



slide-33

Timelapse slider controlled by an Android phone with a Bluetooth/Arduino

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★ Setting_Up_A_MX28

program a MX-28 servo ID and/or Baud rate

Updated Apr 23, 2013 by [j...@teda.id.au](#)

Introduction

This is a overview of how to program a MX-28 servo ID and/or Baud rate

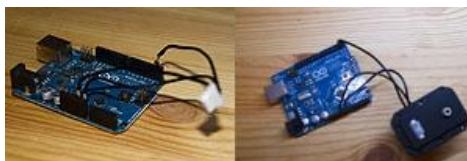
Items

- Arduino, for this wiki we will use a Arduino UNO
- MX-28 servo
- Adapter cable, this is to connect the MX-28 servo to the Arduino
- 12 volt(direct current) power supply (*item not shown in image below*)



Details

- **Task 1 :**
Download the [Dynamixel_serial library](#) which is found in the download section
- **Task 2 :**
Connect the MX-28 "VDD" pin to the Arduino "Vin" pin
connect the MX-28 "GND" pin to the Arduino "Gnd" pin
connect the MX-28 "data" pin to the Arduino "TX" pin (Also know as pin 1)



- **Task 3 :**
program the Ardunio with the following sketch

```
/* This is a setup sketch for only one MX-28 connected and it is used to set ID and Baudrate of the Dynamixal
```

Connection of Dynamixel to Arduino

=====You do not need a half to full duplex circuit if you do not wish to receive AN

```

MX-28 (Pin)          Arduino (Pin)
=====
VDD (2)  ----- VIN (Power VIN)
DATA(3)  ----- TX (Pin 1)
=====GND (1) ----- GND (Power GND)

```

With the 3 wires connected as above and the Arduino programmed with this sketch connect a 12Vdc to the DC in of the (CAUTION! This power supply must not be greater than +14.8Vdc as this is the supply that powers the Dynamixel). Wait about a ONE minute and if successfully the Dynamixel should start to move with its LED turning ON and OFF.

Robotis e-Manual (<http://support.robotis.com>)

*/

```

#include <Dynamixel_Serial.h>          // Library needed to control Dynamixel servo

#define SERVO_ID 0x01                  // ID of which we will set Dynamixel too
#define SERVO_ControlPin 0x02          // Control pin of buffer chip, NOTE: this does not matter because we are not
#define SERVO_SET_Baudrate 100000      // Baud rate speed which the Dynamixel will be set too (1Mbps)
#define LED13 0x0D                     // Pin of Visual indication for running "heart beat" using onboard LED

void setup(){
    pinMode(LED13, OUTPUT);             // Pin setup for Visual indication of running (heart beat) program using onboard
    digitalWrite(LED13, HIGH);

    delay(1000);                        // Give time for Dynamixel to start on power-up

    for (int b=1; b<0xFF; b++){         // This "for" loop will take about 20 sec to complete
        long Baudrate_BPS = 0;
        Baudrate_BPS = 2000000 / (b + 1); // calculate Baudrate as per "Robotis e-manual"
        Dynamixel.begin(Baudrate_BPS, SERVO_ControlPin); // Set Arduino Serial speed and control pin
        Dynamixel.reset(0xFE);          // Broadcast to all Dynamixel IDs(0xFE is the ID for
        delay(5);                        // Broadcast to all Dynamixel IDs(0xFE is the ID for

    }
    digitalWrite(LED13, LOW);

    delay(3000);                        // Give time for Dynamixel to reset

    // Now that the Dynamixel is reset to factory setting we will program its Baudrate and ID
    Dynamixel.begin(57600, SERVO_ControlPin); // Set Arduino Serial speed to factory default speed of
    Dynamixel.setID(0xFE, SERVO_ID);          // Broadcast to all Dynamixel IDs(0xFE) and set w
    delay(10);                                // Time needed for Dynamixel to set its new ID l
    Dynamixel.setStatusPacket(SERVO_ID, READ); // Tell Dynamixel to only return status packets w
    Dynamixel.setBaudrate(SERVO_ID, SERVO_SET_Baudrate); // Set Dynamixel to new serial speed
    delay(30);                                // Time needed for Dynamixel to set its new Baudi

    Dynamixel.begin(SERVO_SET_Baudrate, SERVO_ControlPin); // We now need to set Arduino to the new Baudrate speed
    Dynamixel ledState(SERVO_ID, ON);          // Turn Dynamixel LED on
    delay(5);
    Dynamixel.setMode(SERVO_ID, SERVO_0x000, 0xFFFF); // Turn mode to SERVO, must be WHEEL if using whe
    delay(5);
    Dynamixel.setMaxTorque(SERVO_ID, 0x2FF);    // Set Dynamixel to max torque limit
}

// Flash Dynamixel LED and move Dynamixel to check that all settings have been written
void loop(){
    digitalWrite(LED13, HIGH);             // Turn Arduino onboard LED on
    Dynamixel ledState(SERVO_ID, ON);      // Turn Dynamixel LED on
    delayMicroseconds(1);

    // Dynamixel.wheel(SERVO_ID, LEFT, 0x3FF); // Command for wheel mode, Move left at max speed
    Dynamixel.servo(SERVO_ID, 0x001, 0x100); // Command for servo mode, Move servo to angle 1(0.088 degree) at speed
    delay(4000);

    digitalWrite(LED13, LOW);              // Turn Arduino onboard LED off
    Dynamixel ledState(SERVO_ID, OFF);      // Turn Dynamixel LED off
    delayMicroseconds(1);

    // Dynamixel.wheel(SERVO_ID, RIGHT, 0x3FF); // Command for wheel mode, Move right at max speed
    Dynamixel.servo(SERVO_ID, 0xFFFF, 0x3FF); // Command for servo mode, Move servo to max angle at max speed (angle
    delay(4000);

}

```

- **Task 4 :**

Once the code has been programed to the Ardunio disconnect the USB cable and connect the 12 volt power supply.

- **Task 5 :**

Press the reset button on the Ardunio

- **Task 6 :**

Wait about 1 minute for the program to run on the Ardunio

- **Task 7 :**

If every thing was done correctly the MX-28 servo should start to move, at the same time the LED on the servo and Ardiuno pin 13 will flash

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