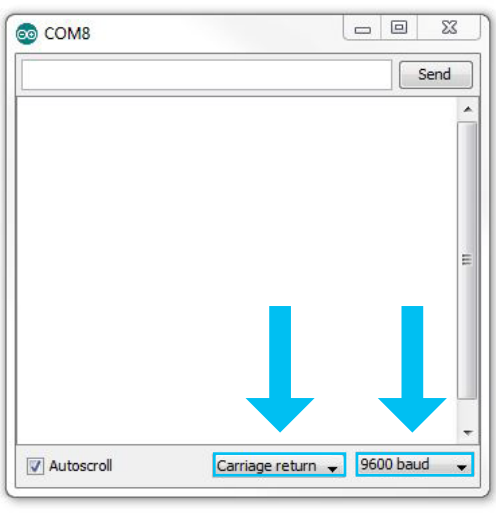
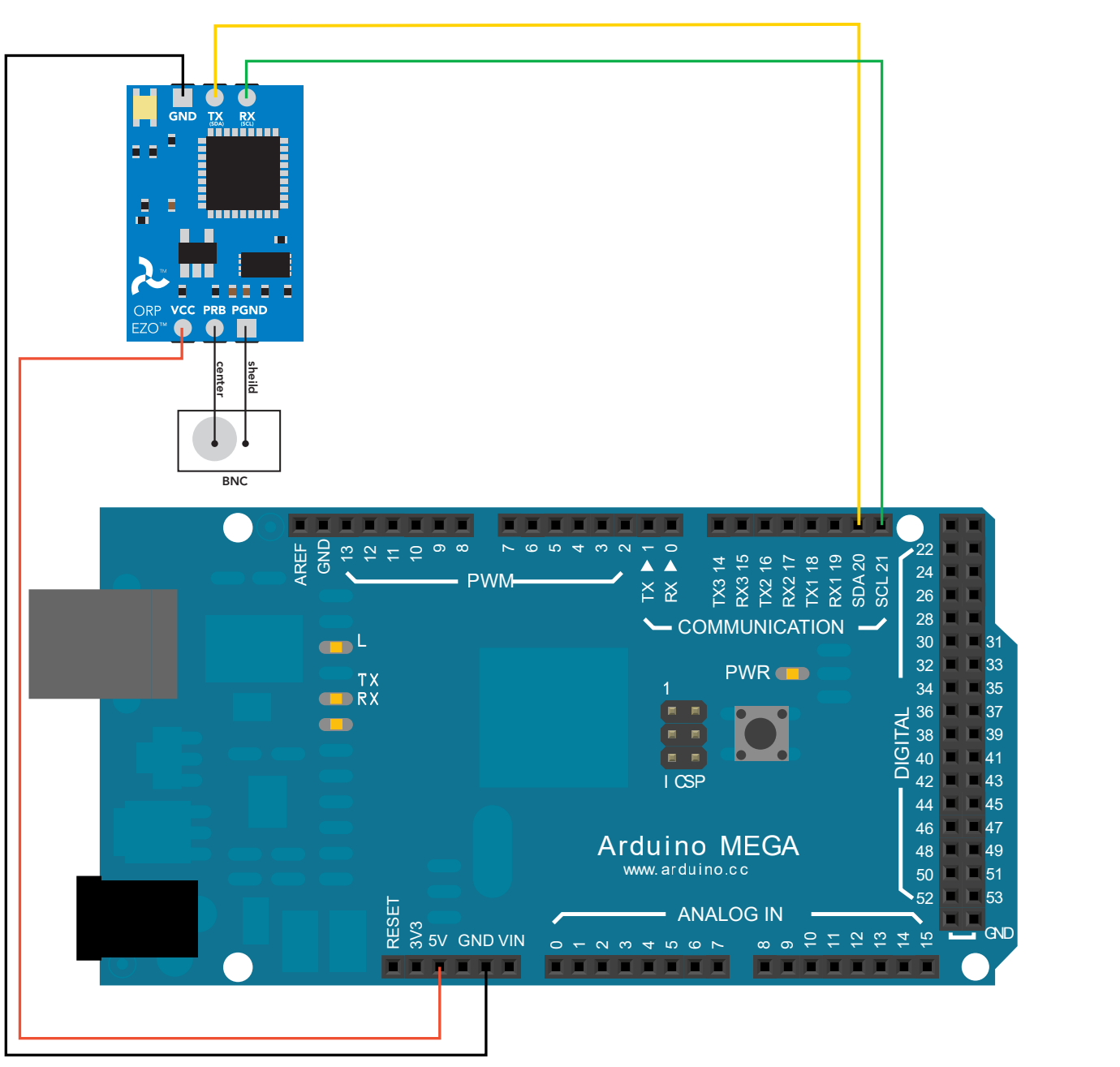
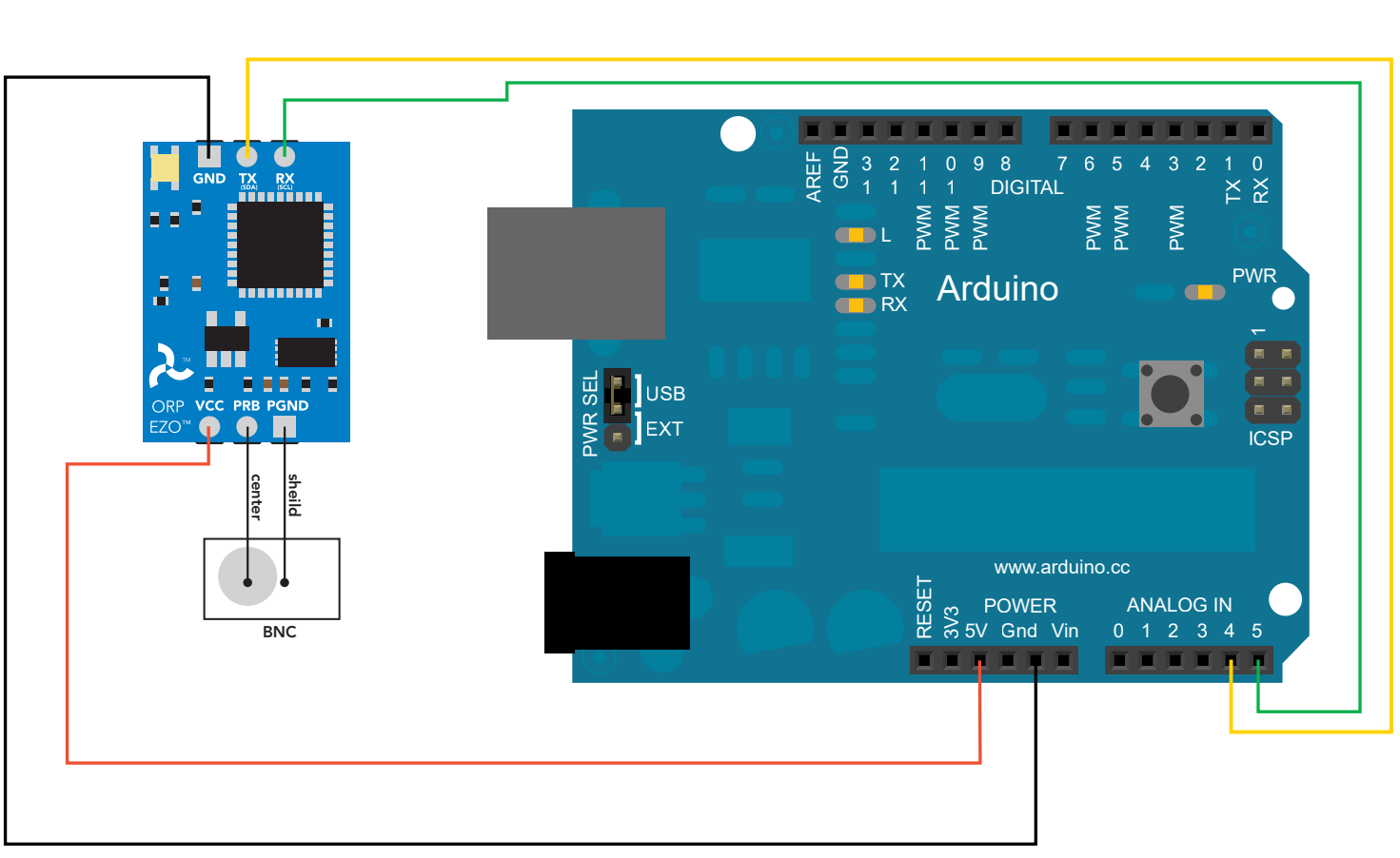
I²C ORP Sample Code








```
//**THIS CODE WILL WORK ON ANY ARDUINO**
//This code has intentionally has been written to be overly lengthy and includes unnecessary steps.
//Many parts of this code can be truncated. This code was written to be easy to understand.
//Code efficiency was not considered. Modify this code as you see fit.
//This code will output data to the Arduino serial monitor. Type commands into the Arduino serial monitor to control the EZO ORP Circuit in I²C mode.
```

```
#include <Wire.h>                 //enable I²C.
#define address 98                //default I²C ID number for EZO ORP Circuit.


char computerdata[20];            //we make a 20 byte character array to hold incoming data from a pc/mac/other.
byte received_from_computer=0;    //we need to know how many characters have been received.
byte serial_event=0;              //a flag to signal when data has been received from the pc/mac/other.
byte code=0;                      //used to hold the I²C response code.
char ORP_data[20];                //we make a 48 byte character array to hold incoming data from the ORP circuit.
byte in_char=0;                   //used as a 1 byte buffer to store in bound bytes from the ORP Circuit.
byte i=0;                         //counter used for ORP_data array.
int time_=1800;                   //used to change the delay needed depending on the command sent to the EZO Class ORP Circuit.
float ORP_float;                  //float var used to hold the float value of the ORP.


void setup()                      //hardware initialization.
{
  Serial.begin(9600);             //enable serial port.
  Wire.begin();                   //enable I²C port.
}


void serialEvent(){               //this interrupt will trigger when the data coming from
          received_from_computer=Serial.readBytesUntil(13,computerdata,20);  //the serial monitor(pc/mac/other) is received.
          computerdata[received_from_computer]=0;                            //we read the data sent from the serial monitor
          serial_event=1;                                                    //(pc/mac/other) until we see a <CR>. We also count
         }                                                                   //how many characters have been received.
                                                                             //stop the buffer from transmitting leftovers or garbage.


void loop(){                                  //the main loop.

  if(serial_event){                           //if the serial_event=1.
       if(computerdata[0]=='c'||computerdata[0]=='r')time_=1800;  //if a command has been sent to calibrate or take a reading we
      else time_=300;                         //wait 1800ms so that the circuit has time to take the reading.
                                              //if any other command has been sent we wait only 300ms.


    Wire.beginTransmission(address);          //call the circuit by its ID number.
    Wire.write(computerdata);                 //transmit the command that was sent through the serial port.
    Wire.endTransmission();                   //end the I²C data transmission.


    delay(time_);                             //wait the correct amount of time for the circuit to complete its instruction.

    Wire.requestFrom(address,20,1);           //call the circuit and request 20 bytes (this is more than we need)
    code=Wire.read();                         //the first byte is the response code, we read this separately.


    switch (code){                            //switch case based on what the response code is.
      case 1:                                 //decimal 1.
        Serial.println("Success");            //means the command was successful.
      break;                                  //exits the switch case.

      case 2:                                 //decimal 2.
        Serial.println("Failed");             //means the command has failed.
      break;                                  //exits the switch case.

      case 254:                               //decimal 254
        Serial.println("Pending");            //means the command has not yet been finished calculating.
      break;                                  //exits the switch case.

      case 255:                               //decimal 255.
        Serial.println("No Data");            //means there is no further data to send.
      break;                                  //exits the switch case.
     }


    while(Wire.available()){                  //are there bytes to receive.
     in_char = Wire.read();                   //receive a byte.
     ORP_data[i]= in_char;                    //load this byte into our array.
     i+=1;                                    //incur the counter for the array element.
     if(in_char==0){                          //if we see that we have been sent a null command.
         Wire.endTransmission();              //reset the counter i to 0.
         break;                               //end the I²C data transmission.
         }                                    //exit the while loop.
     }


    Serial.println(ORP_data);                 //print the data.
    serial_event=0;                           //reset the serial event flag.
     }
}


//Uncomment this section if you want to take the ORP value and convert it into floating point number.
    /*
    ORP_float=atof(ORP_data);
    */
  }
```

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