



IQS7222C Arduino Example Code



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Introduction

This Arduino example code demonstrates how to set up and use the IQS7222C Integrated Circuit (IC). The IQS7222C is a 10 Channel Mutual / 8 Channel Self-capacitive and inductive Touch and Proximity Controller with I2C communications interface, configurable GPIOs, and low-power options.

This example code is specifically aimed at the IQS7222C Evaluation Kit (PCB number AZP1192A2).

This example code is intended for an Arduino Compatible board that uses 3.3 V logic, such as [Sparkfun's Pro Micro \(3.3V, 8 MHz\)](#). If a 5V logic Arduino board is used, a logic-level translator will be required between the Arduino-based board and the IQS7222C.



Arduino Code Configuration

The behaviour and pin assignments of the Arduino code can be configured with the `#define` settings at the start of `iqs7222c-example-code.ino`.

Change the following pin assignments and parameters to suit your hardware:

```
/** Defines */  
#define DEMO_IQS7222C_ADDR          0x44  
#define DEMO_IQS7222C_POWER_PIN    4  
#define DEMO_IQS7222C_RDY_PIN      7
```

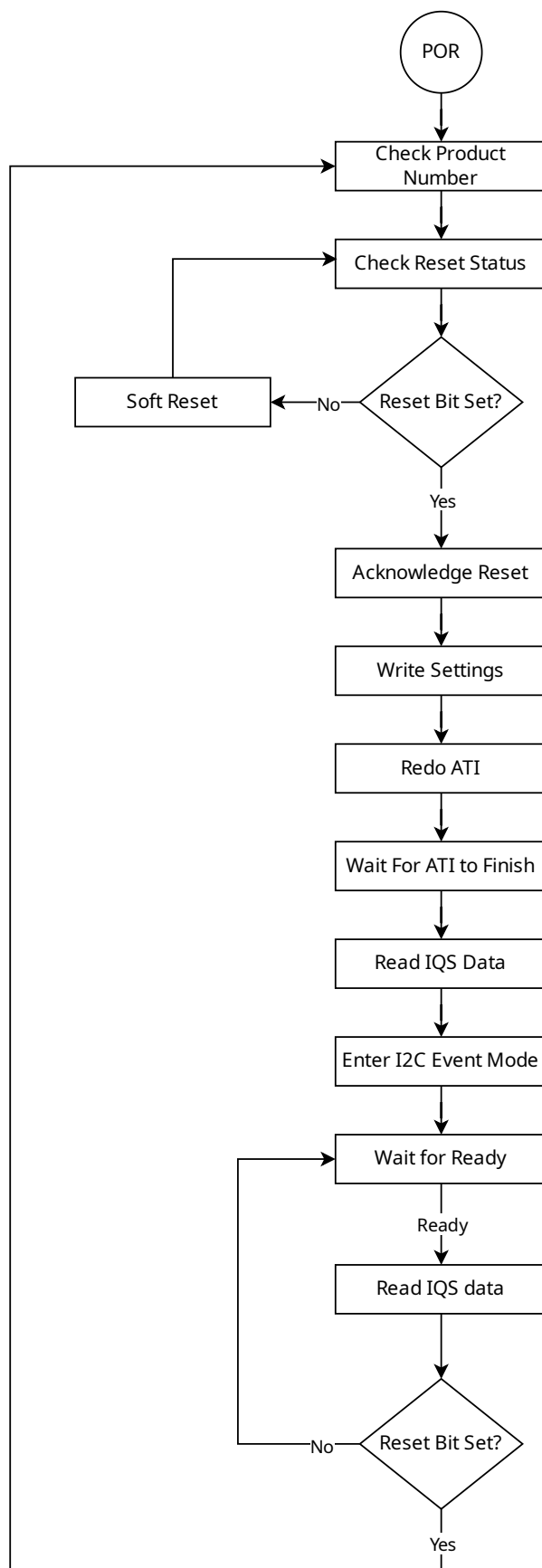
- `DEMO_IQS7222C_ADDR` is the IQS7222C I2C Slave address. For more information, refer to the datasheet and application notes found on the [IQS7222C Product Page](#).
- `DEMO_IQS7222C_POWER_PIN` can be used to power the IQS7222C directly from an Arduino GPIO. This parameter sets which pin to use. This is an optional setting and can be removed if the IQS7222C is powered from the VCC pin or an external power supply.
- `DEMO_IQS7222C_RDY_PIN` sets the pin assignment for the IQS7222C ready pin. This must support external interrupts. On the Sparkfun Pro Micro, pins 0, 1, 2, 3, and 7 support interrupts.



Please note that powering an IQS device directly from a GPIO is *generally* not recommended. However, the `DEMO_IQS7222C_POWER_PIN` in this example could be used as an enable input to a voltage regulator.



Example Code Flow Diagram





Sparkfun Board Library Installation

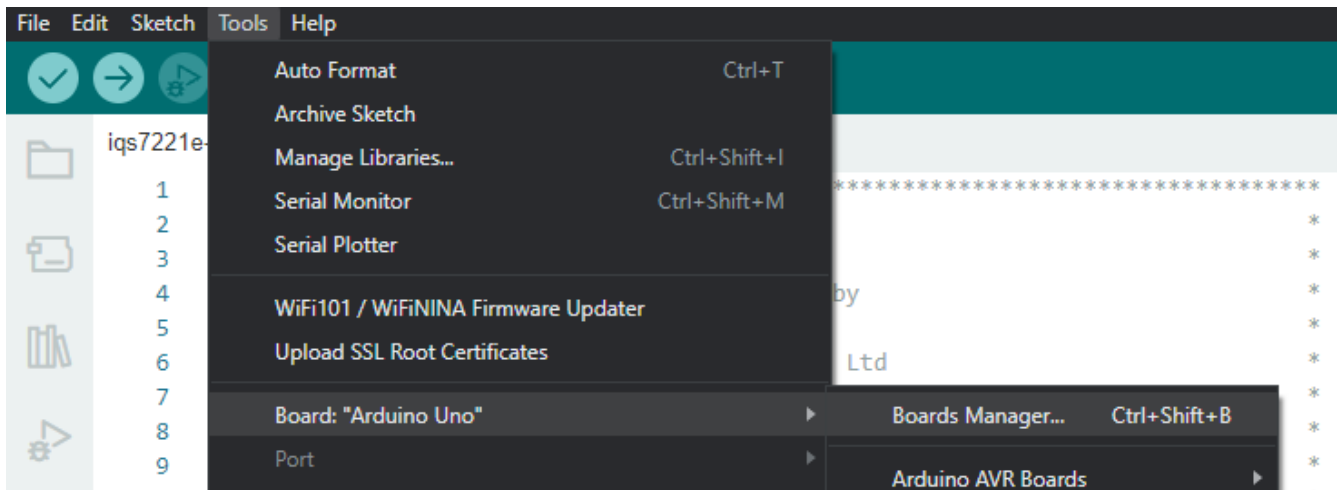
To use the Sparkfun Pro Micro, the Sparkfun Board Library must be installed in the Arduino IDE.

Add the Sparkfun Board Library by opening Preferences (**File > Preferences**), and paste the following URL into the "Additional Board Manager URLs" text box.

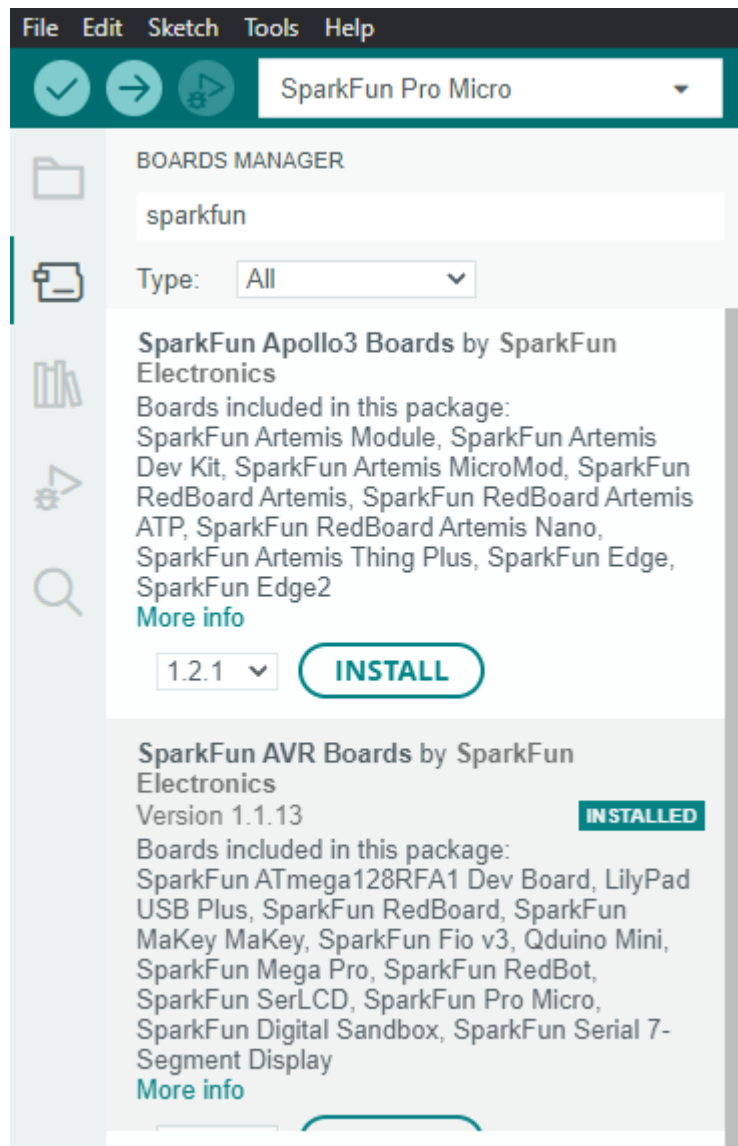
```
https://raw.githubusercontent.com/sparkfun/Arduino_Boards/master/IDE_Board_Manager/package_sparkfun_index.json
```

The screenshot shows the 'Preferences' dialog box in the Arduino IDE, with the 'Settings' tab selected. The 'Sketchbook location' is set to 'c:\Azoteq\Arduino'. The 'Editor font size' is 14. The 'Interface scale' is set to 'Automatic' at 100%. The 'Theme' is 'Light (Arduino)'. The 'Language' is 'English'. The 'Show verbose output during' section has 'compile' and 'upload' checkboxes. The 'Compiler warnings' are set to 'None'. The 'Verify code after upload' checkbox is unchecked, 'Auto save' is checked, and 'Editor Quick Suggestions' is unchecked. The 'Additional boards manager URLs' field contains the URL 'https://raw.githubusercontent.com/sparkfun/Arduino_Boards/master/IDE_Board_'. The 'BROWSE' button is next to the URL field. The 'CANCEL' and 'OK' buttons are at the bottom right.

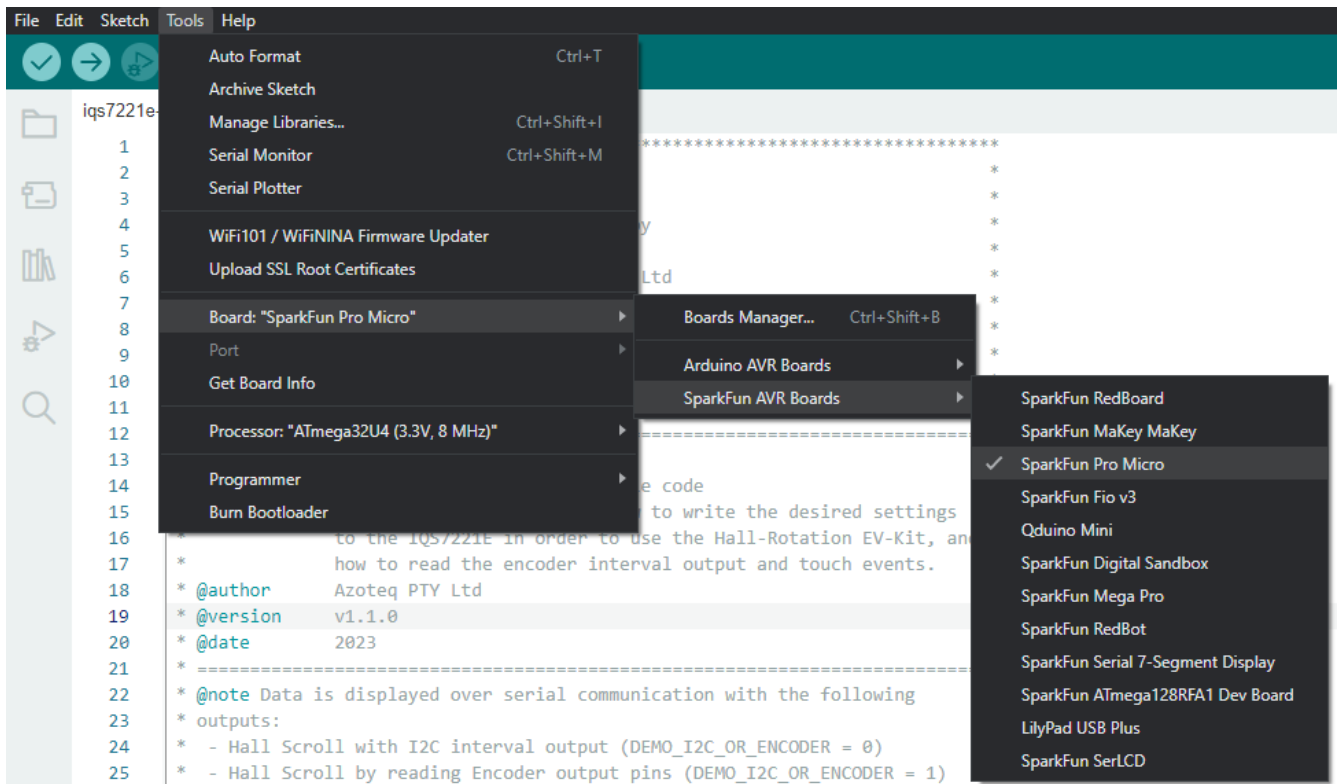
Click "OK". Then open the Board Manager under **Tools > Board > Boards Manager....**



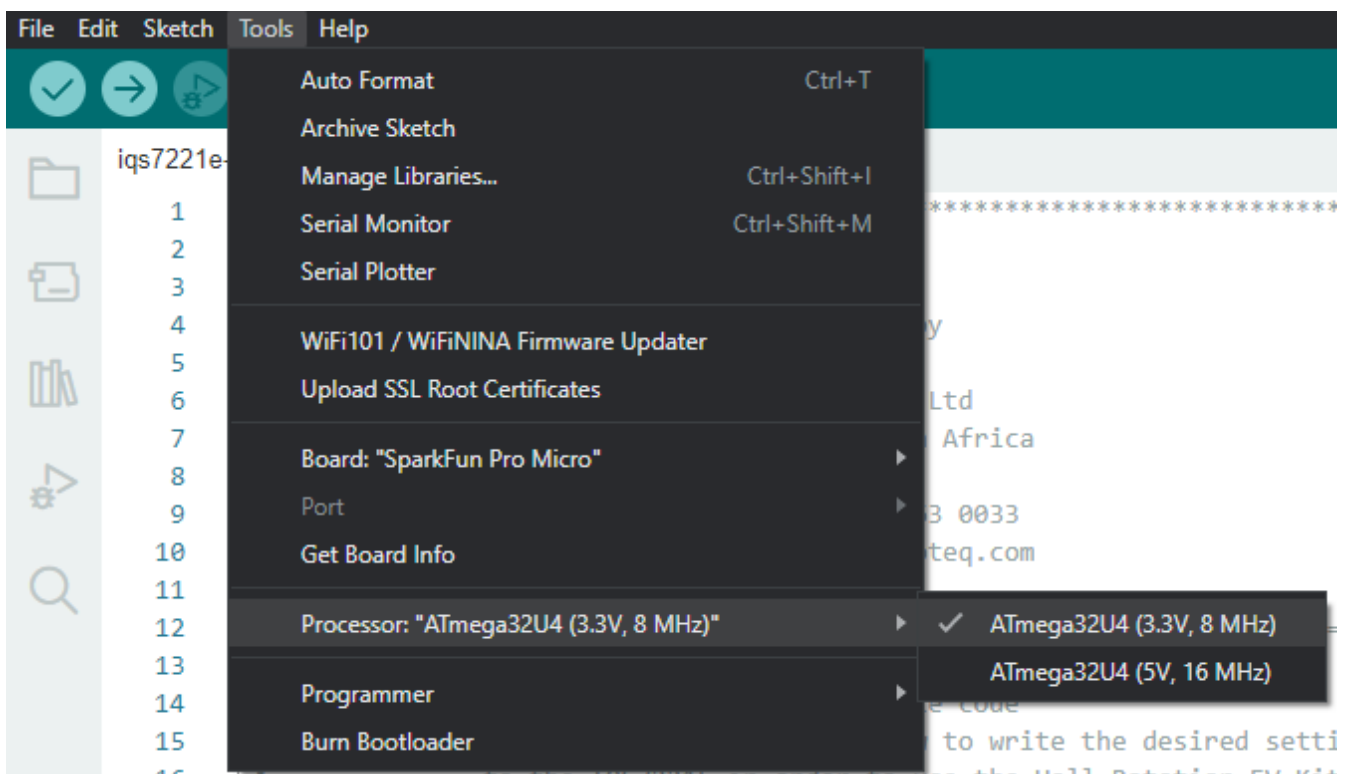
Search for "sparkfun", and install "SparkFun AVR Boards by SparkFun".



You can now select the "SparkFun Pro Micro" in the Board selection menu.



Also be sure to select the "3.3 V, 8 MHz" version under Tools > Processor.



Source: [Pro Micro Hookup Guide](#)



Serial Communication and Interface

The example code provides verbose serial feedback to aid in the demonstration of start-up and operational functions. It also has two built-in commands to demonstrate the IQS7222C's functionality. To use these built-in commands, the Arduino code simply sends an 'f' or 'r' over the serial interface.

1 - "f\n" - Force open a communication(RDY) window

2 - "r\n" - Request a Software Reset during runtime

It is important to take note of the newline ("\n") character that is needed to complete any serial request. It can be activated in the built-in Arduino IDE Serial monitor and is shown inside the blue rectangle in the figure below.

```
Start Serial communication
IQS7222C Ready
IQS7222C Initialization:
  IQS7222C_INIT_VERIFY_PRODUCT
    Product number is: 863 v2.6
    IQS7222C Release UI Confirmed!
  IQS7222C_INIT_READ_RESET
    Reset event occurred.
  IQS7222C_INIT_UPDATE_SETTINGS
    1. Write Cycle Settings
    2. Write Global Cycle Settings
    3. Write Button Settings 0 - 4
    4. Write Button Settings 5 - 9
    5. Write Channel 0 Settings
    6. Write Channel 1 Settings
    7. Write Channel 2 Settings
    8. Write Channel 3 Settings
    9. Write Channel 4 Settings
    10. Write Channel 5 Settings
    11. Write Channel 6 Settings
    12. Write Channel 7 Settings
    13. Write Channel 8 Settings
    14. Write Channel 9 Settings
    15. Write Filter Betas
    16. Slider/Wheel 0 Settings
    17. Slider/Wheel 1 Settings
    18. GPIO 0 Settings
    19. System Settings
    20. GPIO Override
    21. Communication Timeout
  IQS7222C_INIT_ACK_RESET
  IQS7222C_INIT_ATI
  IQS7222C_INIT_WAIT_FOR_ATI
    DONE
  IQS7222C_INIT_READ_DATA
  IQS7222C_INIT_ACTIVATE_STREAM_IN_TOUCH_MODE
  IQS7222C_INIT_DONE
IQS7222C Initialization complete!
```

☒ Autoscroll ☐ Show timestamp **Newline** 115200 baud Clear output