing the search term 'Motor1'.

The bottom pane shows the build output:

```
124 "LINK build/motor.elf"
125   text    data    bss    dec   hex filename
126   6940    1084 1063764 1071788 105aac build/motor.elf
127 [info]: build completed!
128 [info]: download
129 [info]: download completed!
130 [info]: Saving Project ...
131 [info]: Project saved!
132 [info]: Project Saved at D:\办公\课程\VRC入门课程\电机的进阶控制\motor-2023-04-09T06-54-09
133 [info]: opening : D:\办公\课程\VRC入门课程\电机的进阶控制\motor-2023-04-09T06-54-09/motor-2023-04-09T06-54-09.v5code
134 [info]: Project Path: D:\办公\课程\VRC入门课程\电机的进阶控制\motor-2023-04-09T06-54-09
135
```

At the bottom right, there are language and font size selection buttons.

代码查找

作 业

C l i c k o n t h e I n p u t T i t l e

查看命令指南，自学3个课上没有讲过的电机语句，翻译其功能（可使用翻译工具）。



THANKS

• * * 科 技 发 展 有 限 公 司 •



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